APPENDIX A: LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

Abbreviation	Description
AASHTO	American Association Of State Highway And Transportation Officials
ABC	Accelerated Bridge Construction
FFT	Fast Fourier Transform
FEA	Finite Element Analysis
FEM	Finite Element Modeling
FHWA	Federal Highway Administration
PCI	Precast/Prestressed Concrete Institute
SHM	Structural Health Monitoring
VWSG	Vibrating Wire Strain Gages

APPENDIX B: FE MODEL CALIBRATION WITH LOAD TEST DATA

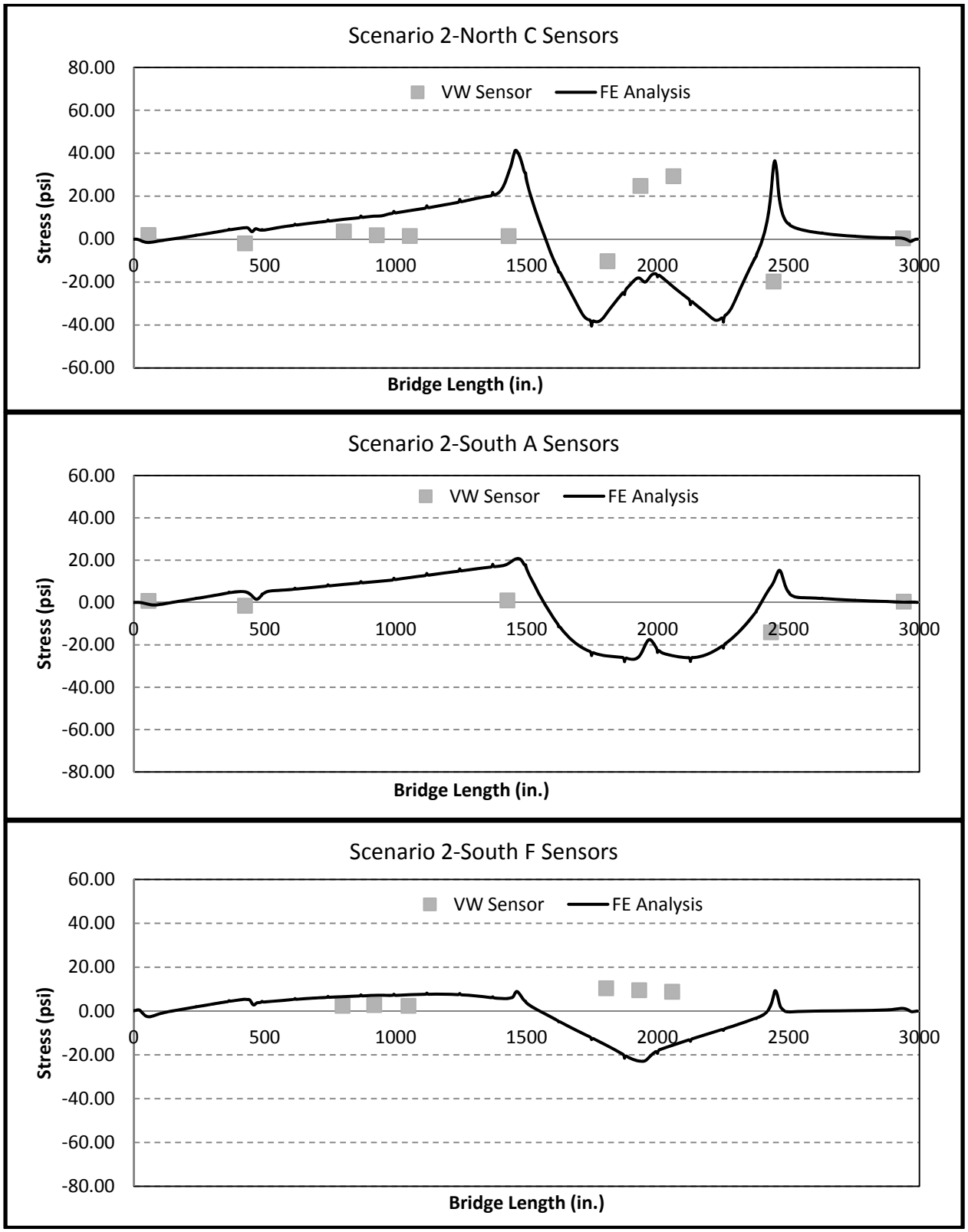


Figure B-1. Comparison of load test data and FE analysis results – Scenario 2

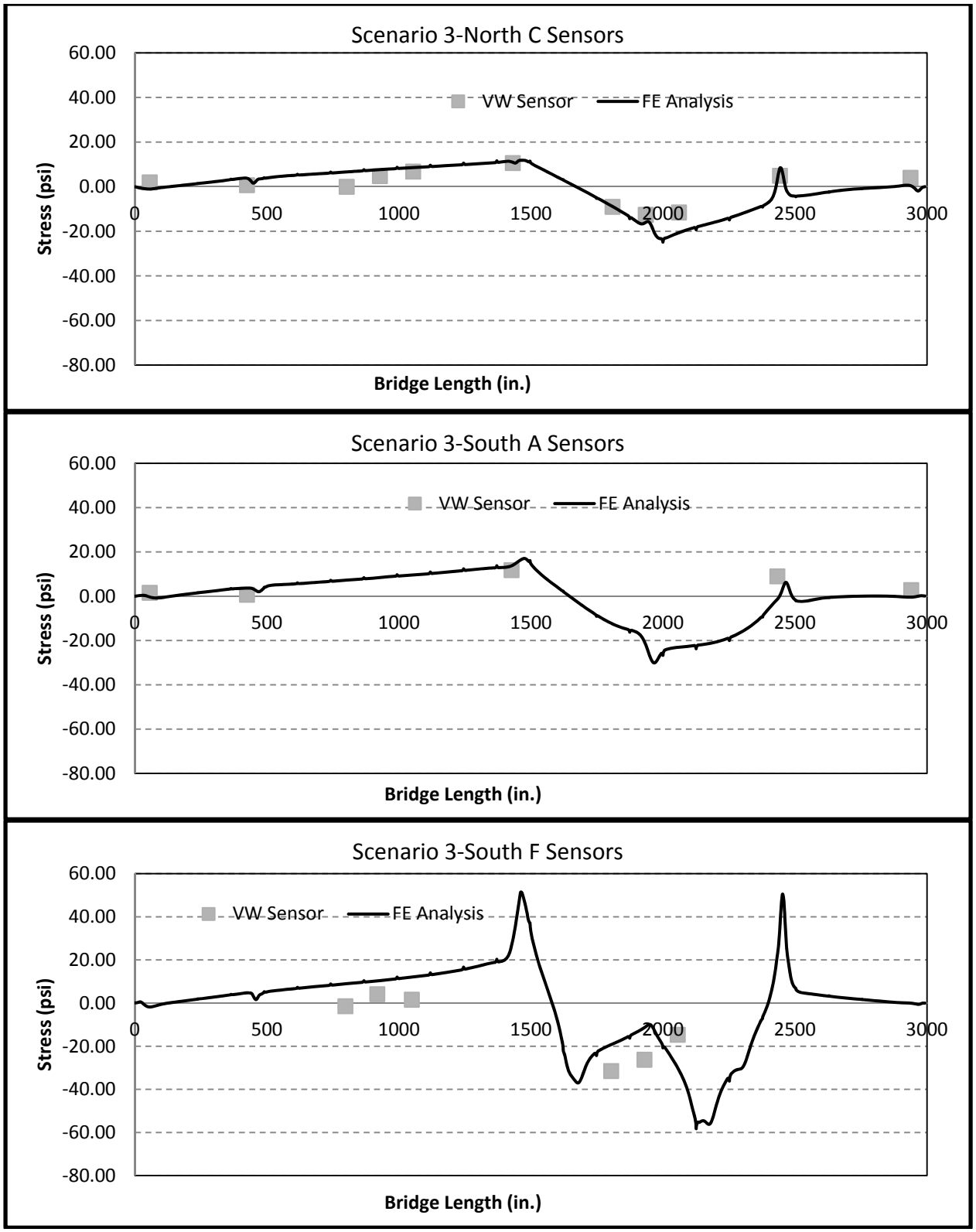


Figure B-2. Comparison of load test data and FE analysis results – Scenario 3

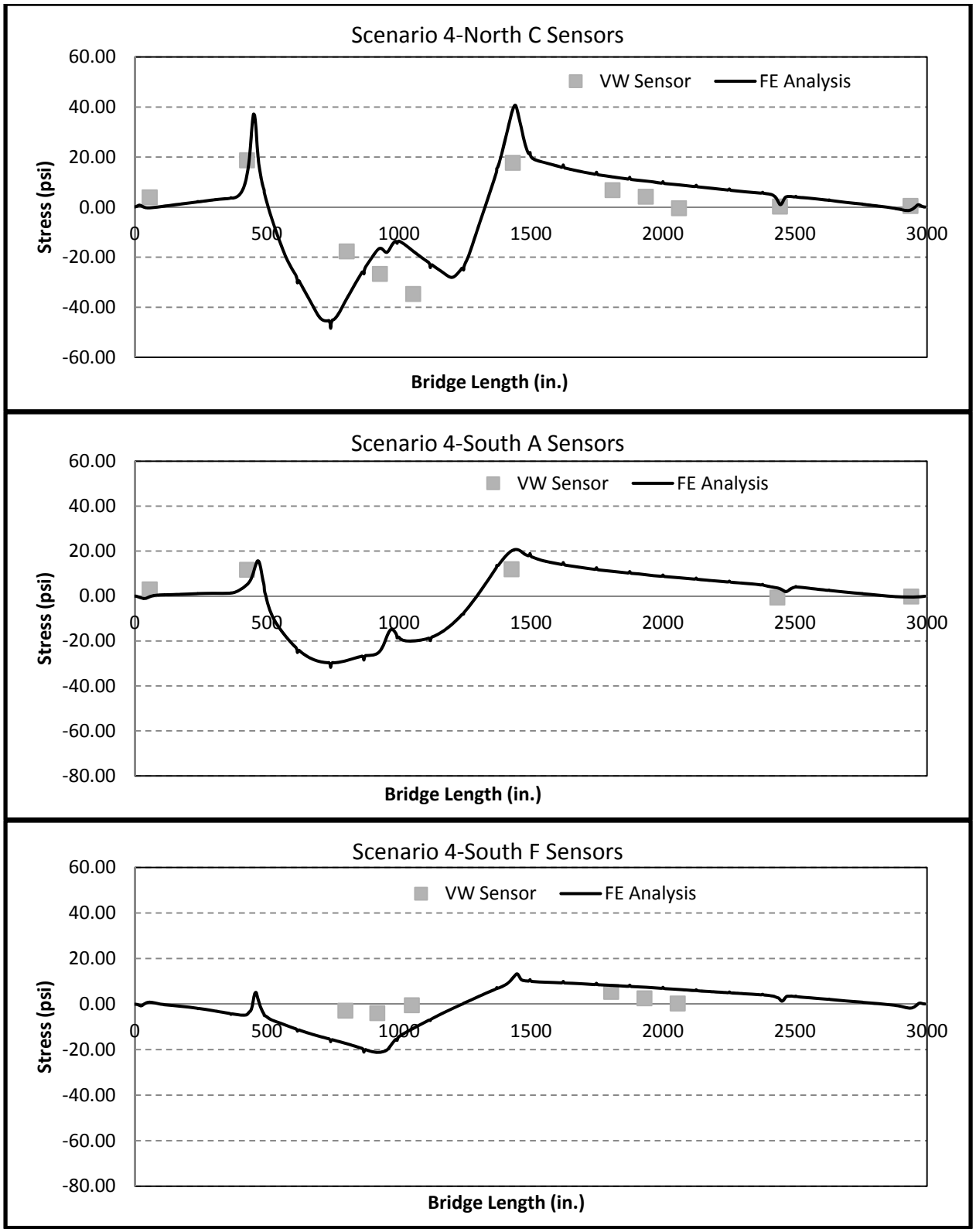


Figure B-3. Comparison of load test data and FE analysis results – Scenario 4

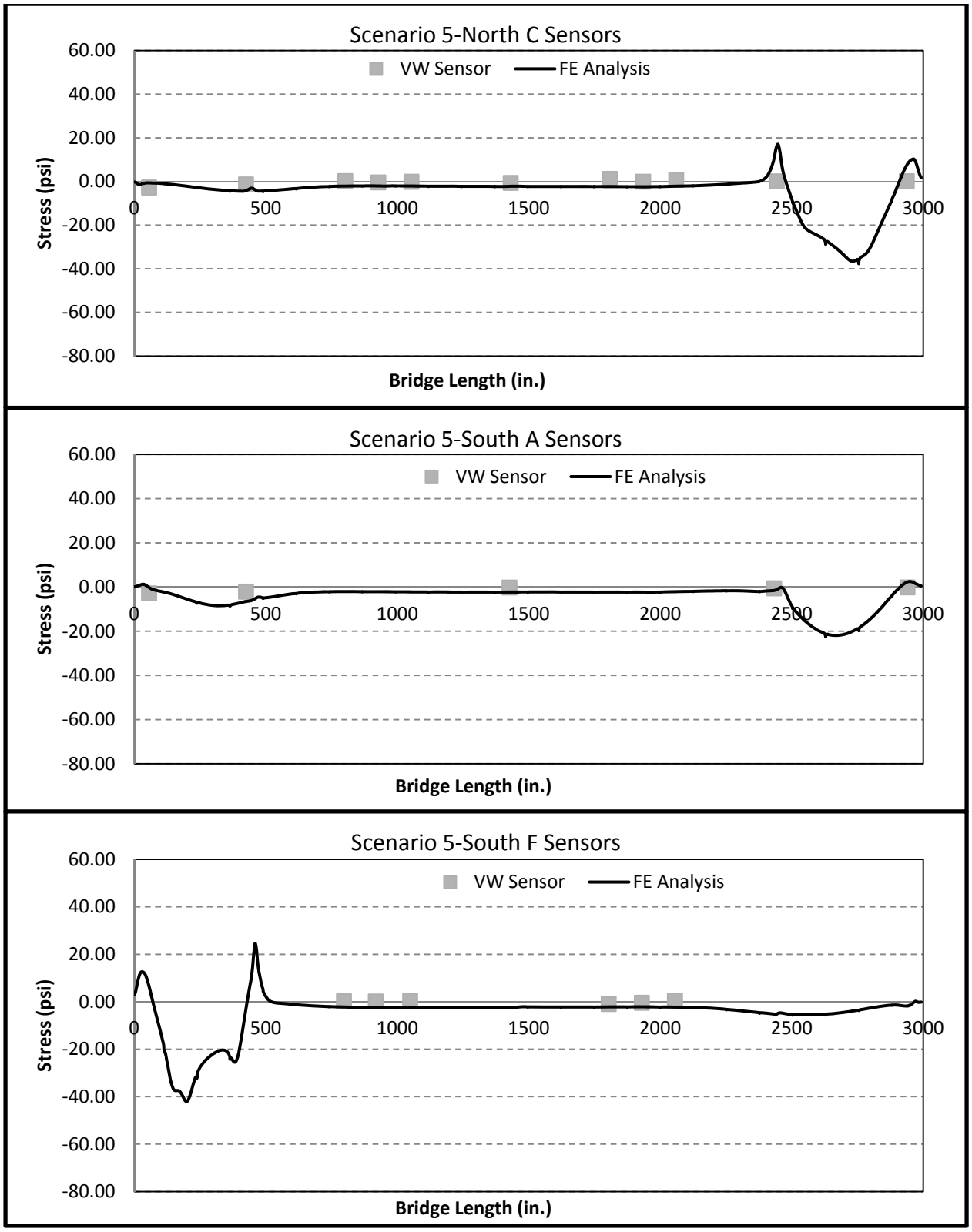


Figure B-4. Comparison of load test data and FE analysis results – Scenario 5

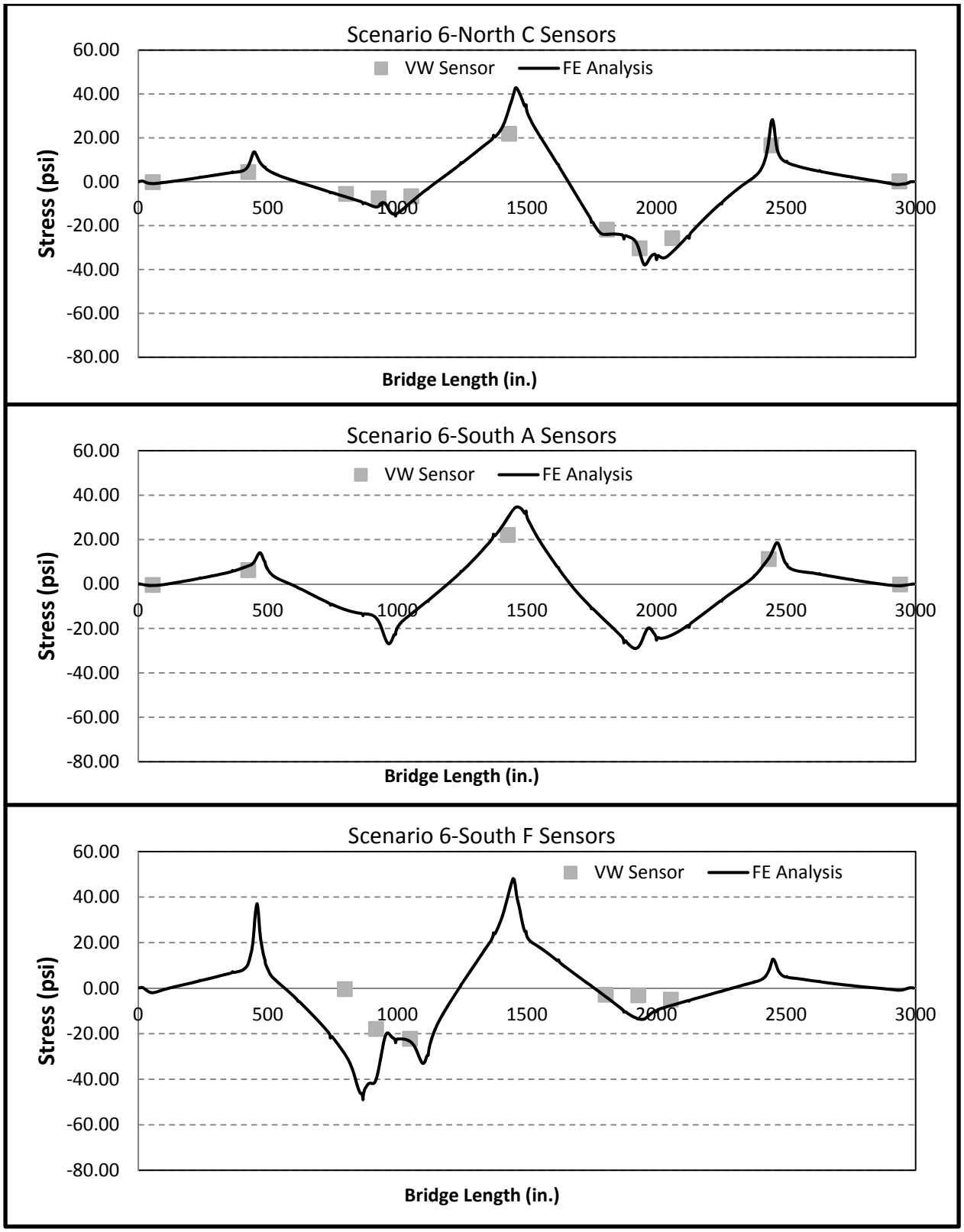


Figure B-5. Comparison of load test data and FE analysis results – Scenario 6

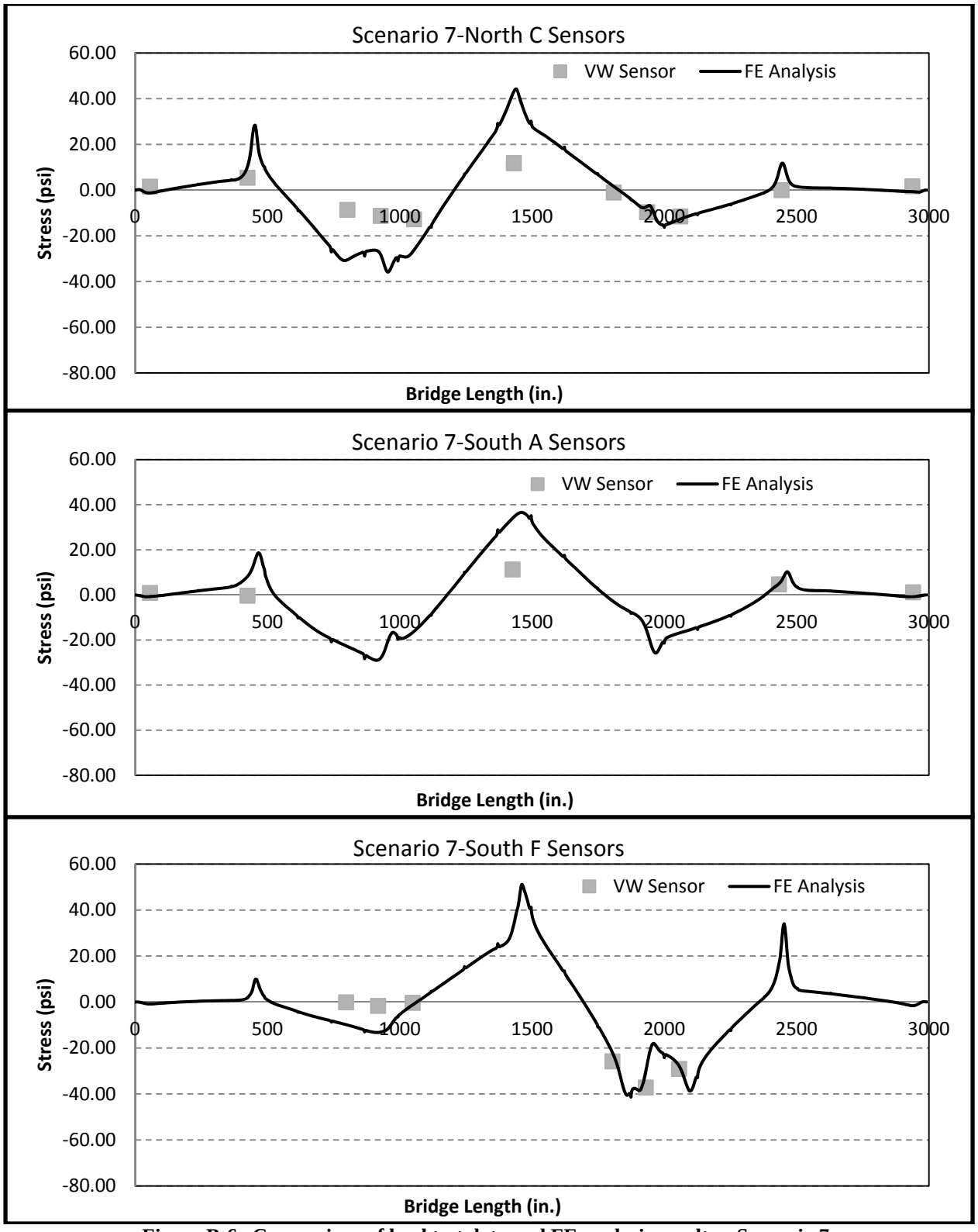


Figure B-6. Comparison of load test data and FE analysis results – Scenario 7

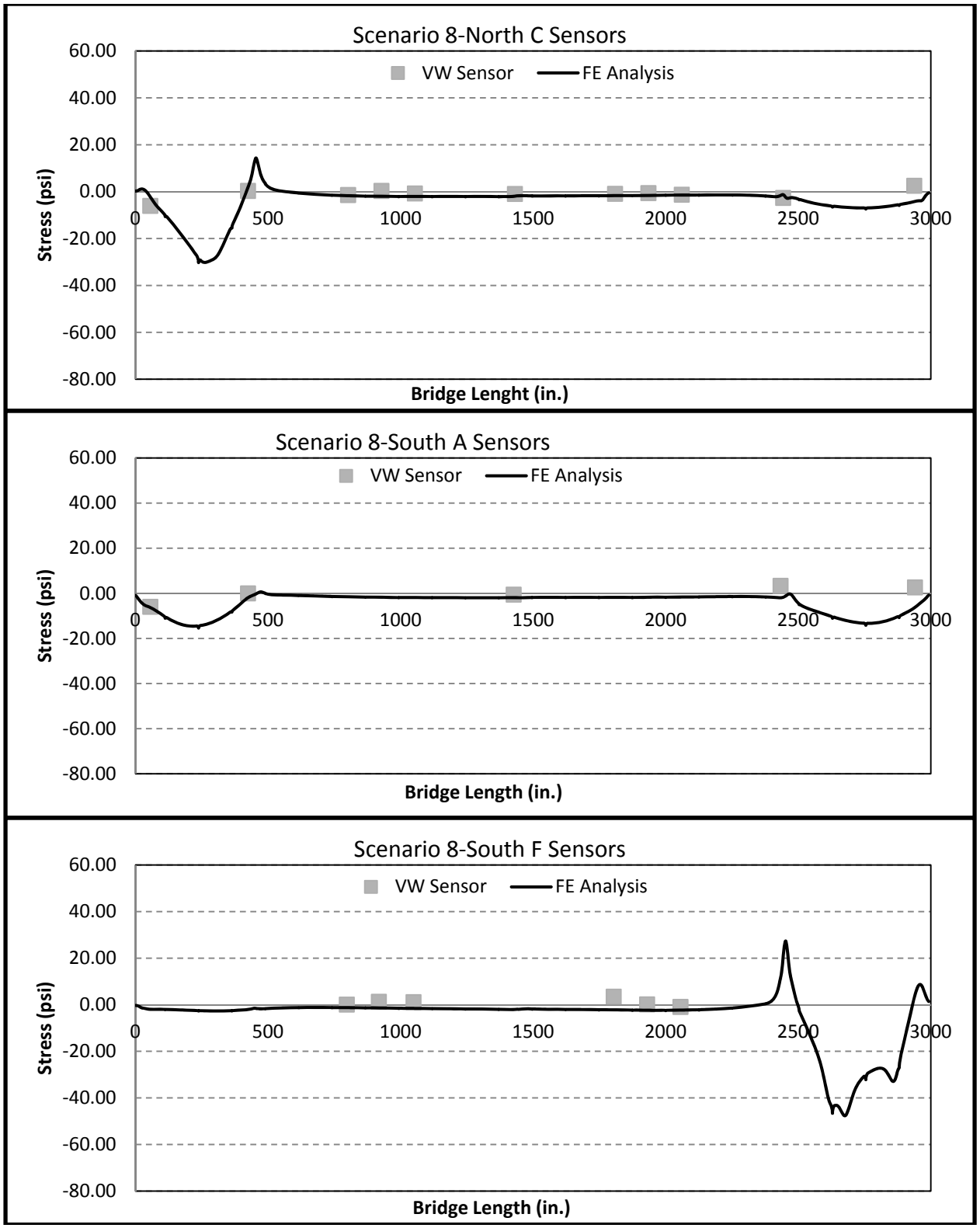


Figure B-7. Comparison of load test data and FE analysis results – Scenario 8

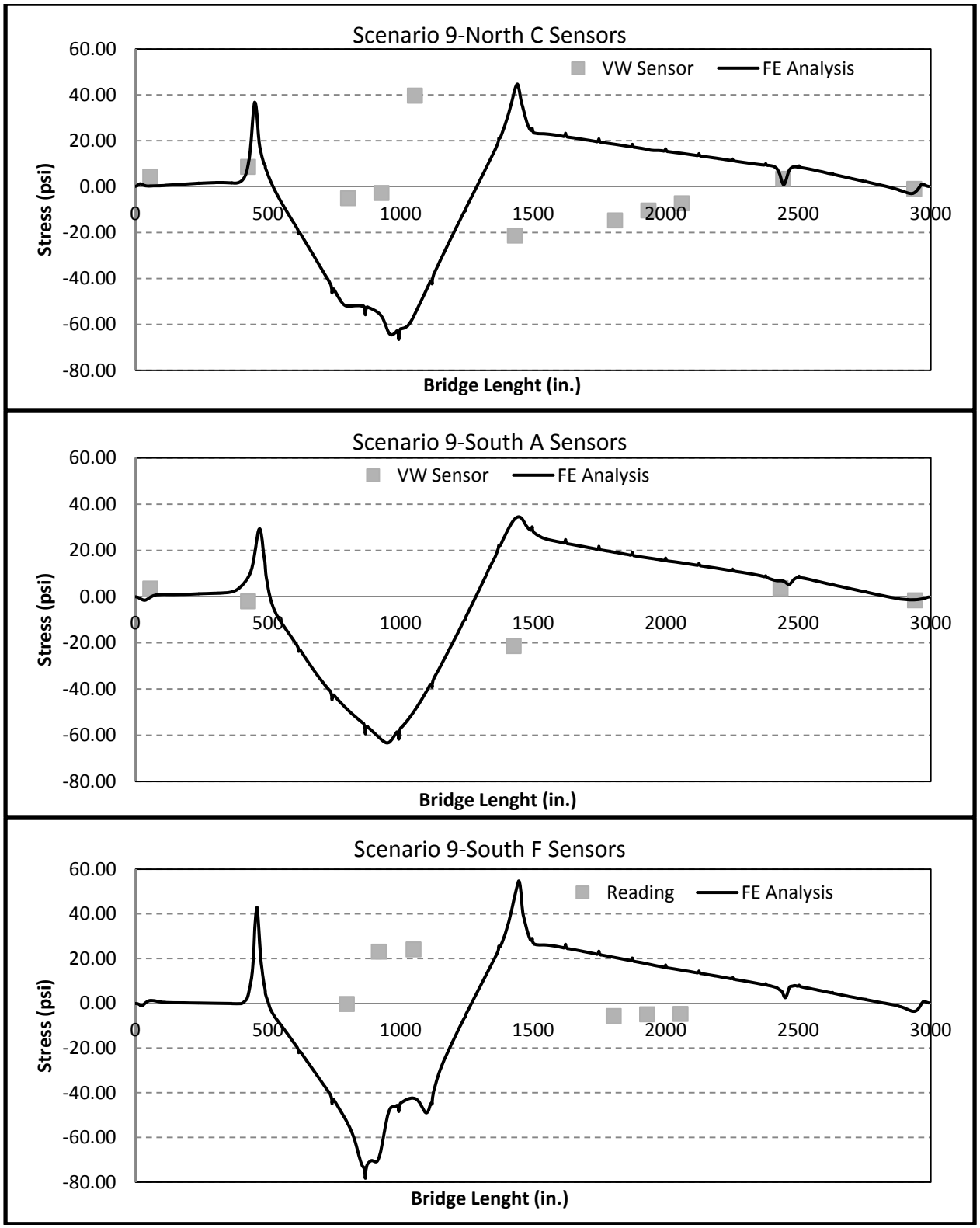


Figure B-8. Comparison of load test data and FE analysis results – Scenario 9

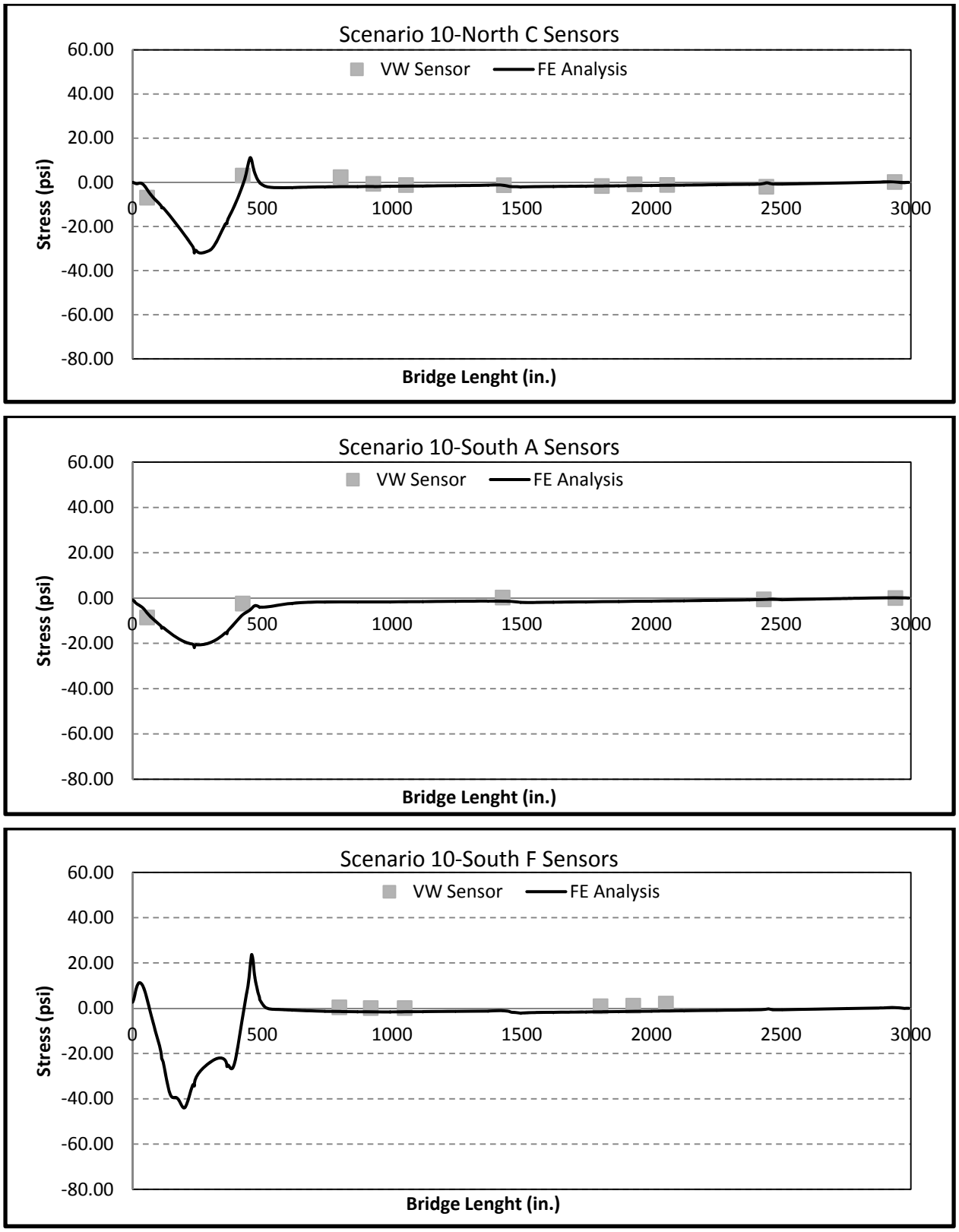


Figure B-9. Comparison of load test data and FE analysis results – Scenario 10

APPENDIX C: THREE-YEAR STRESS ENVELOPES

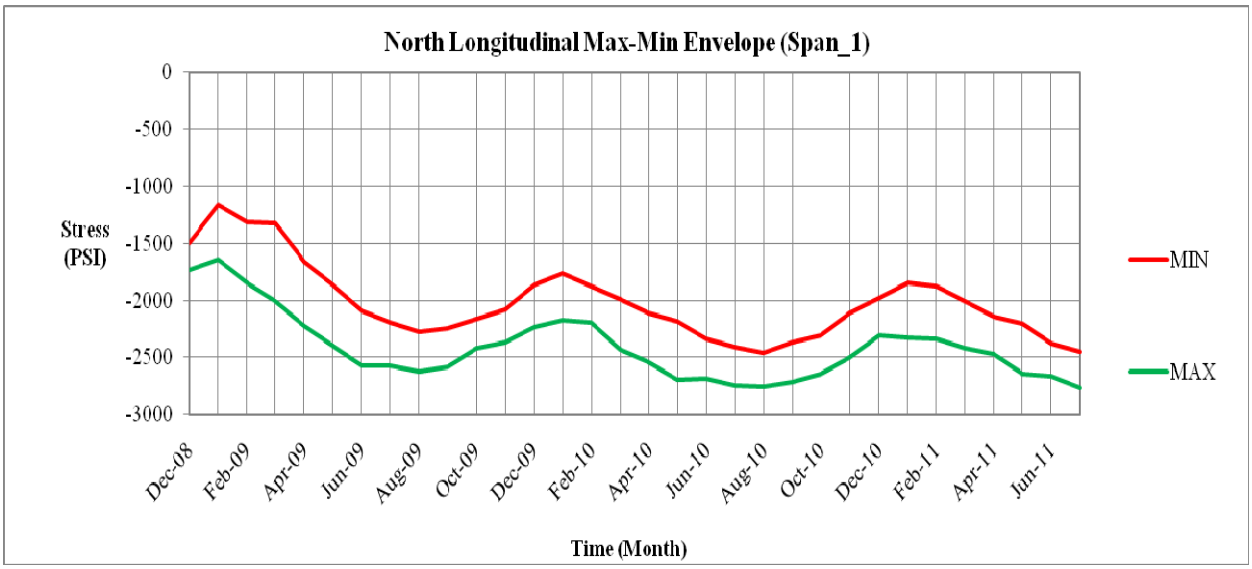


Figure C-1. Three-year envelope for north span 1 in the longitudinal direction

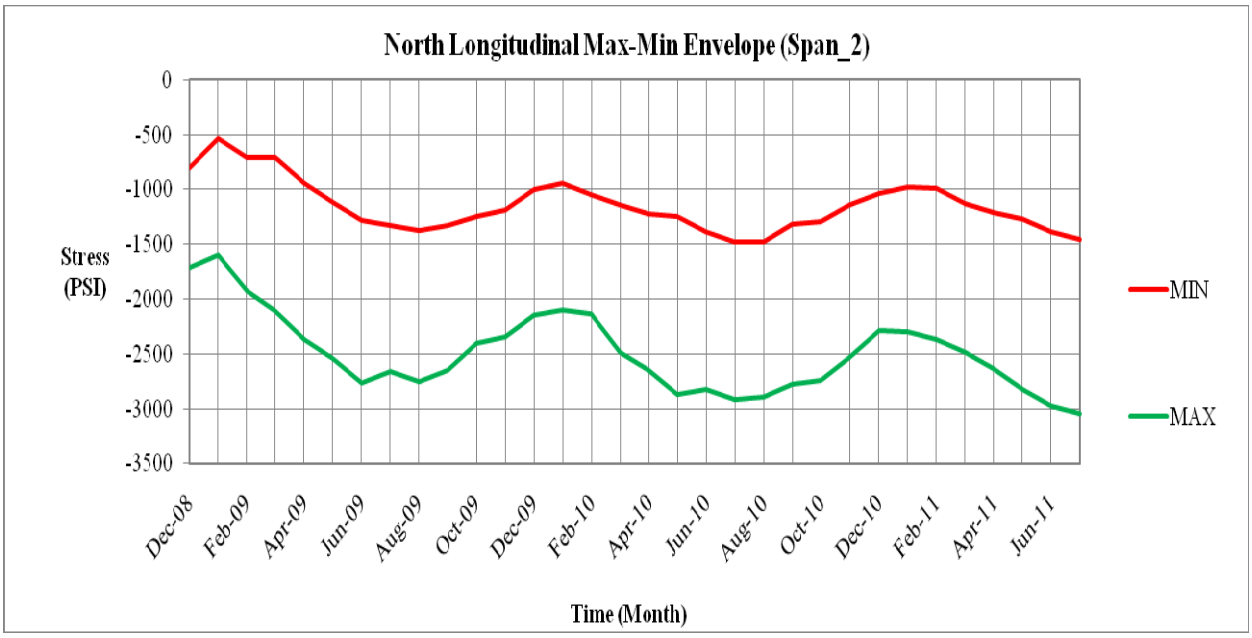


Figure C-2. Three-year envelope for north span 2 in the longitudinal direction

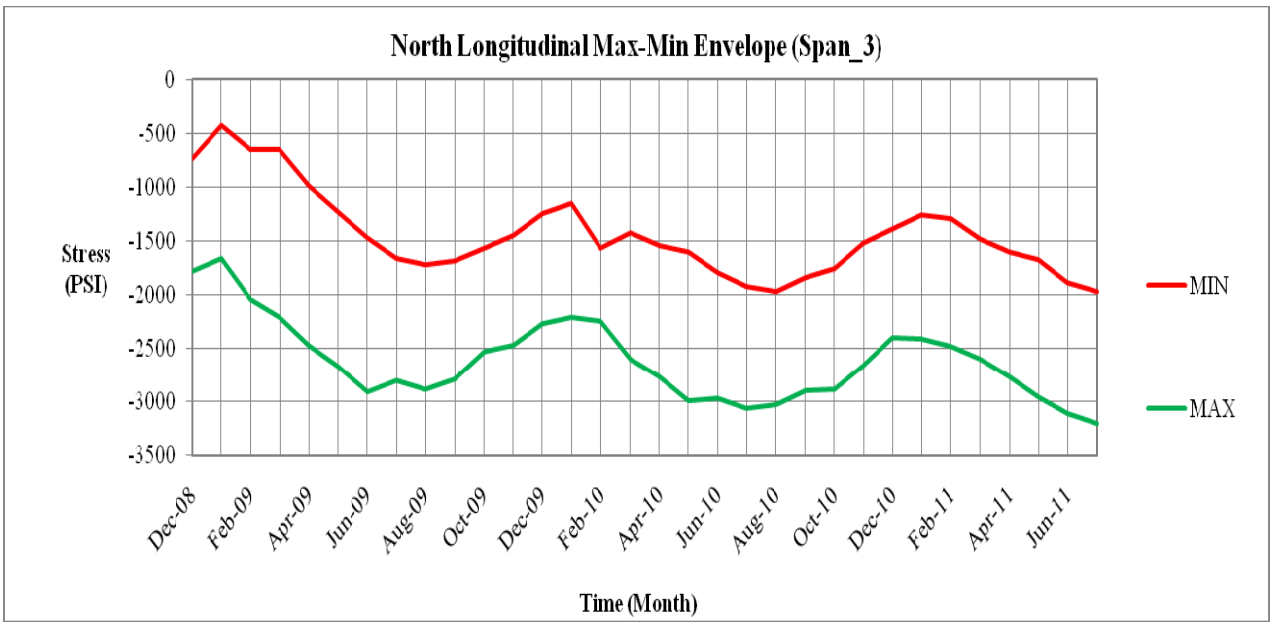


Figure C-3. Three-year envelope for north span 3 in the longitudinal direction

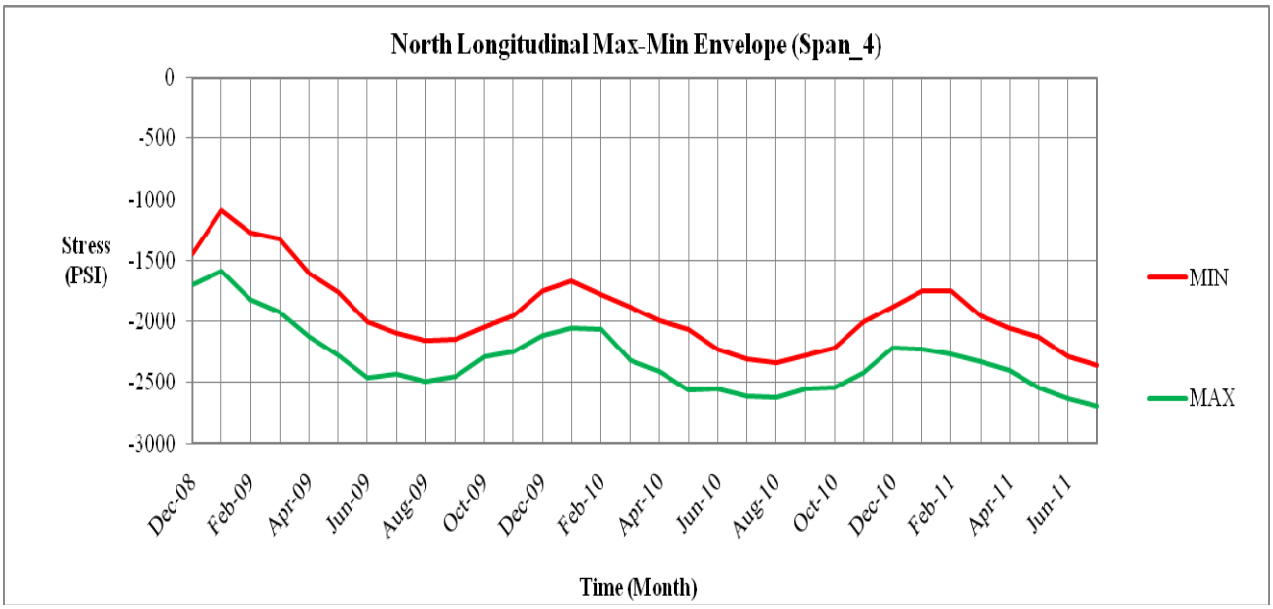


Figure C-4. Three-year envelope for north span 4 in the longitudinal direction

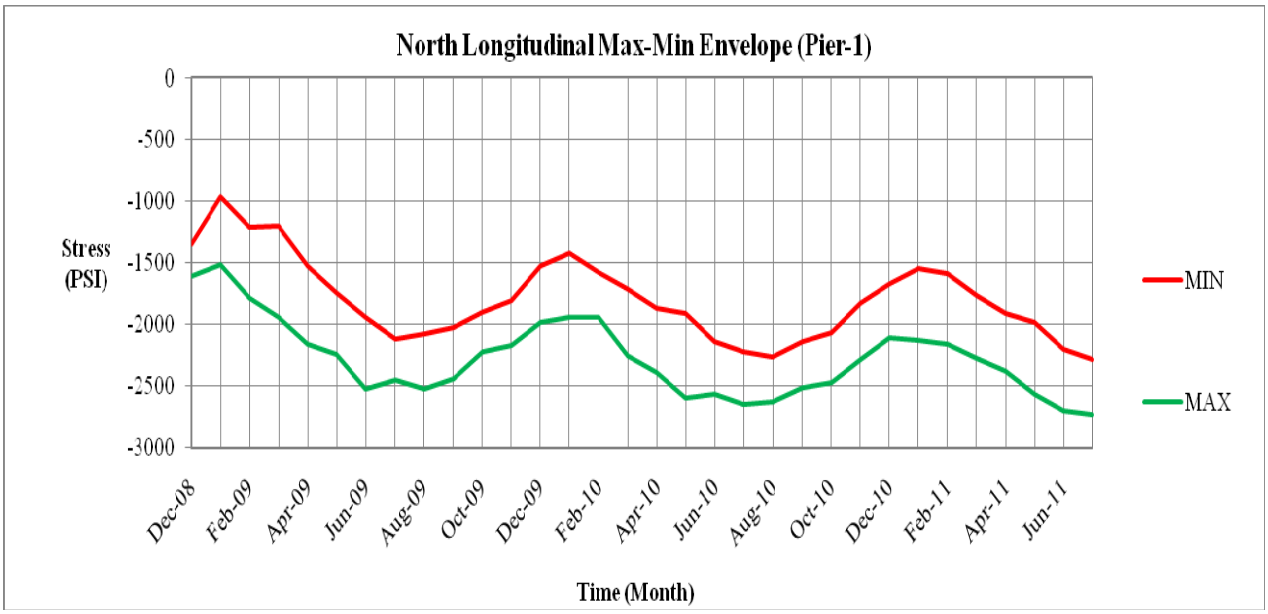


Figure C-5. Three-year envelope for north pier 1 in the longitudinal direction

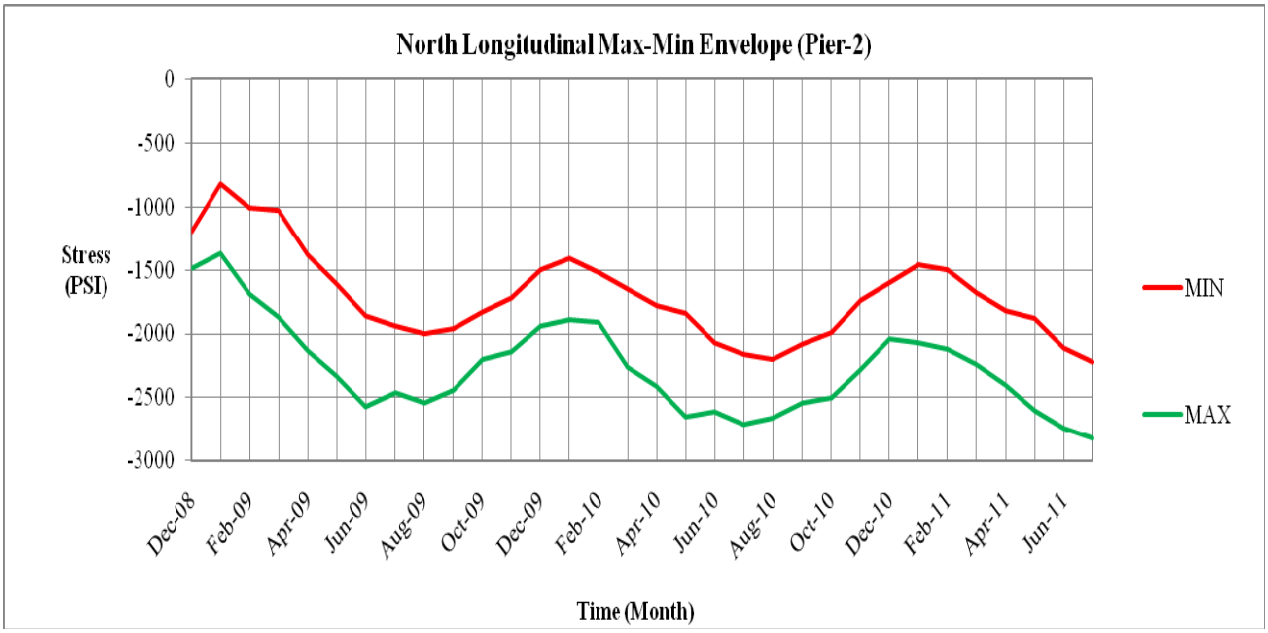


Figure C-6. Three-year envelope for north pier 2 in the longitudinal direction

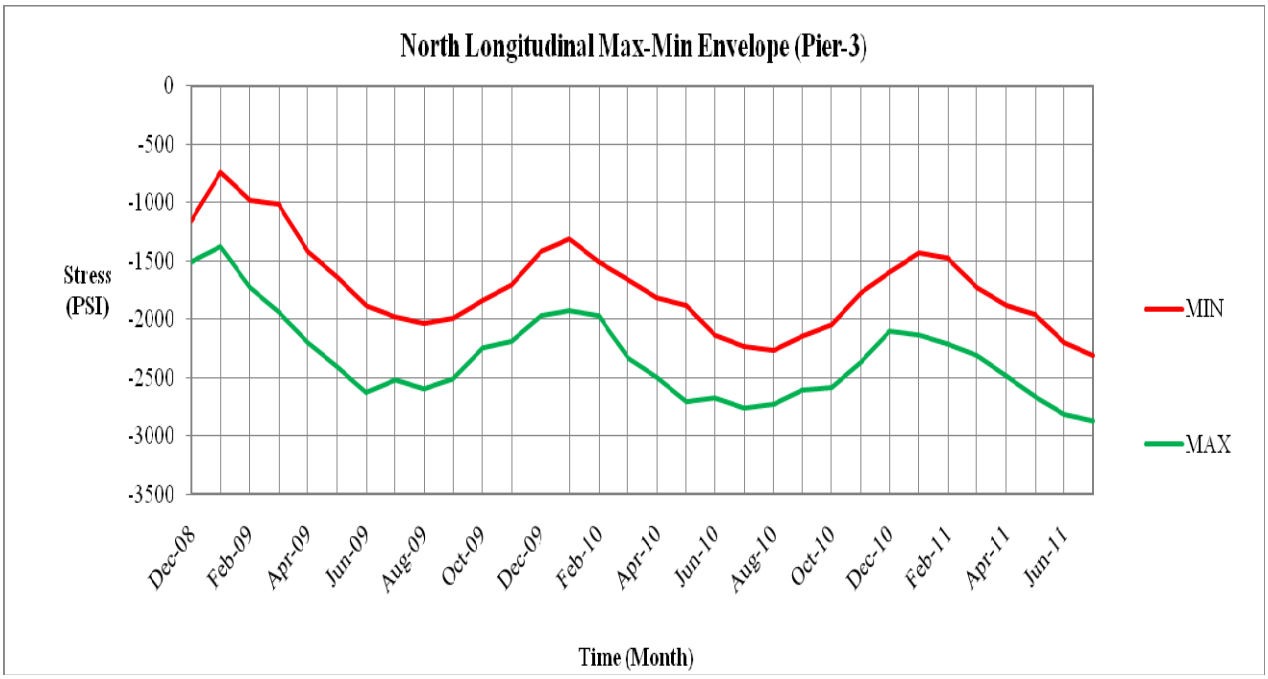


Figure C-7. Three-year envelope for north pier 3 in the longitudinal direction

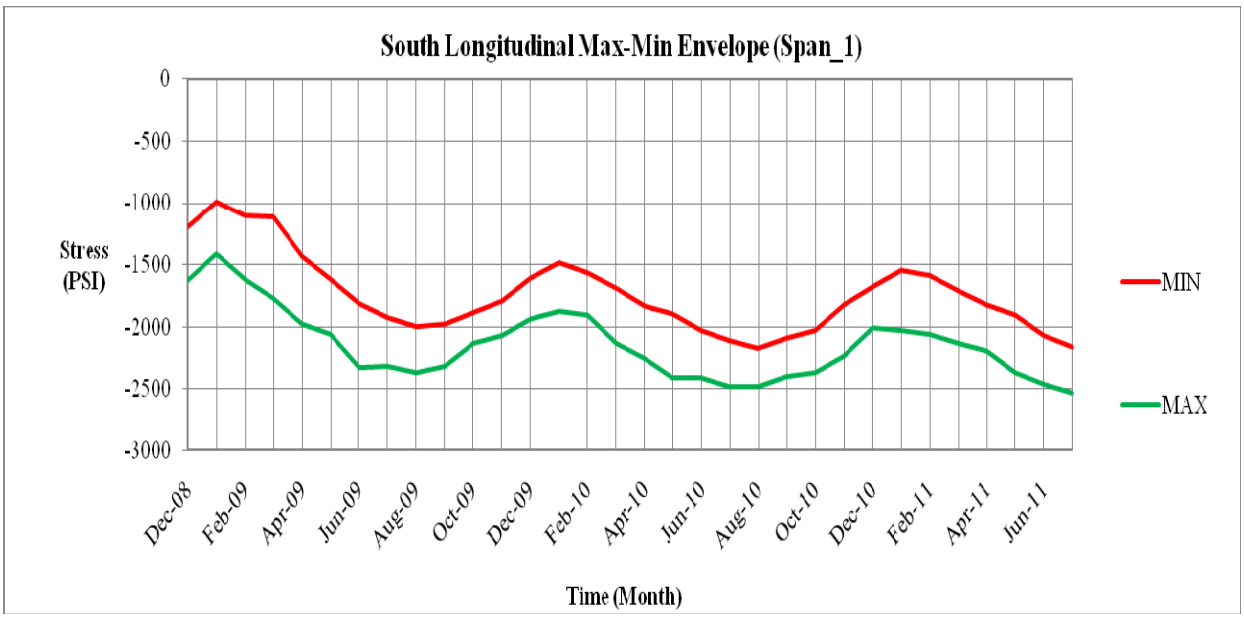


Figure C-8. Three-year envelope for south span 1 in the longitudinal direction

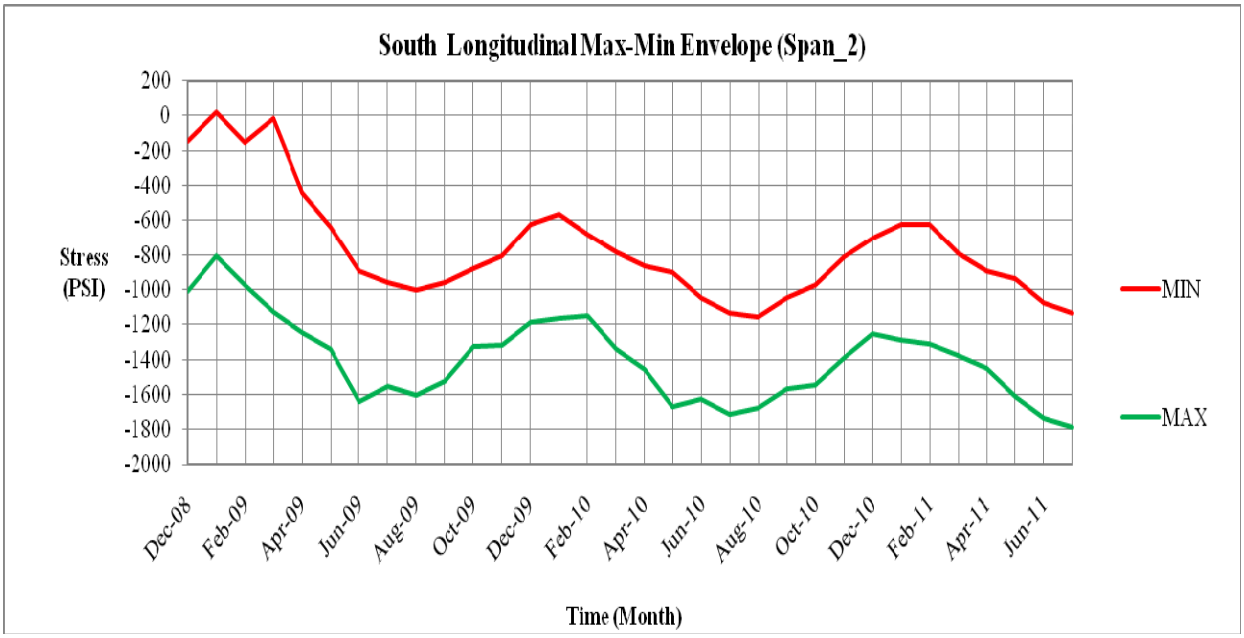


Figure C-9. Three-year envelope for south span 2 in the longitudinal direction

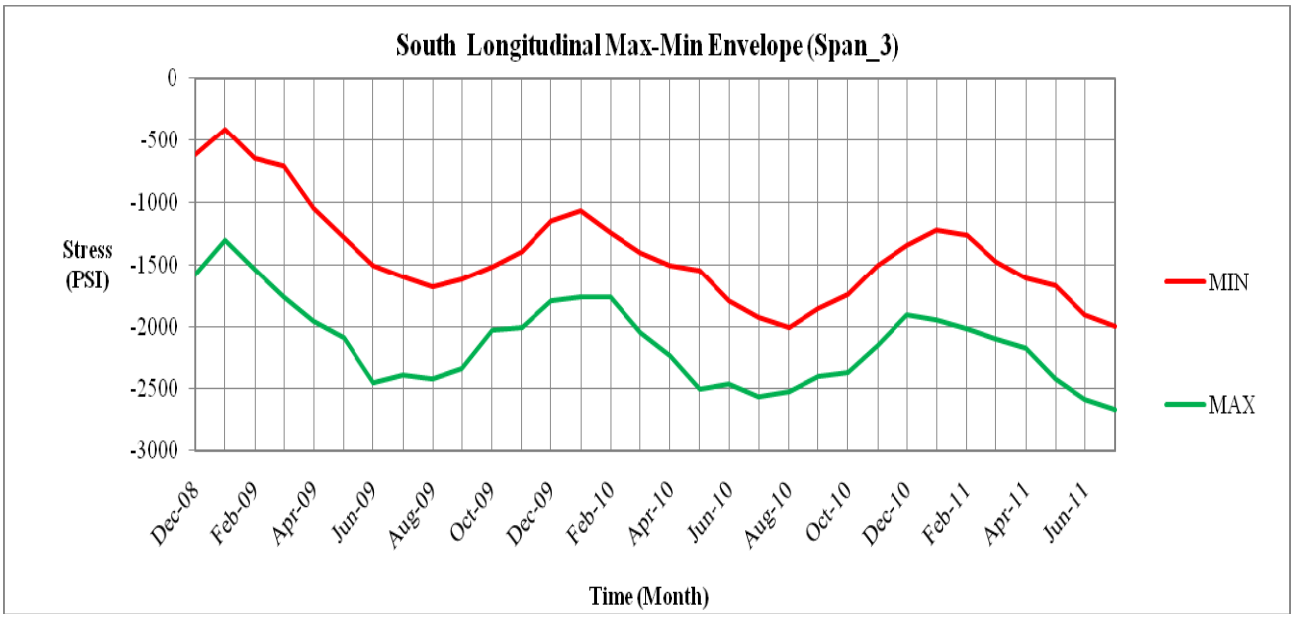


Figure C-10. Three-year envelope for south span 3 in the longitudinal direction

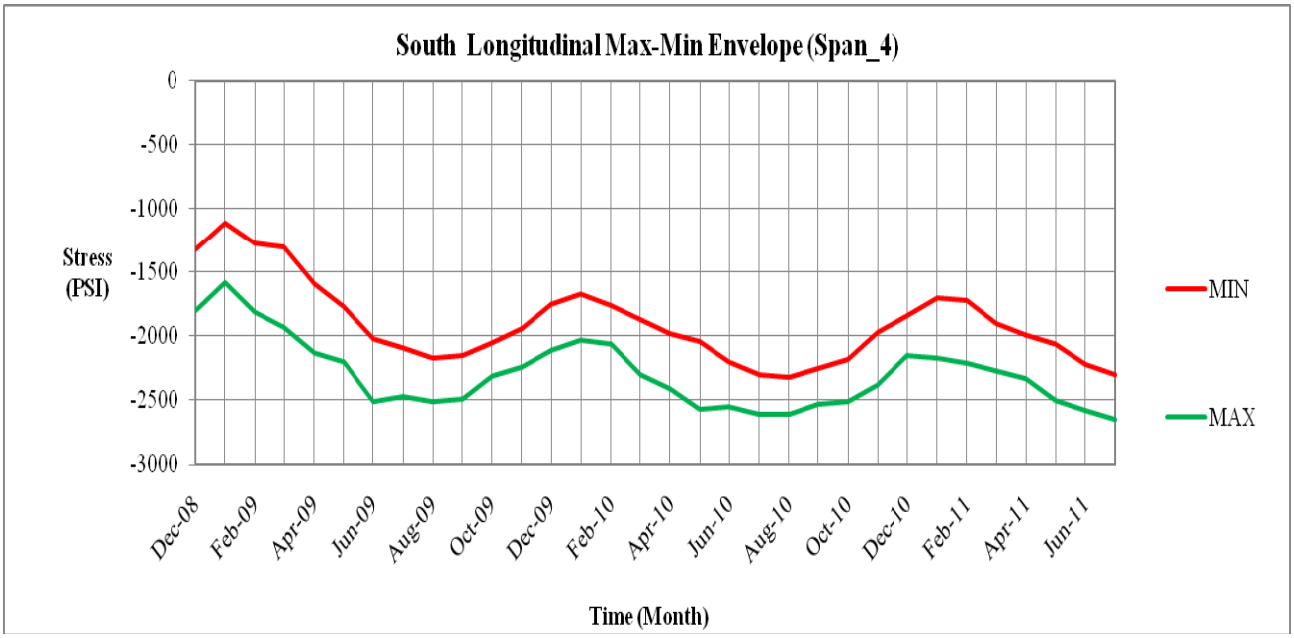


Figure C-11. Three-year envelope for south span 4 in the longitudinal direction

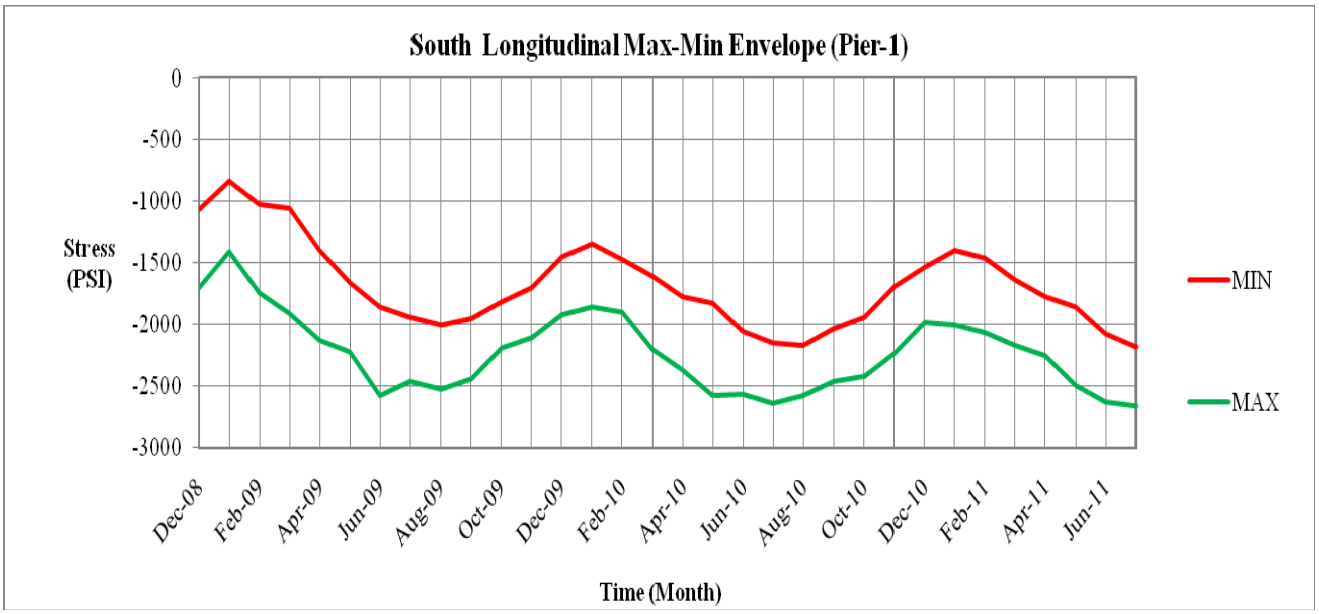


Figure C-12. Three-year envelope for pier 1 in the longitudinal direction

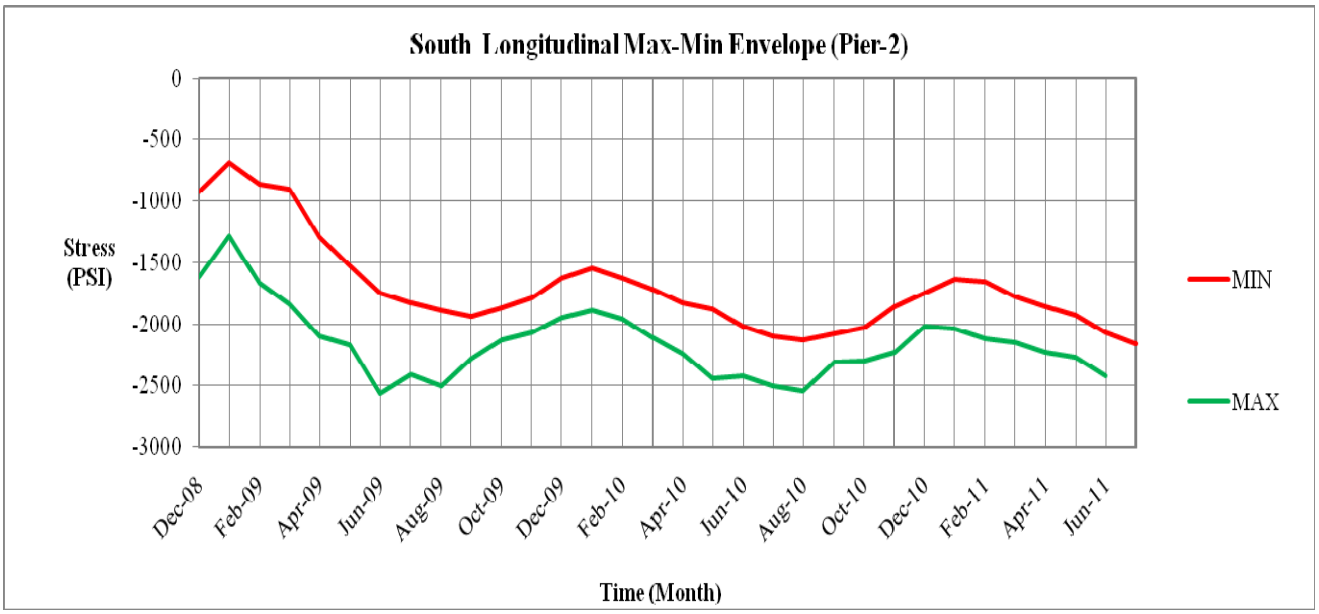


Figure C-13. Three-year envelope for pier 2 in the longitudinal direction

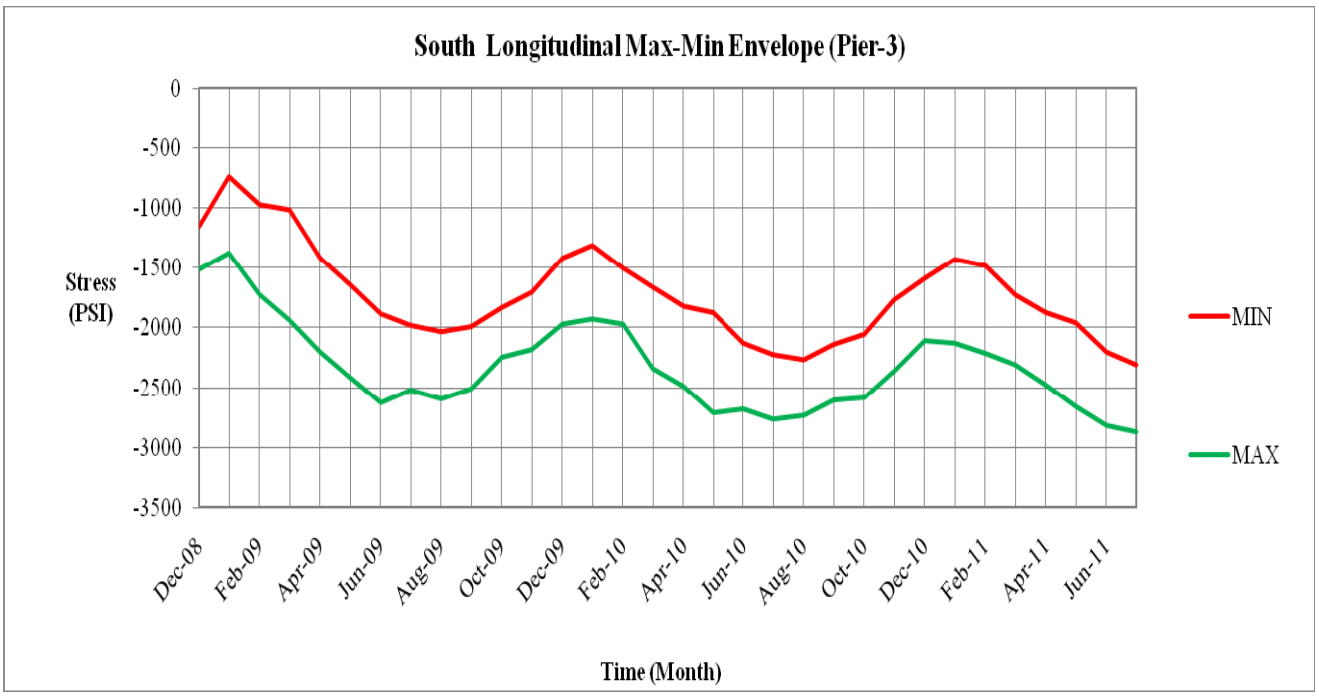


Figure C-14. Three-year envelope for pier 3 in the longitudinal direction

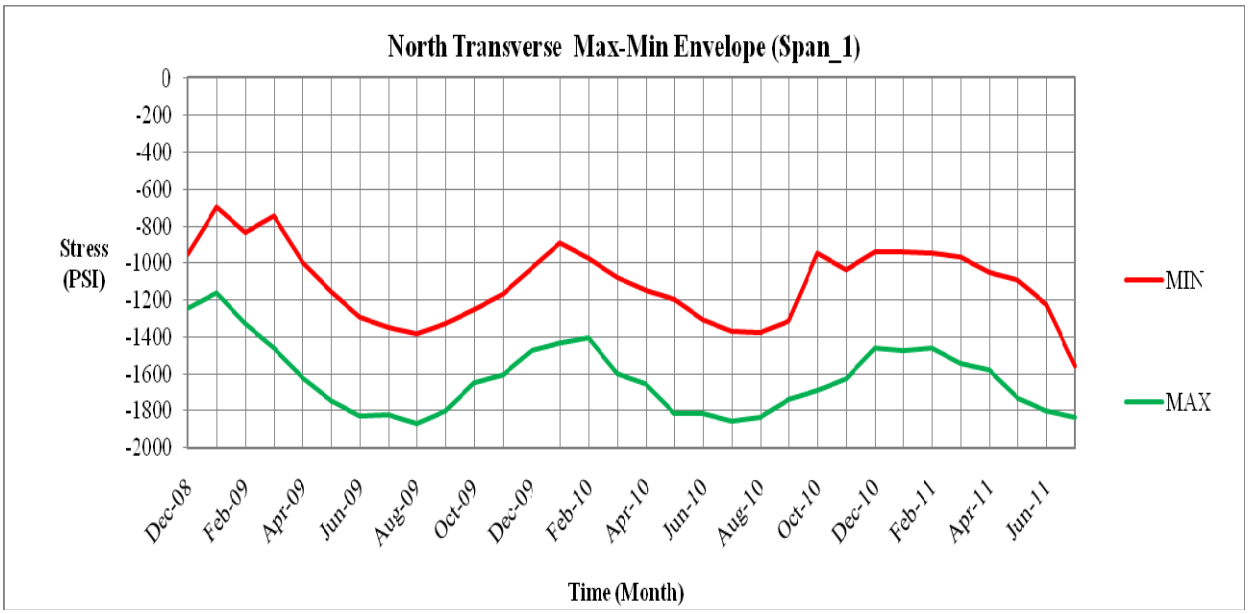


Figure C-15. Three-year envelope for north span 1 in the transverse direction

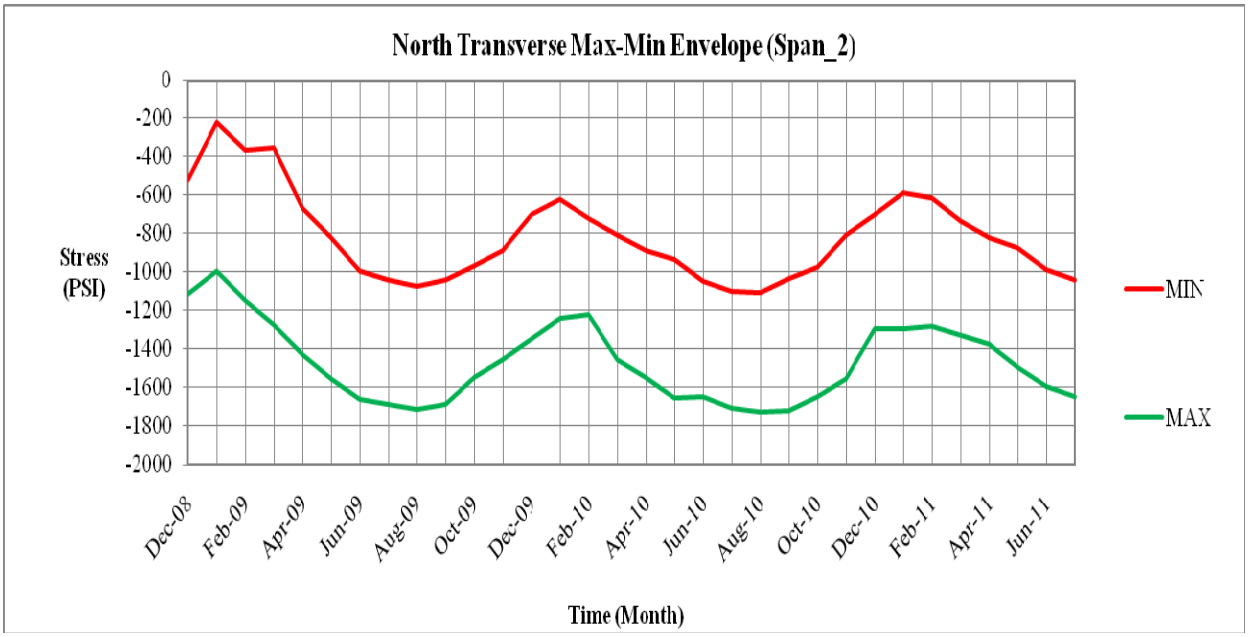


Figure C-16. Three-year envelope for north span 2 in the transverse direction

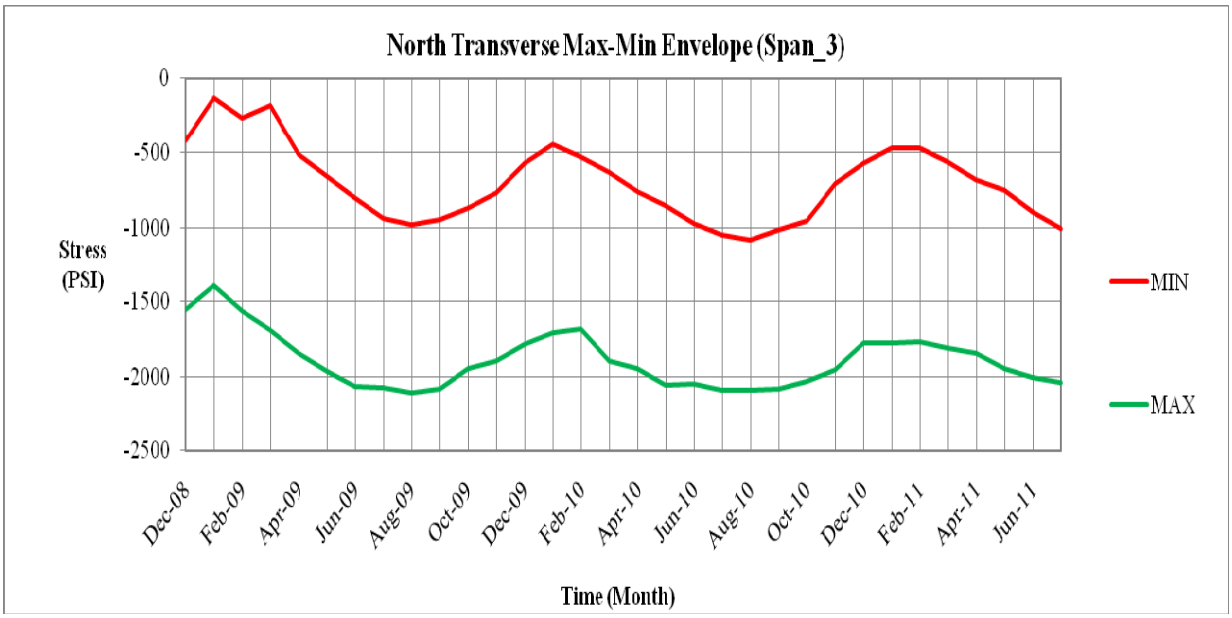


Figure C-17. Three-year envelope for north span 3 in the transverse direction

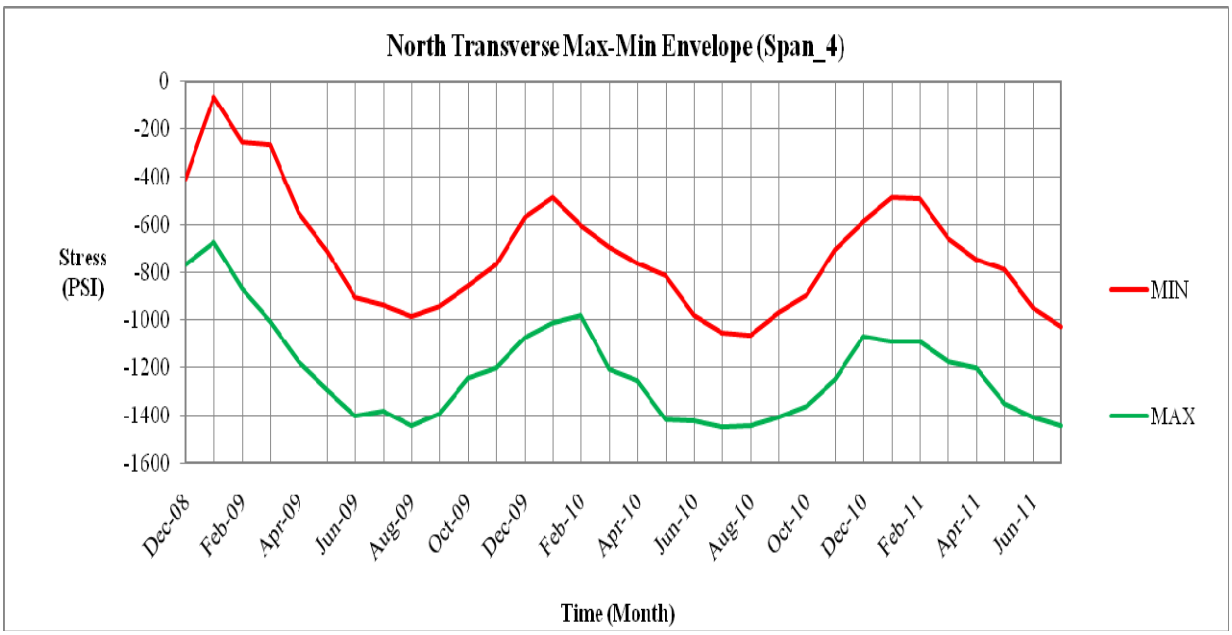


Figure C-18. Three-year envelope for north span 4 in the transverse direction

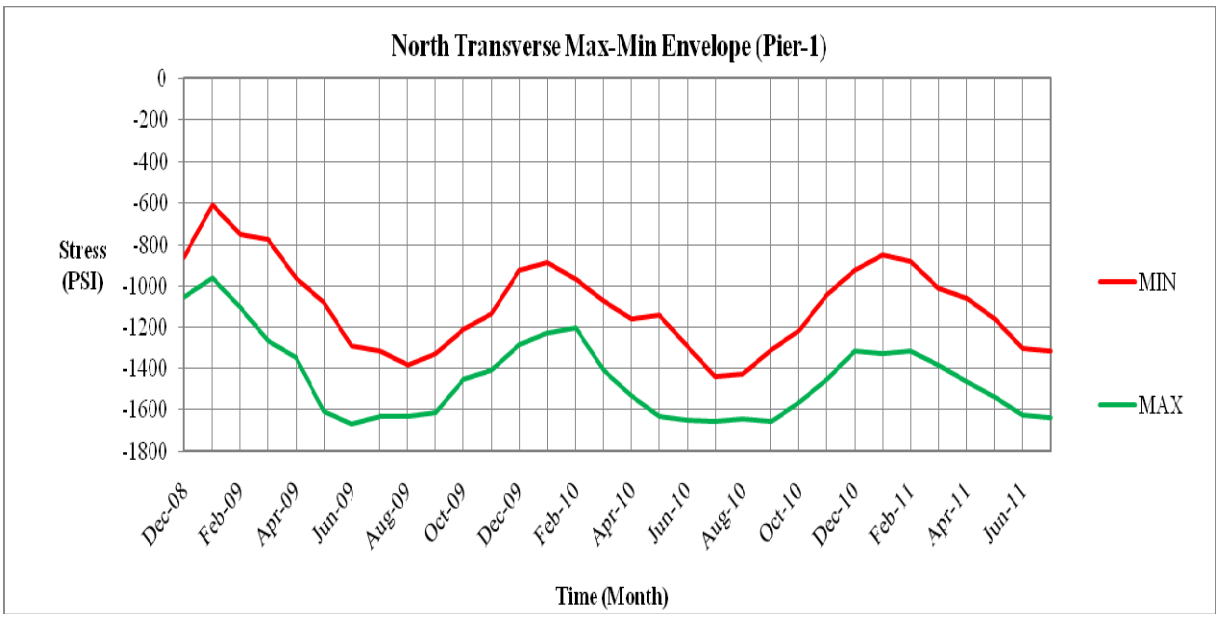


Figure C-19. Three-year envelope for north pier 1 in the transverse direction

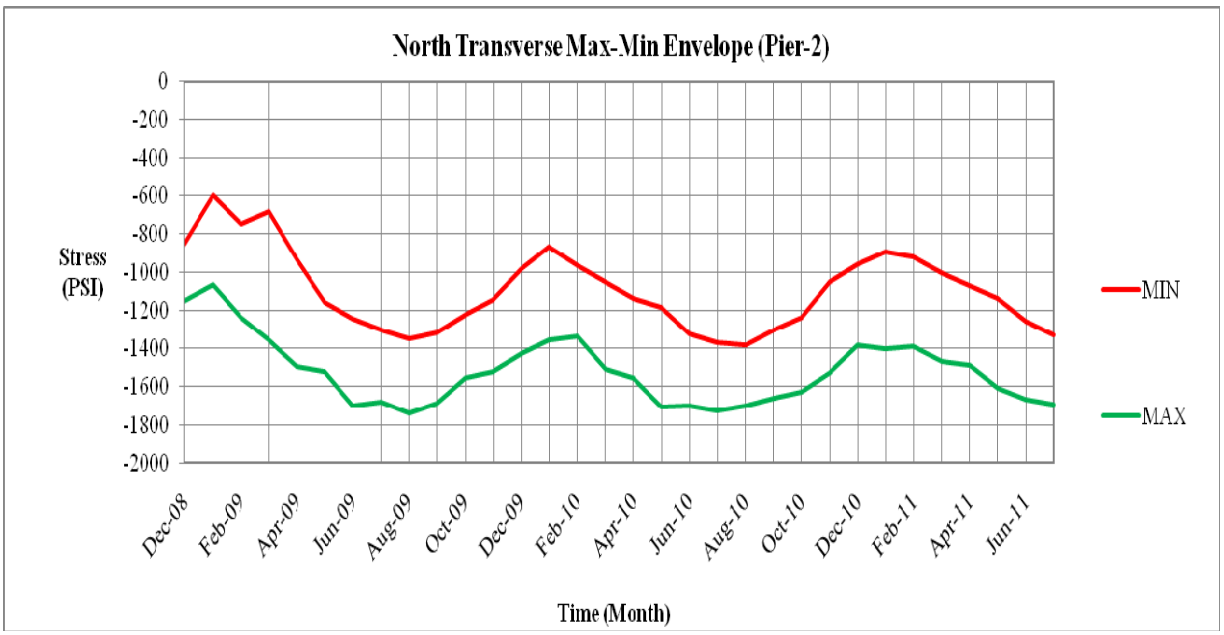


Figure C-20. Three-year envelope for north pier 2 in the transverse direction

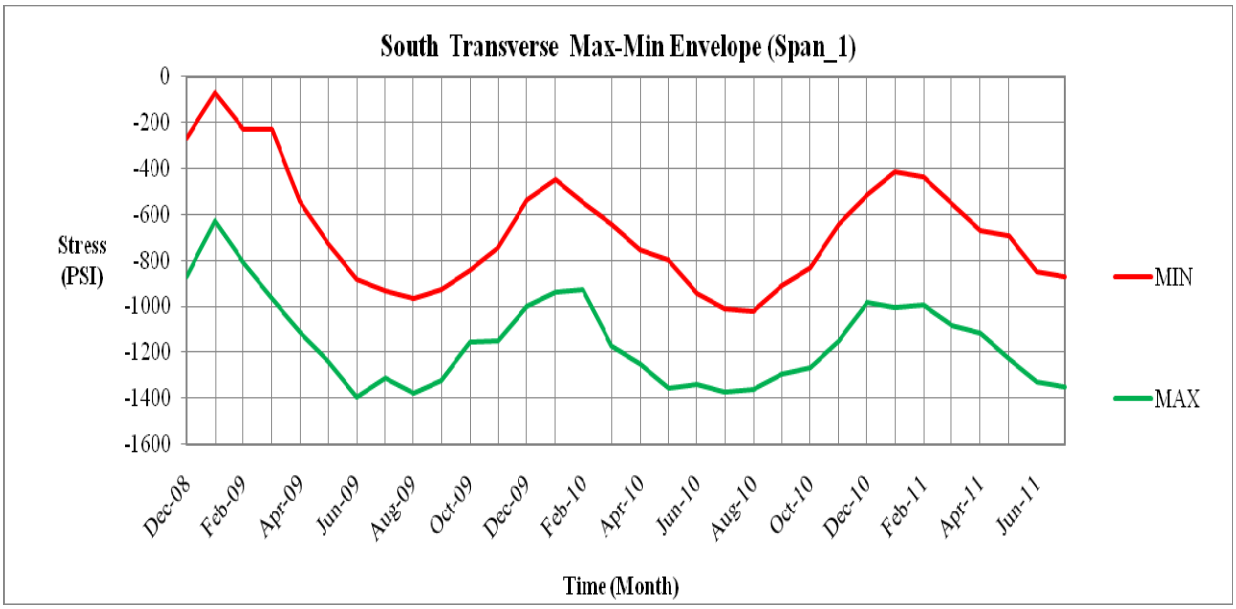


Figure C-21. Three-year envelope for south span 1 in the transverse direction

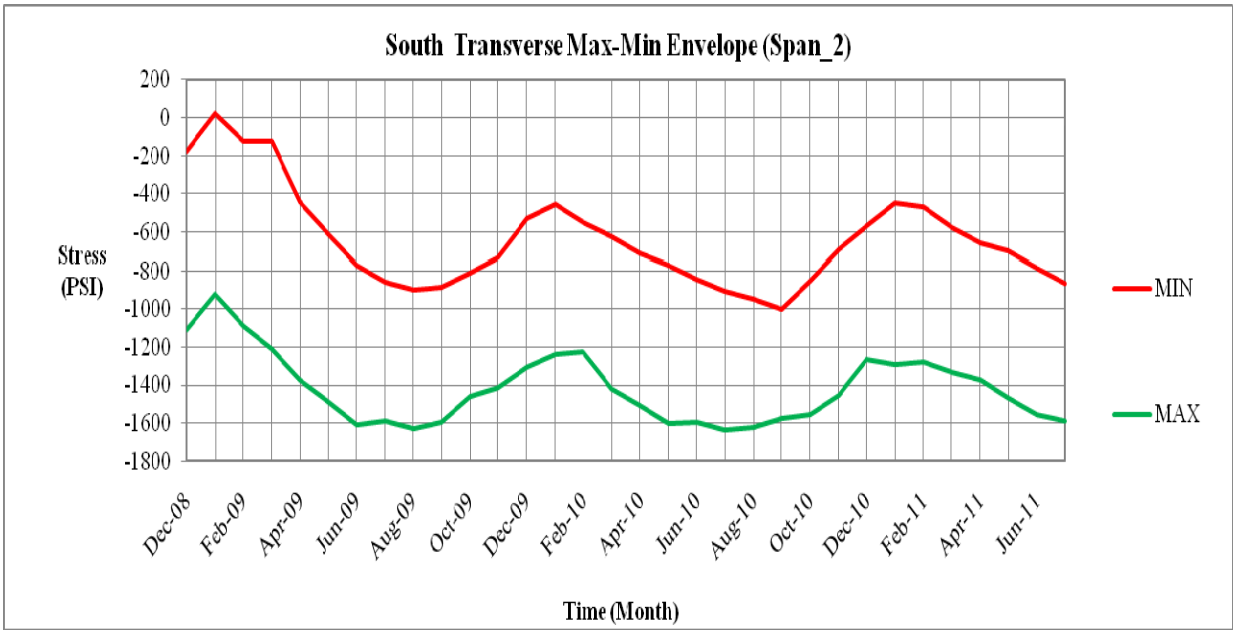


Figure C-22. Three-year envelope for south span 2 in the transverse direction

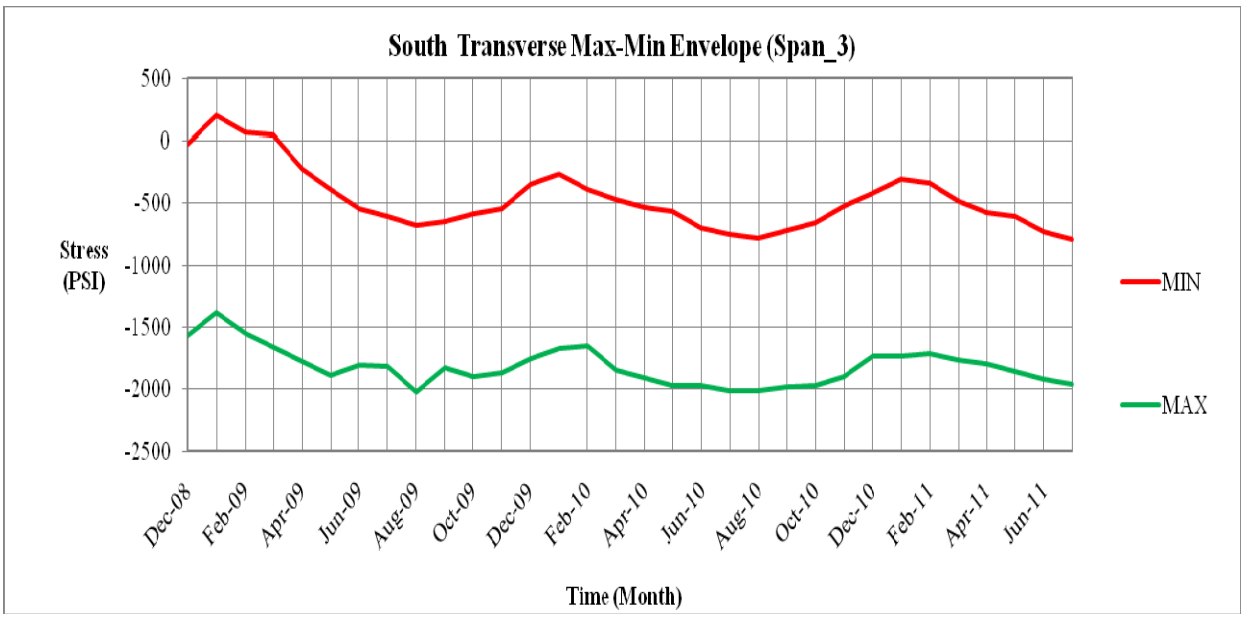


Figure C-23. Three-year envelope for south span 3 in the transverse direction

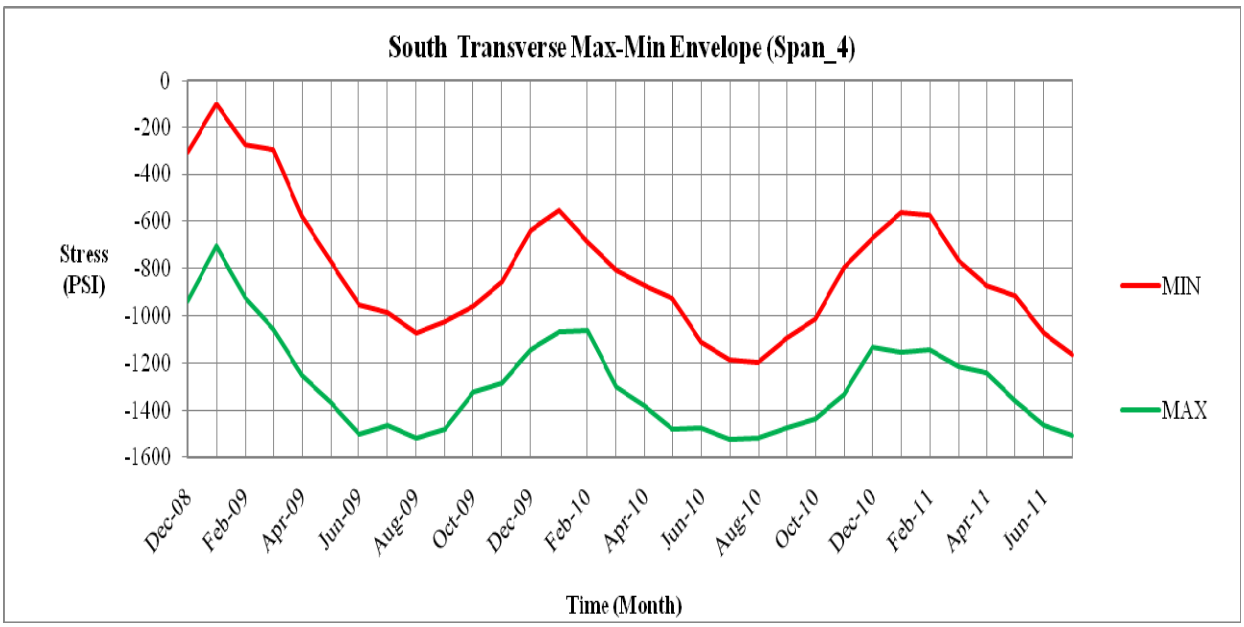


Figure C-24. Three-year envelope for south span 4 in the transverse direction

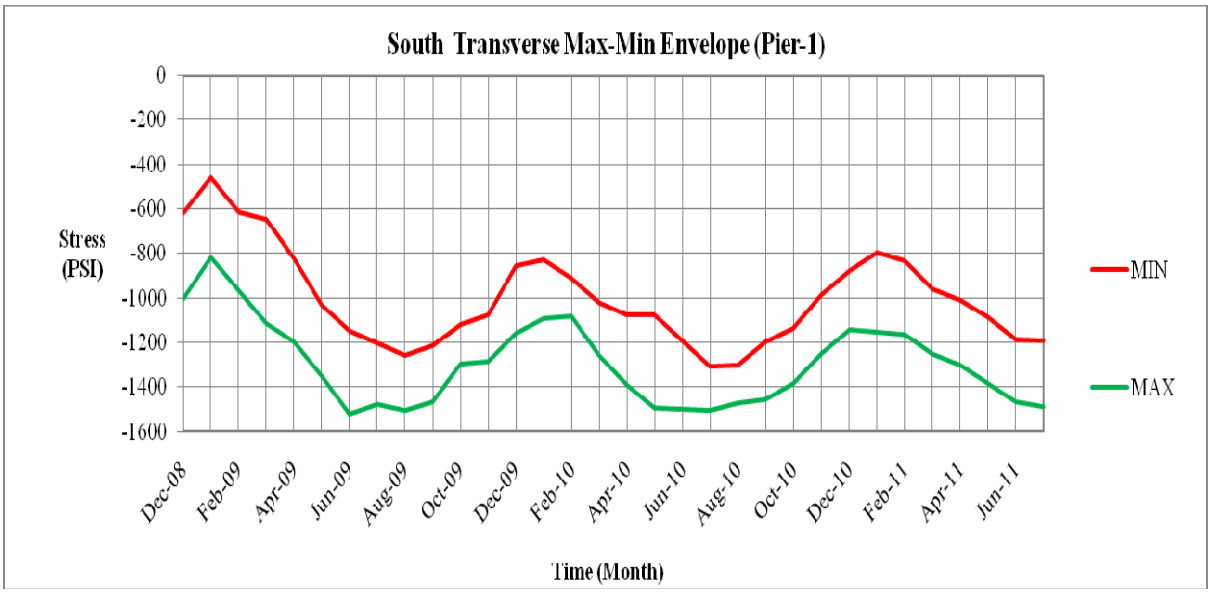


Figure C-25. Three-year envelope for south pier 1 in the transverse direction

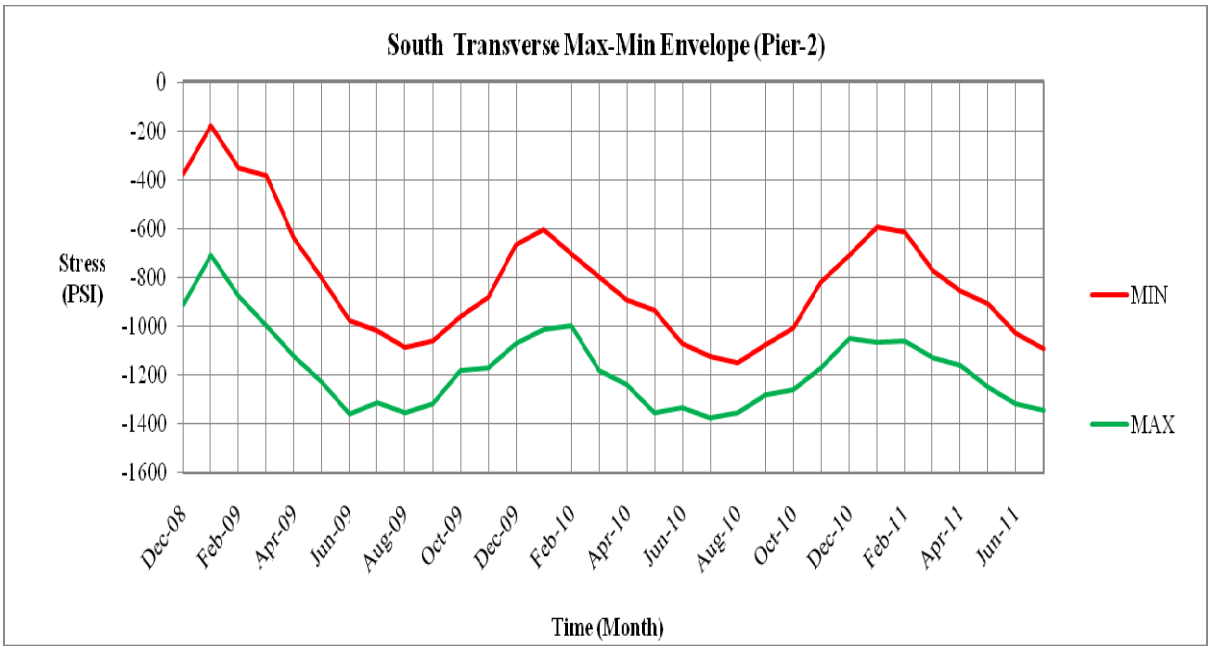


Figure C-26. Three-year envelope for south pier 2 in the transverse direction

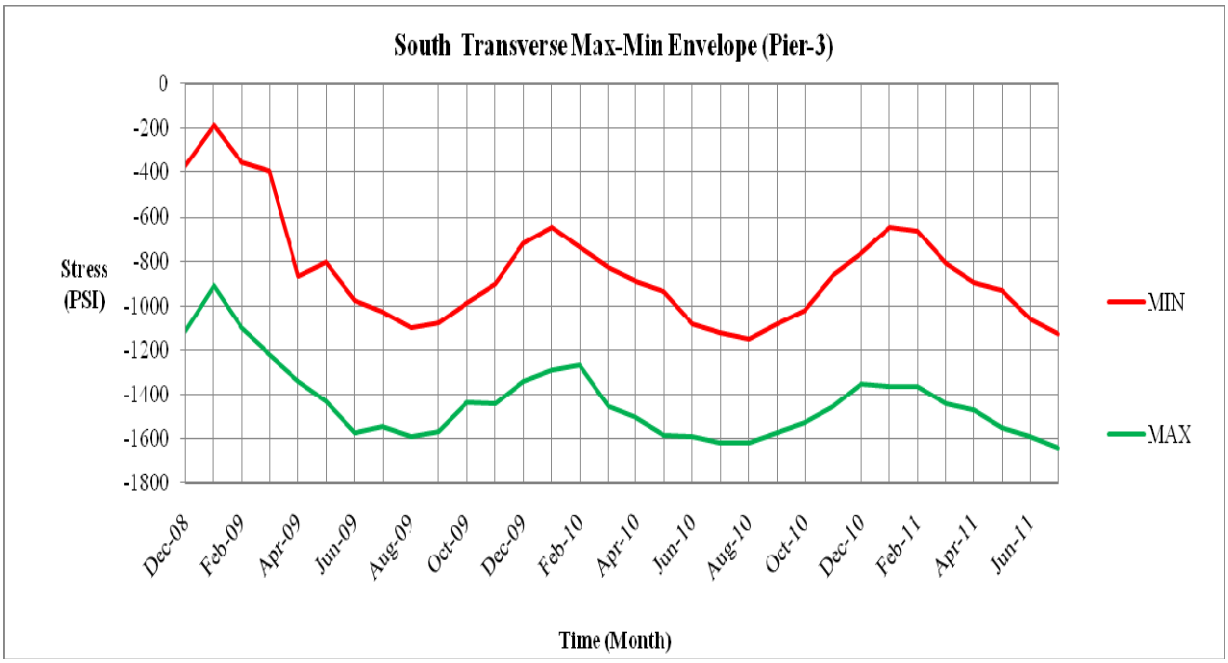


Figure C-27. Three-year envelope for south pier 3 in the transverse direction

APPENDIX D: ONE-YEAR STRESS ENVELOPE TEMPLATES

D.1 Longitudinal Stress Envelopes:

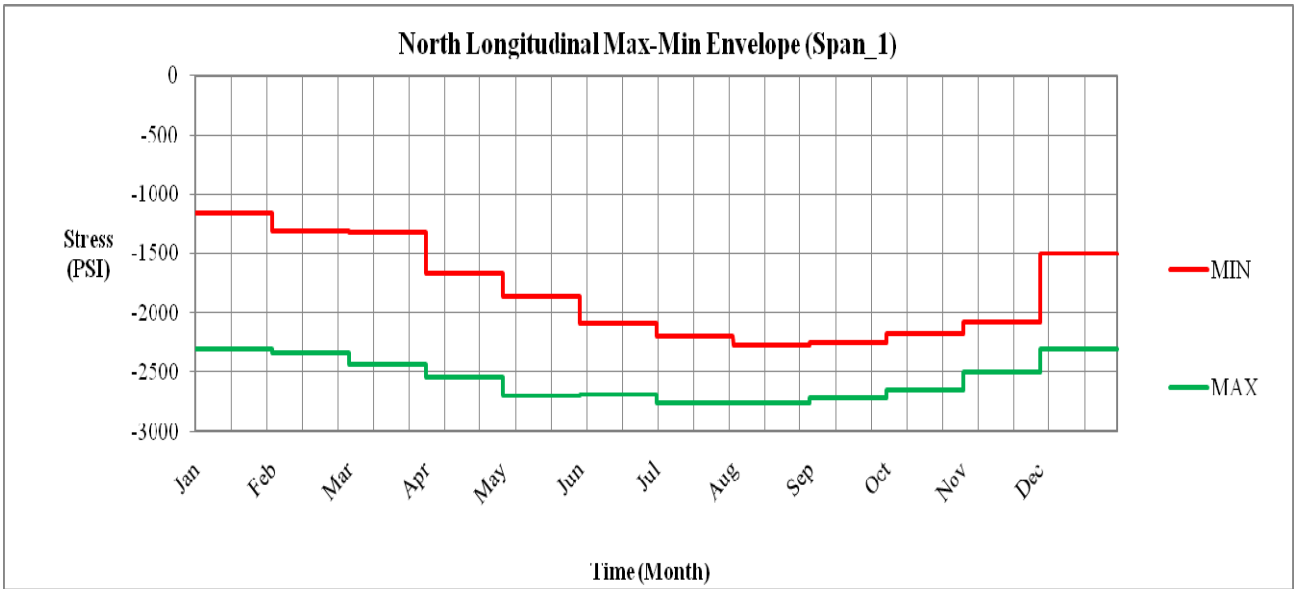


Figure D-1. One-year envelope for north span 1 in the longitudinal direction

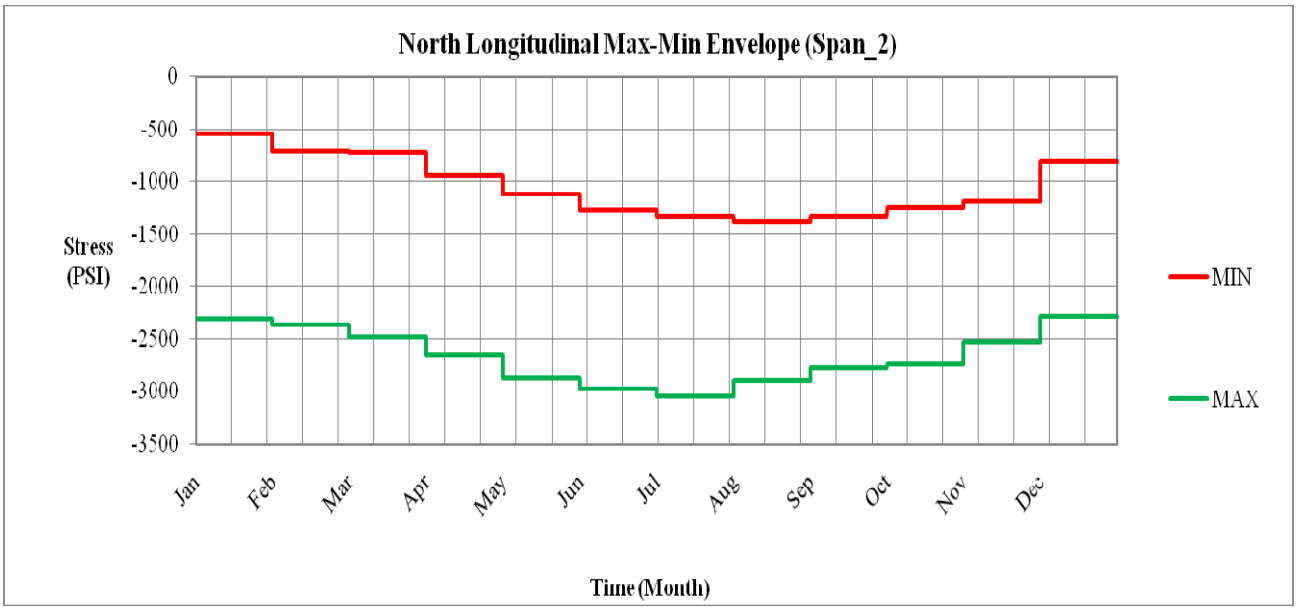


Figure D-2. One-year envelope for north span 2 in the longitudinal direction

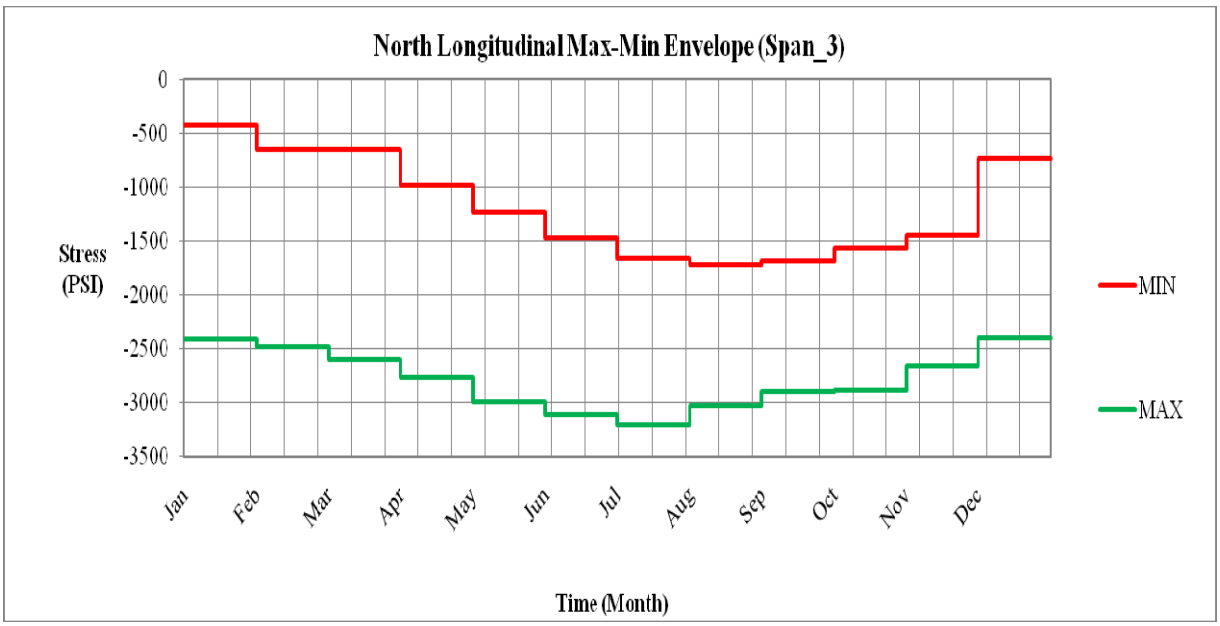


Figure D-3. One-year envelope for north span 3 in the longitudinal direction

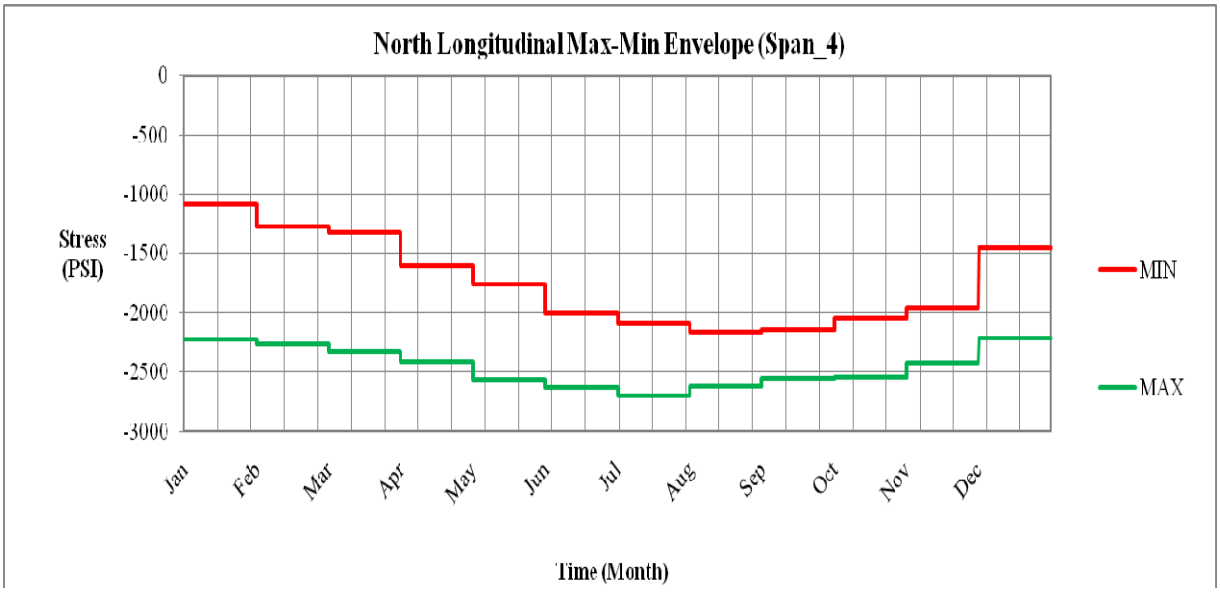


Figure D-4. One-year envelope for north span 4 in the longitudinal direction

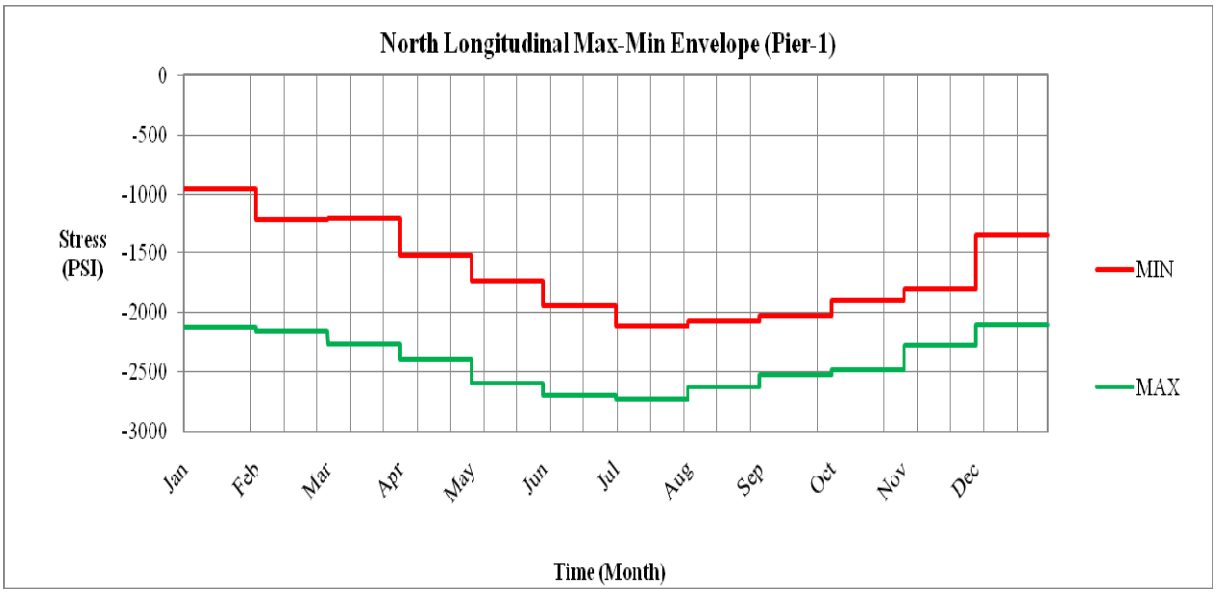


Figure D-5. One-year envelope for north pier 1 in the longitudinal direction

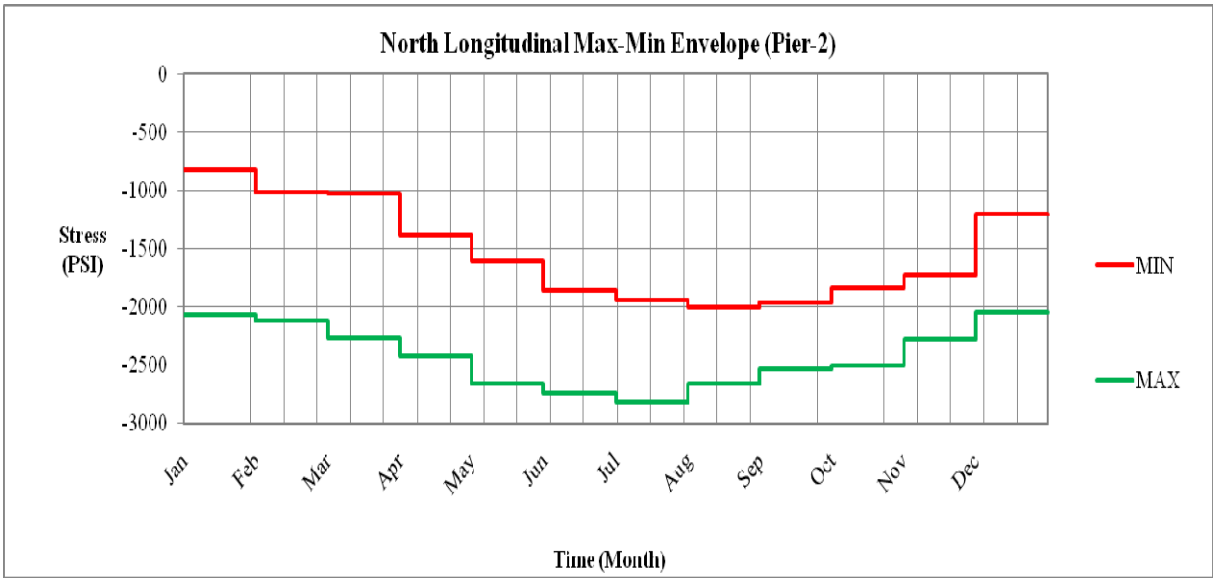


Figure D-6. One-year envelope for north pier 2 in the longitudinal direction

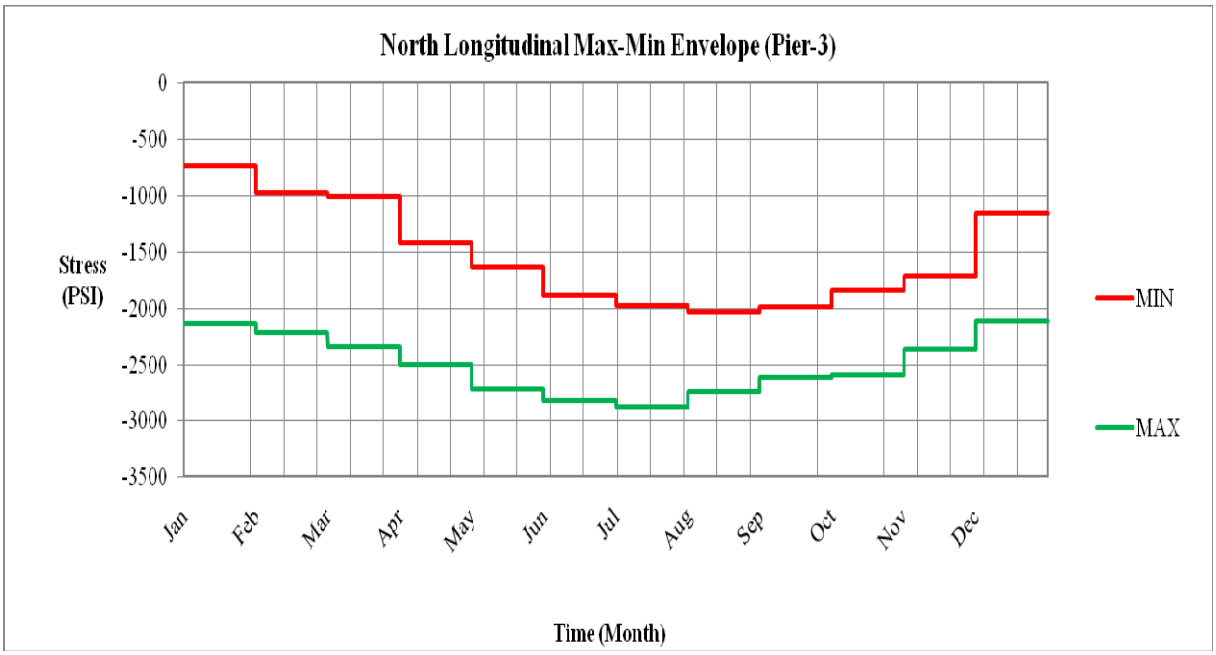


Figure D-7. One-year envelope for north pier 3 in the longitudinal direction

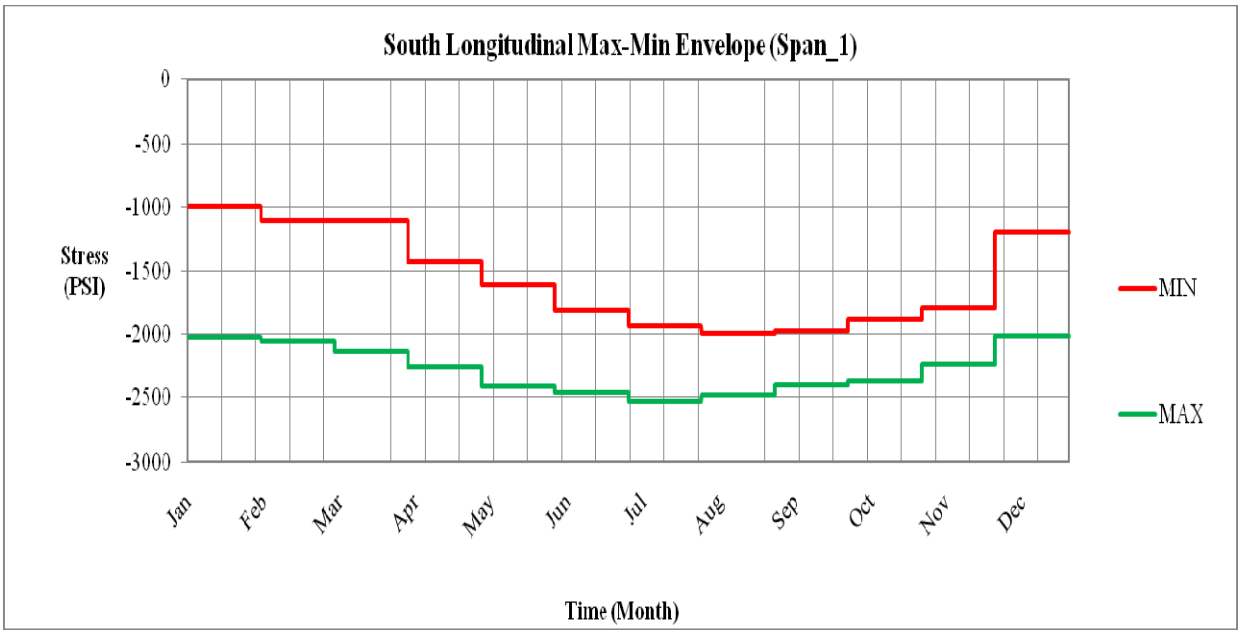


Figure D-8. One-year envelope for south span 1 in the longitudinal direction

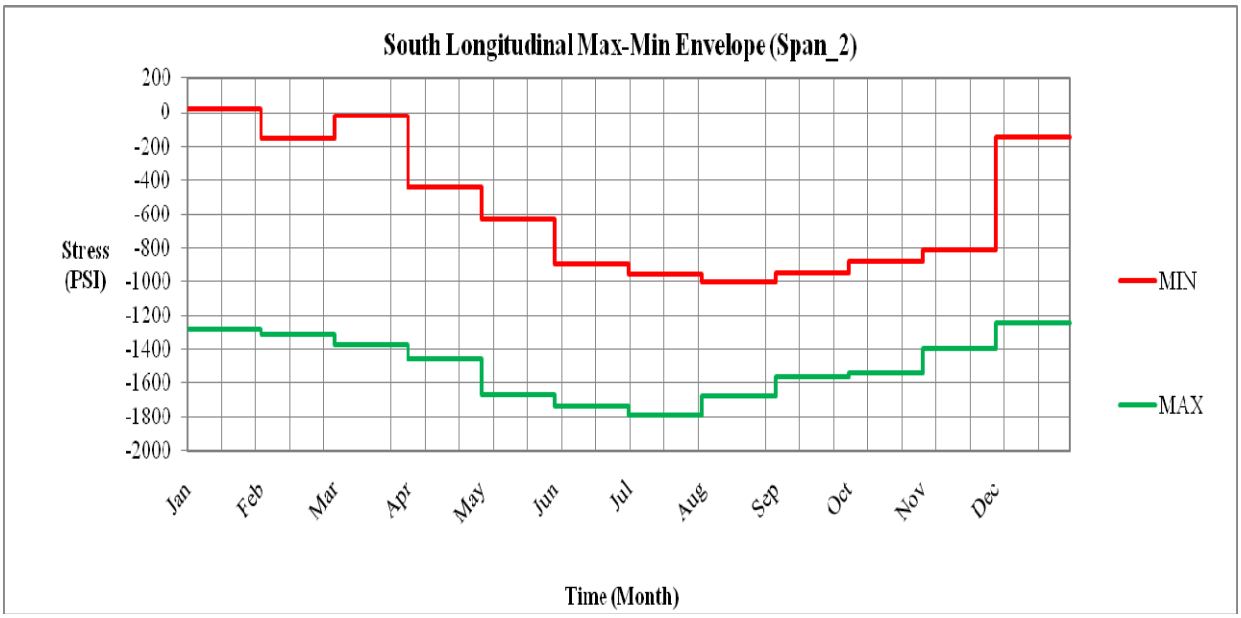


Figure D-9. One-year envelope for south span 2 in the longitudinal direction

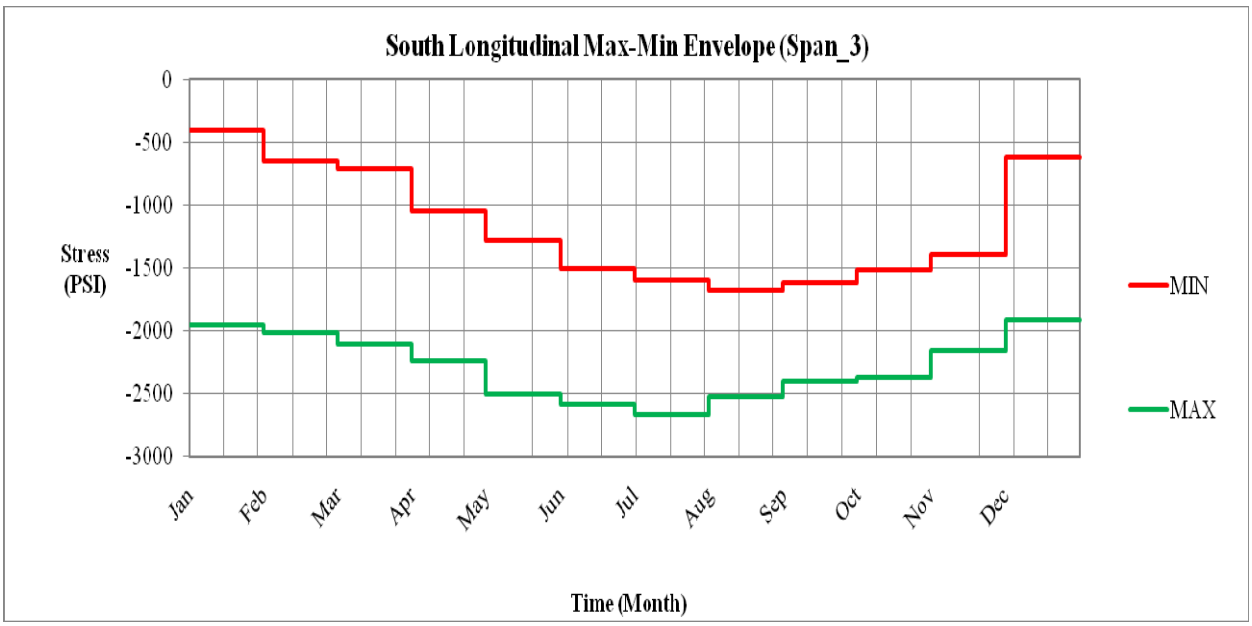


Figure D-10. One-year envelope for south span 3 in the longitudinal direction

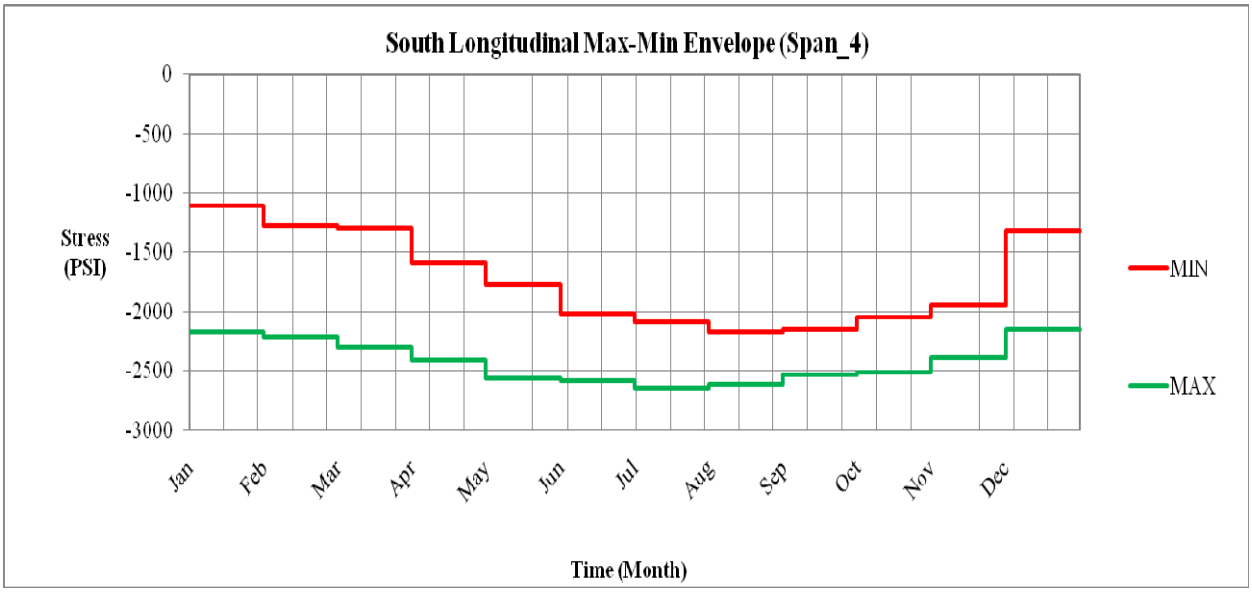


Figure D-11. One-year envelope for south span 4 in the longitudinal direction

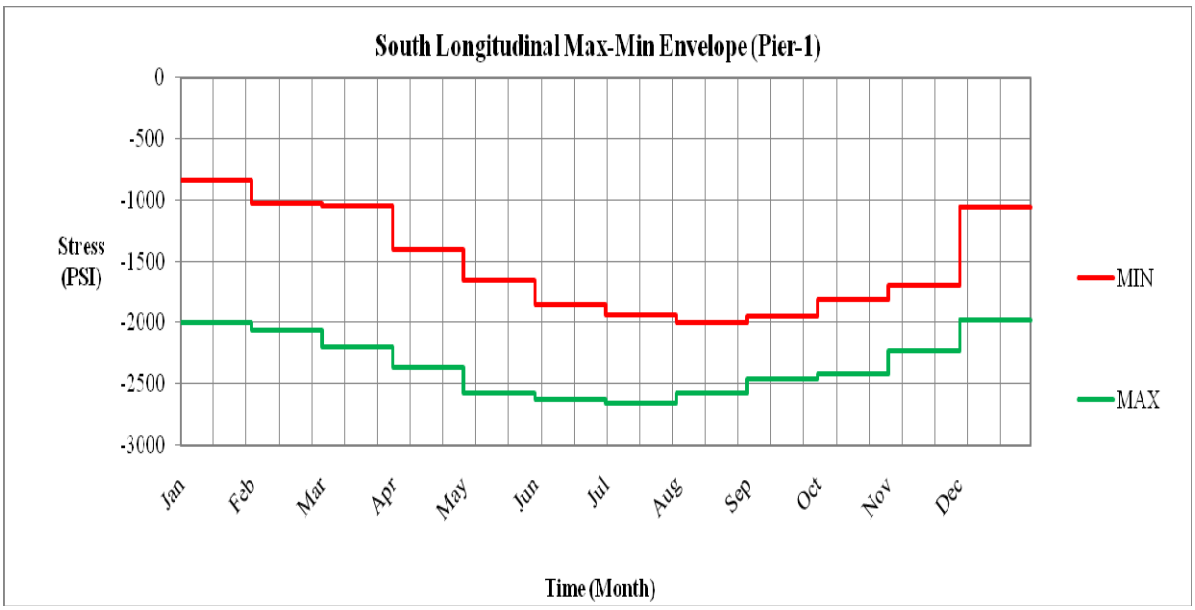


Figure D-12. One-year envelope for pier 1 in the longitudinal direction

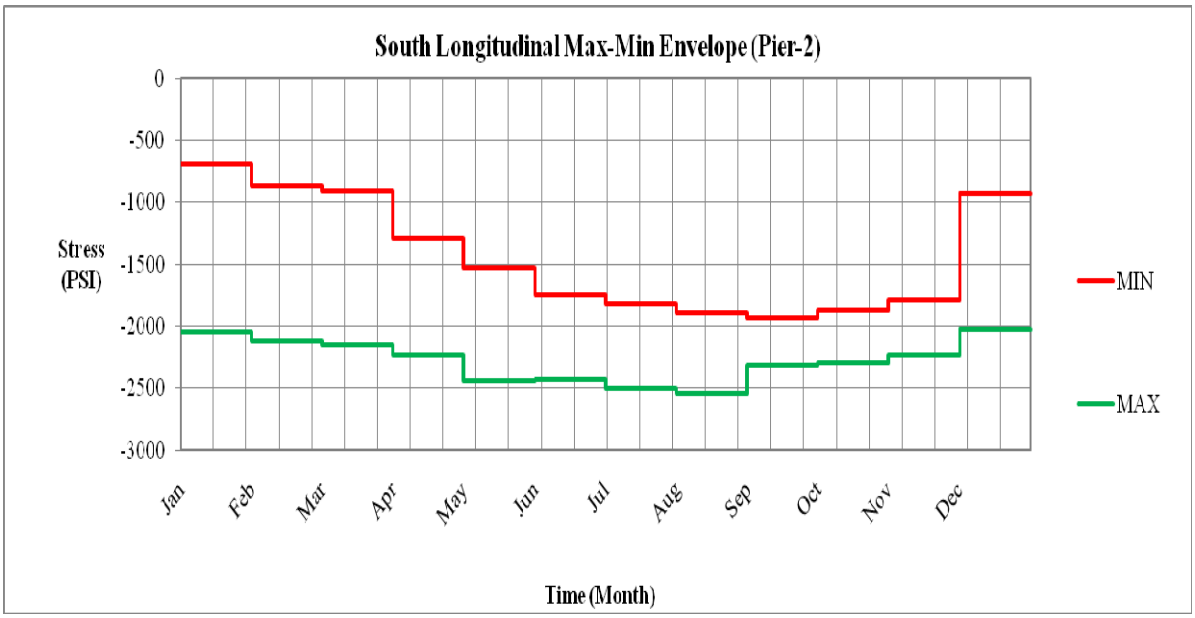


Figure D-13. One-year envelope for pier 2 in the longitudinal direction

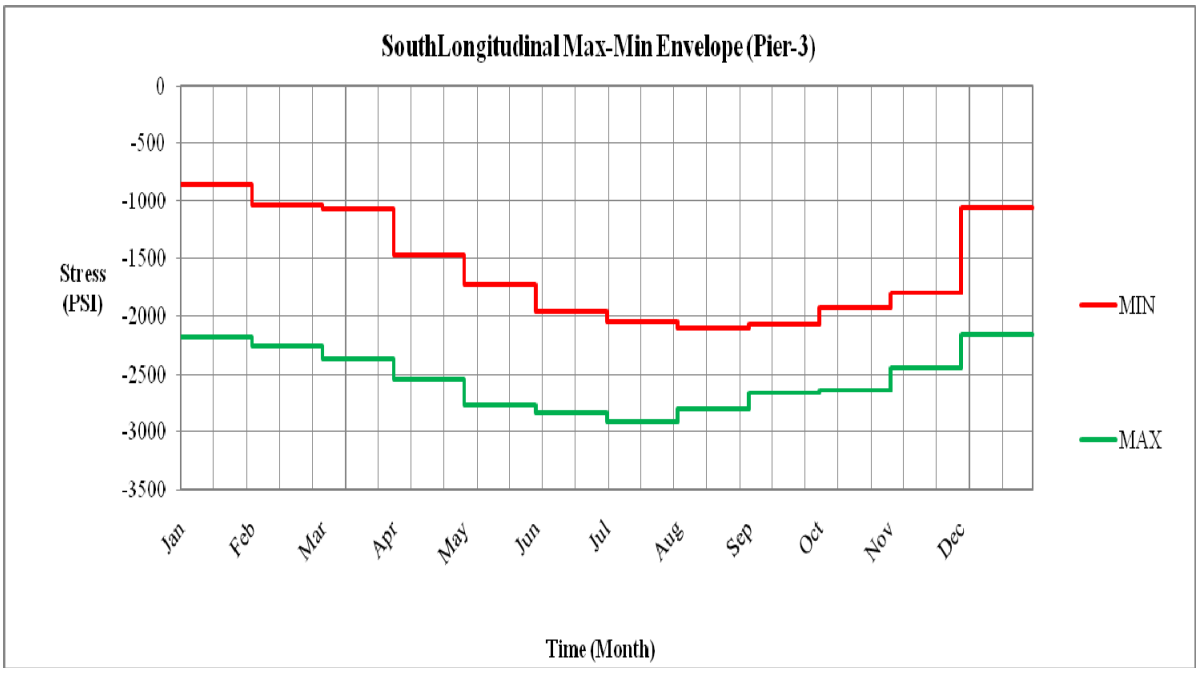


Figure D-14. One-year envelope for pier 3 in the longitudinal direction

D.2 Longitudinal Stress Envelopes:

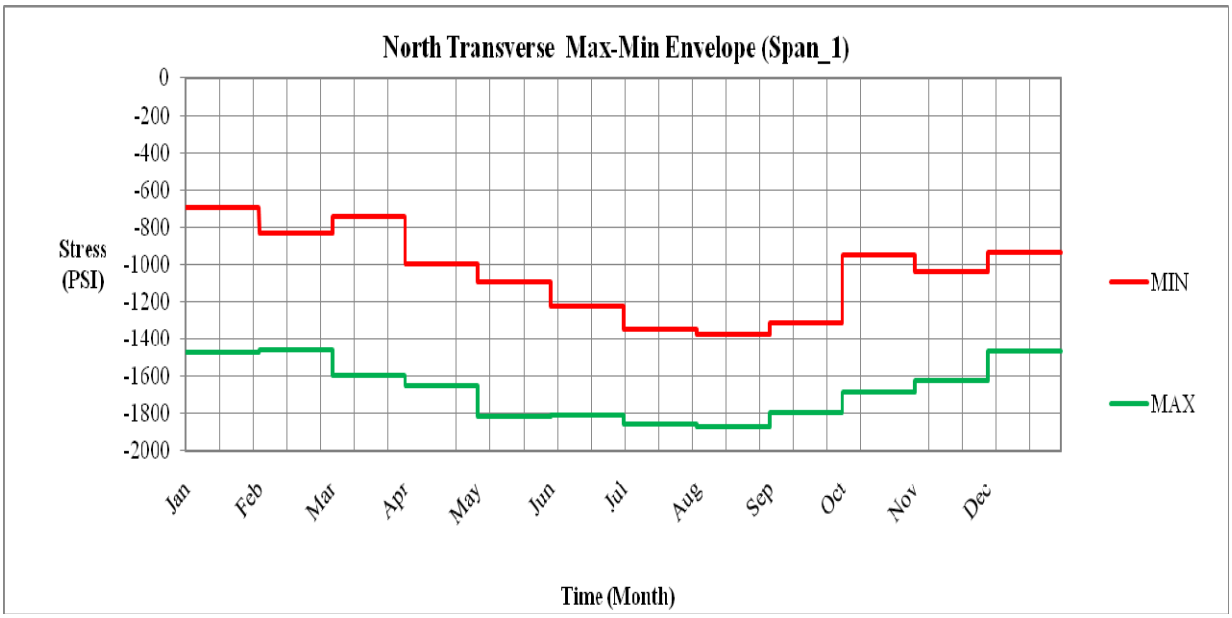


Figure D-15. One-year envelope for north span 1 in the transverse direction

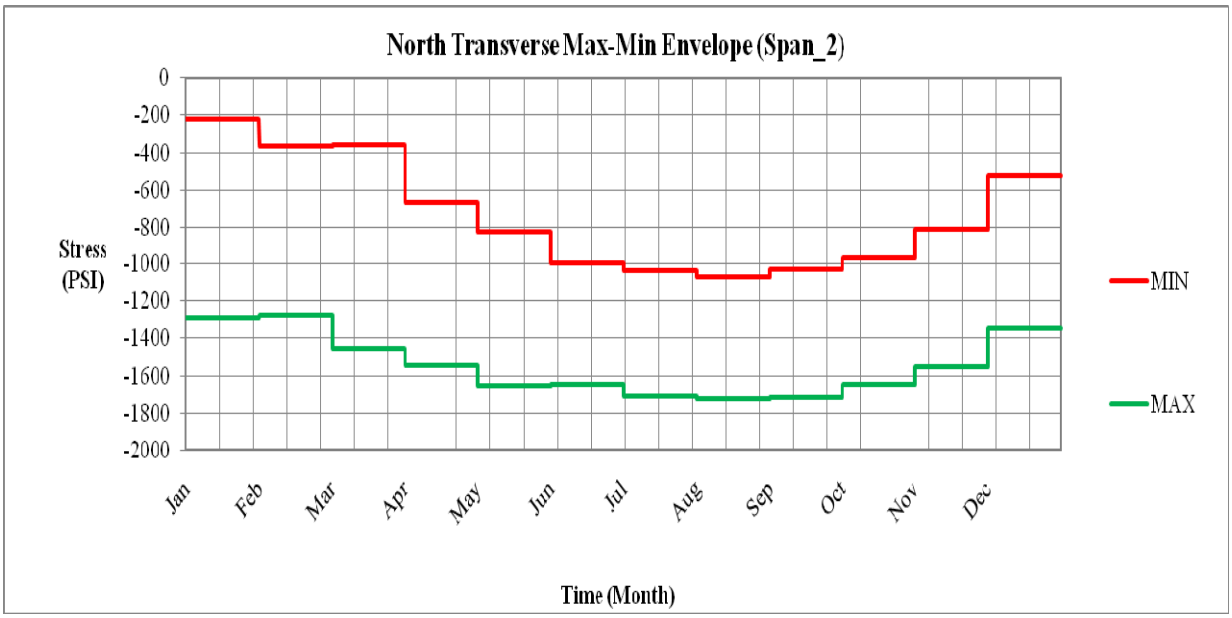


Figure D-16. One-year envelope for north span 2 in the transverse direction

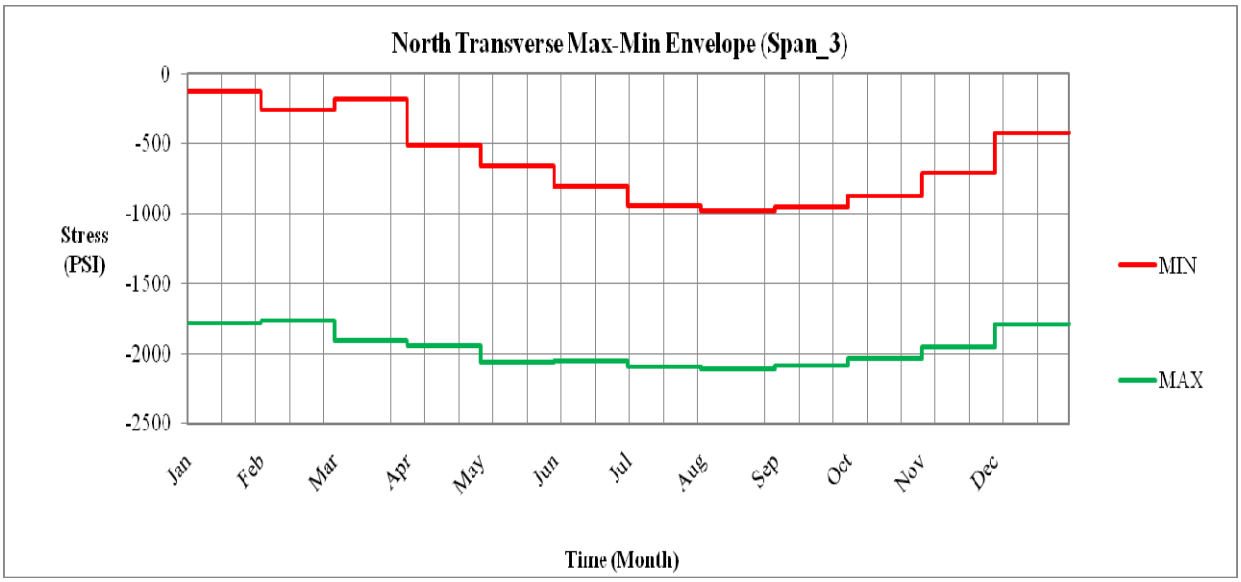


Figure D-17. One-year envelope for north span 3 in the transverse direction

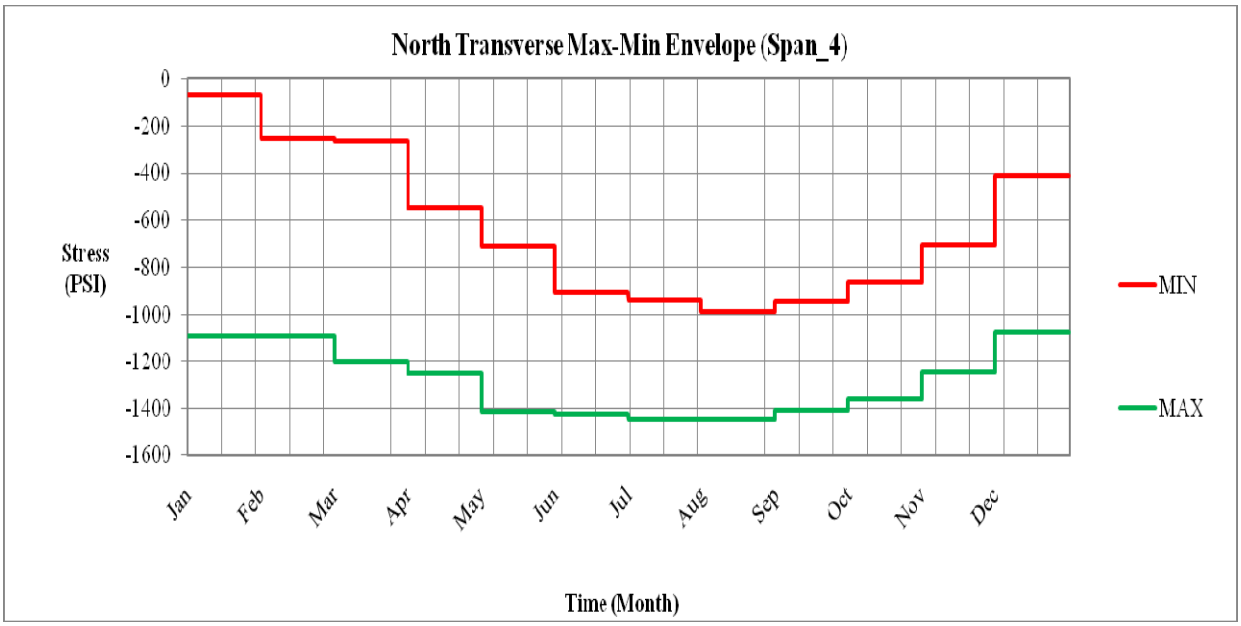


Figure D-18. One-year envelope for north span 4 in the transverse direction

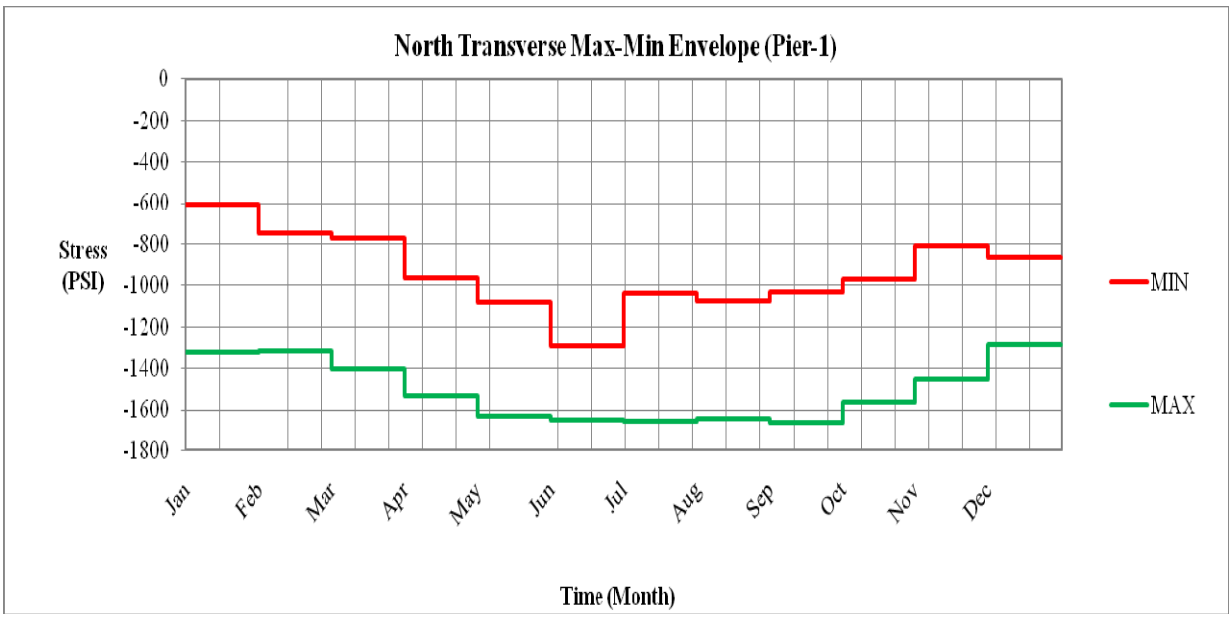


Figure D-19. One-year envelope for north pier 1 in the transverse direction

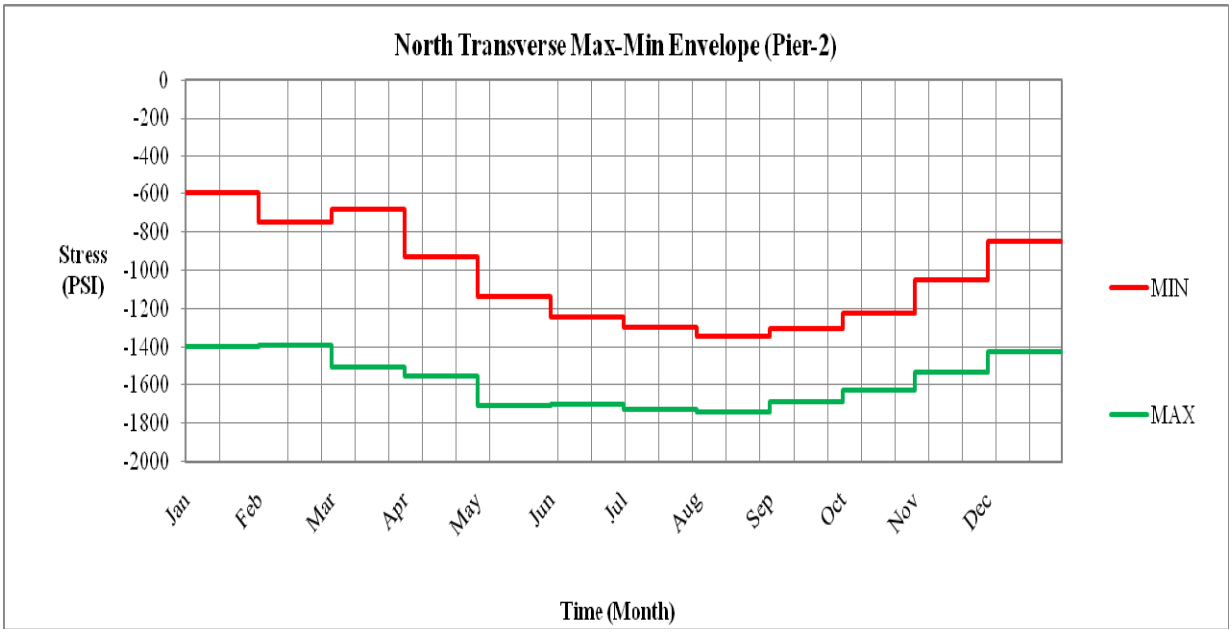


Figure D-20. One-year envelope for north pier 2 in the transverse direction

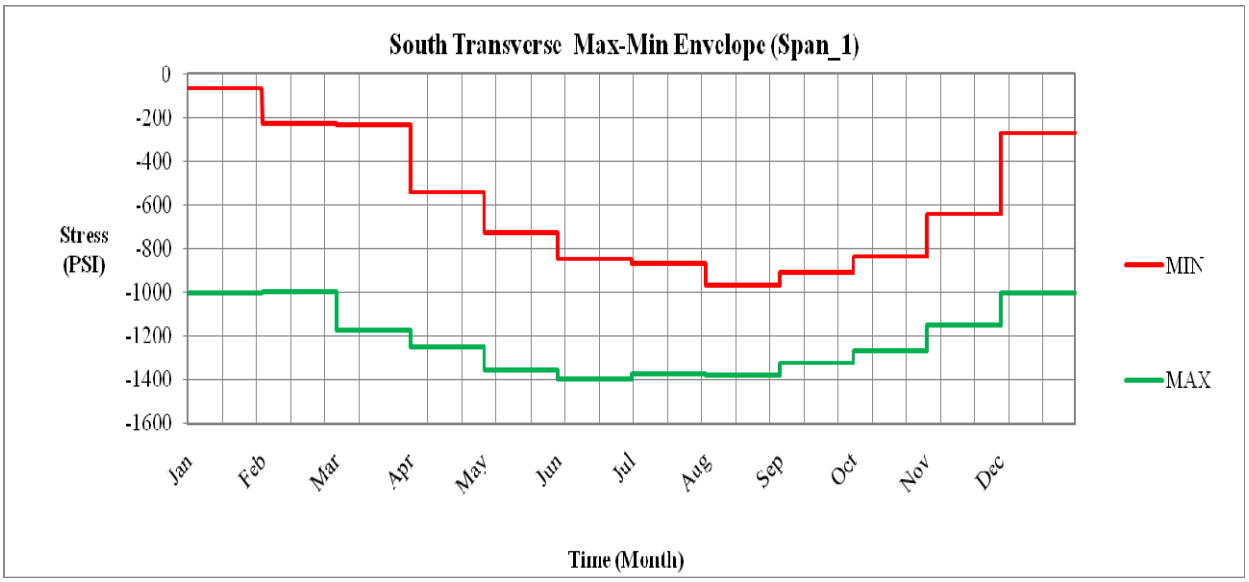


Figure D-21. One-year envelope for south span 1 in the transverse direction

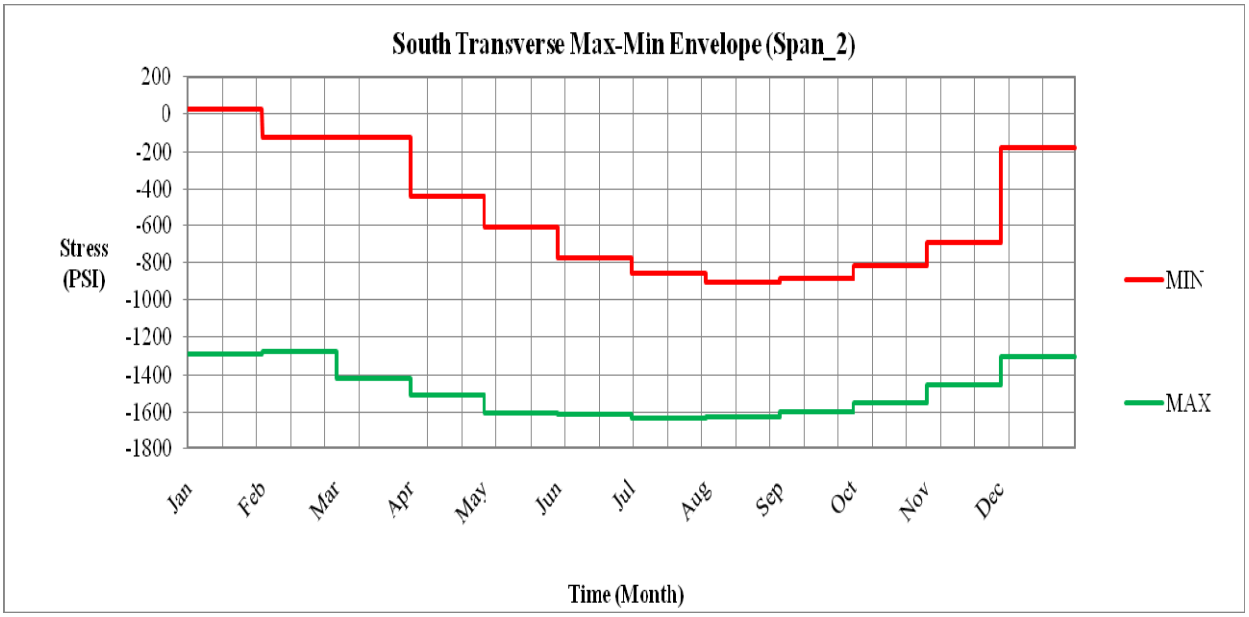


Figure D-22. One-year envelope for south span 2 in the transverse direction

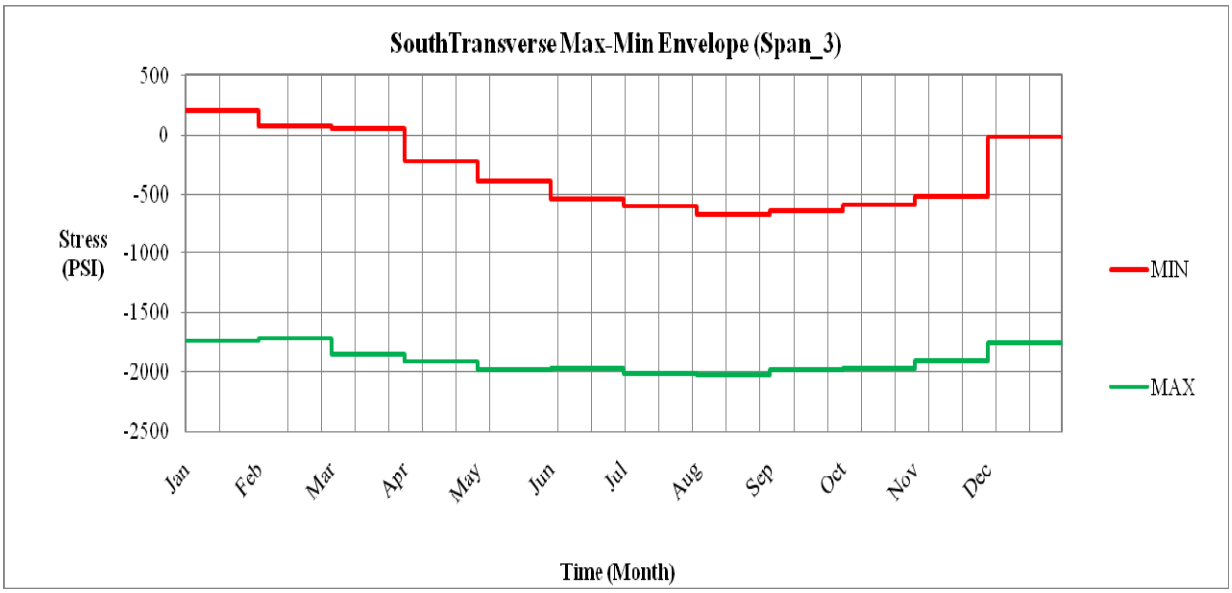


Figure D-23. One-year envelope for south span 3 in the transverse direction

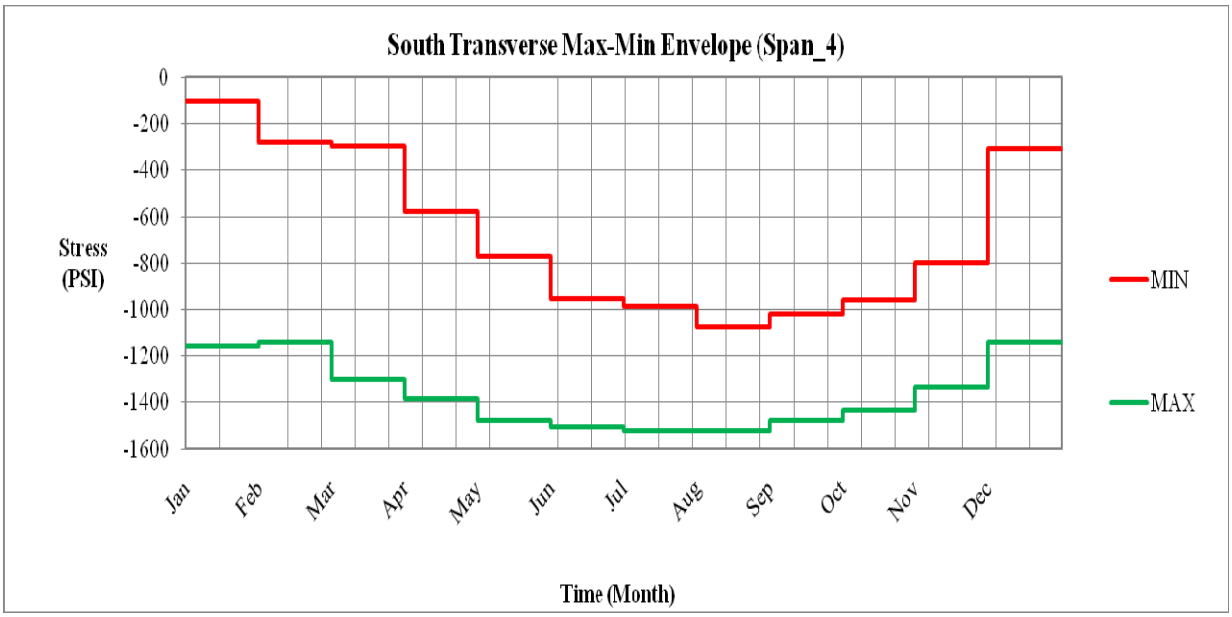


Figure D-24. One-year envelope for south span 4 in the transverse direction

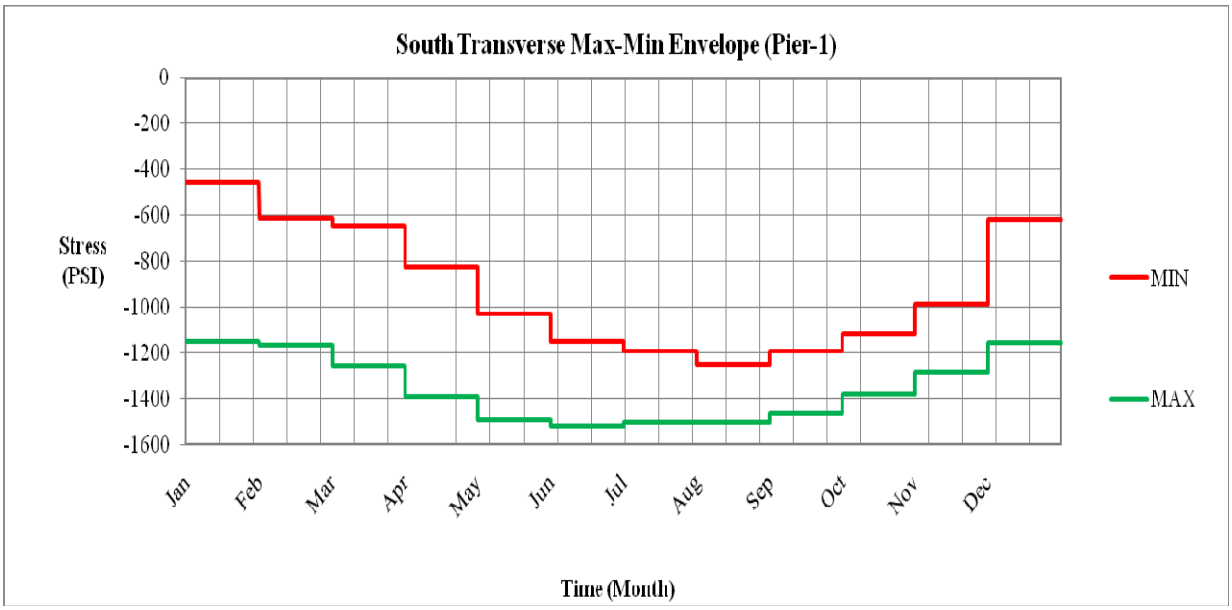


Figure D-25. One-year envelope for south pier 1 in the transverse direction

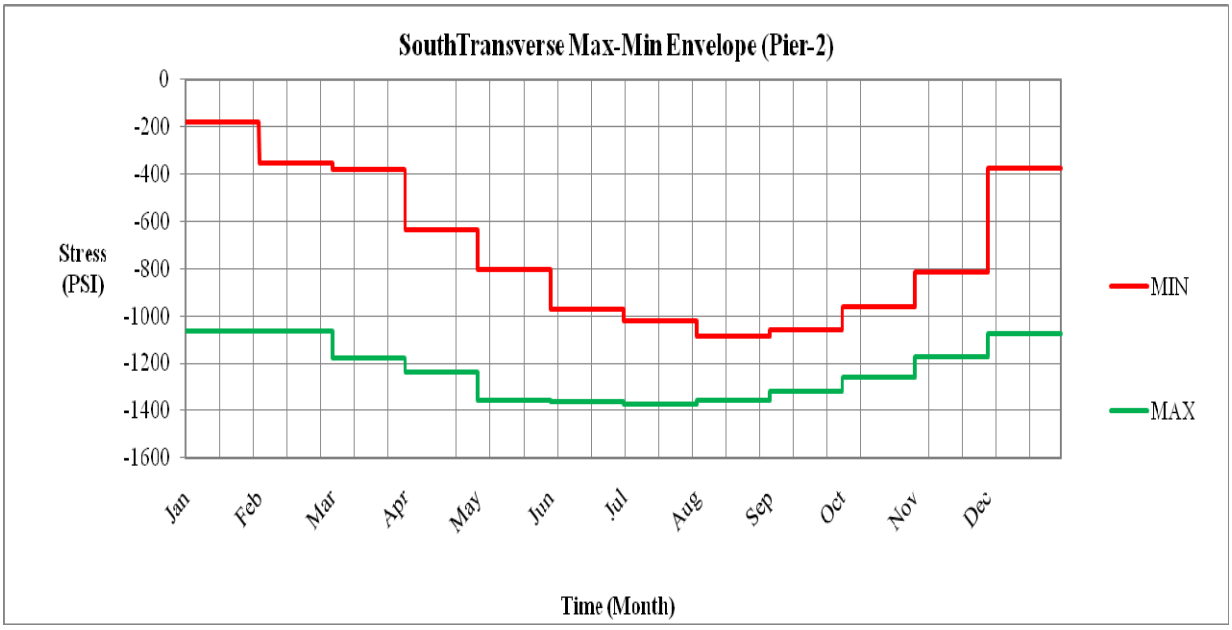


Figure D-26. One-year envelope for south pier 2 in the transverse direction

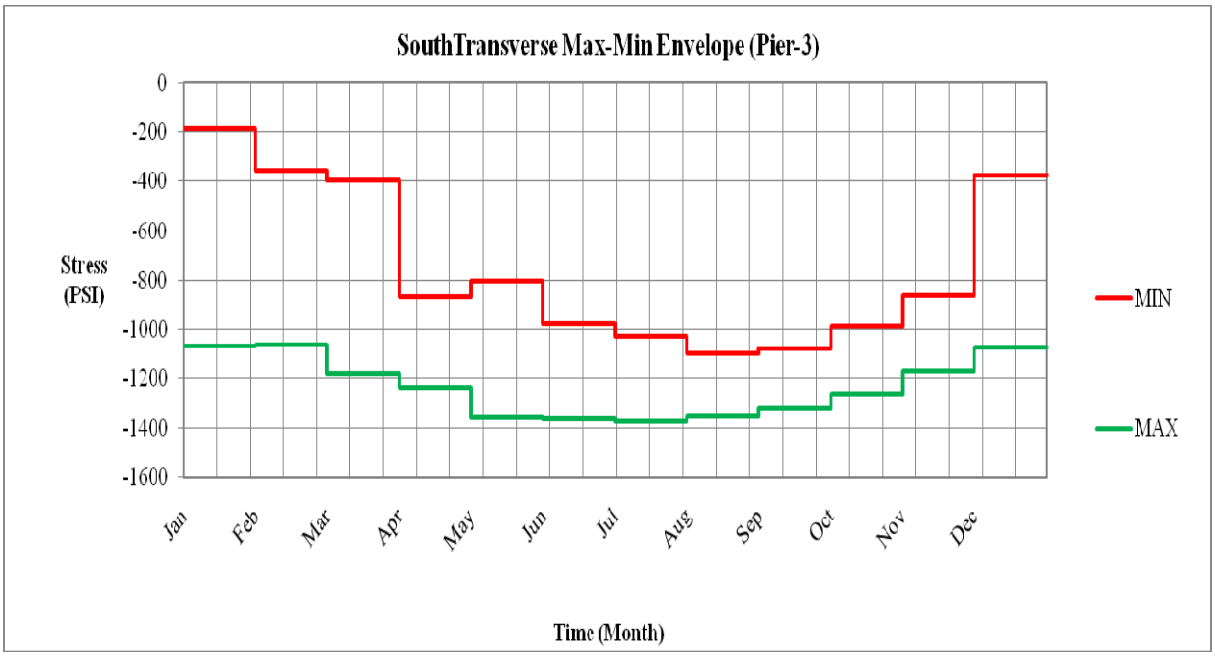


Figure D-27. One-year envelope for south pier 3 in the transverse direction

D.3 Closure Grout Stress Envelops:

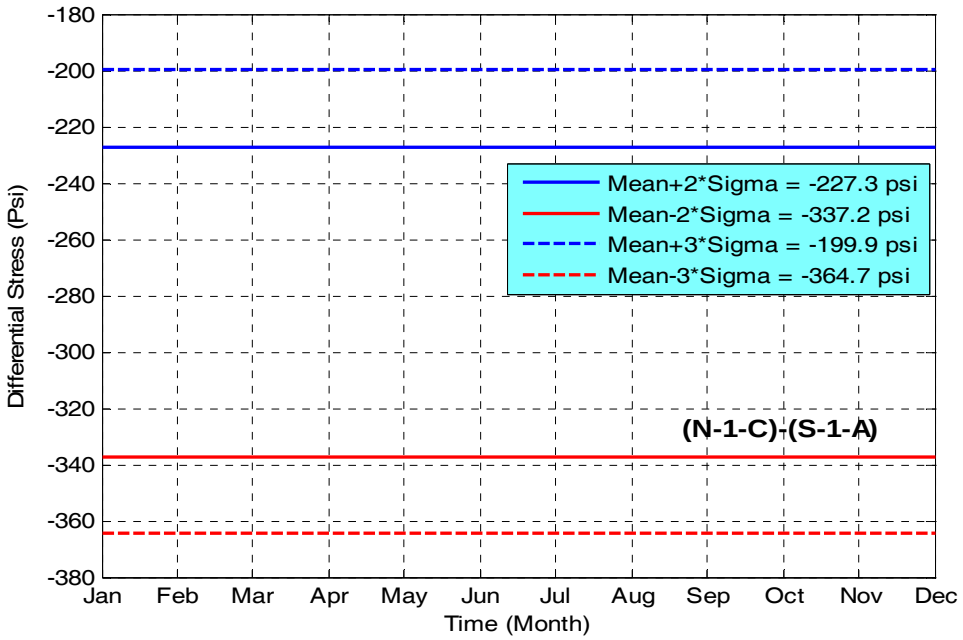


Figure D-28. One-year differential stress envelope for the closure grout sensors between north span 1 and south span 1 (span 1)

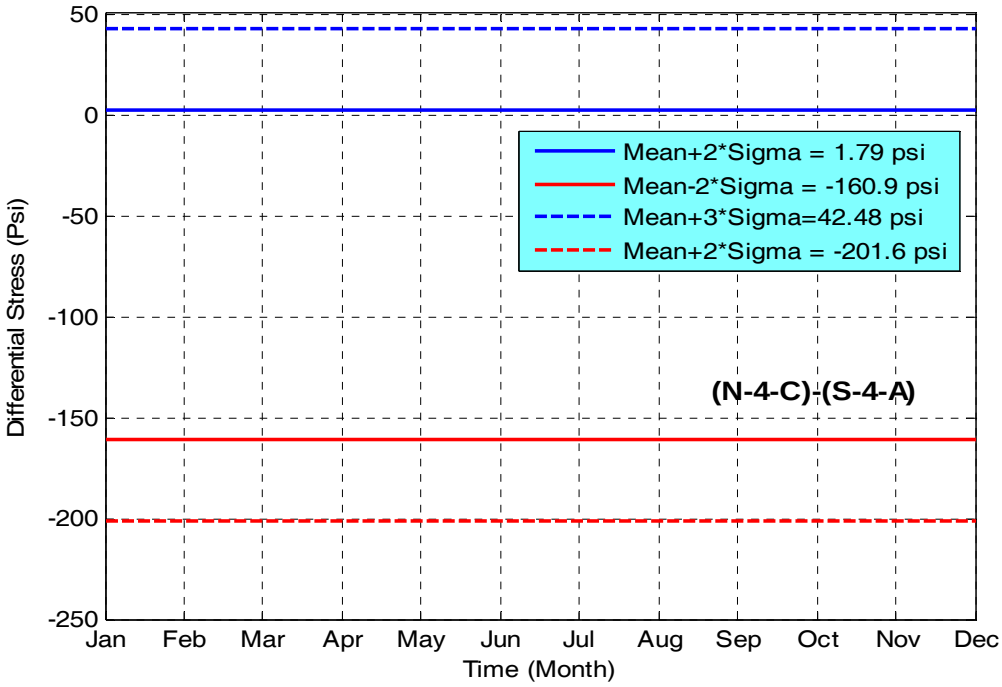


Figure D-29. One-year differential stress envelope for the closure grout sensors between north pier 1 and south pier 1 (pier 1)

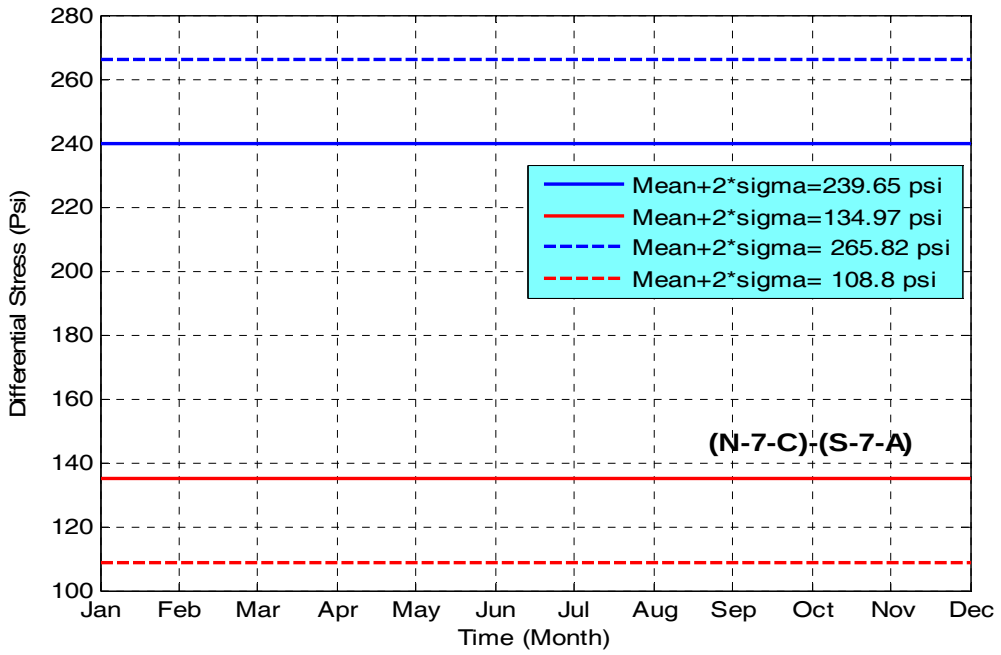


Figure D-30. One-year differential stress envelope for the closure grout sensors between north panel 7 and south panel 7 (span 2)

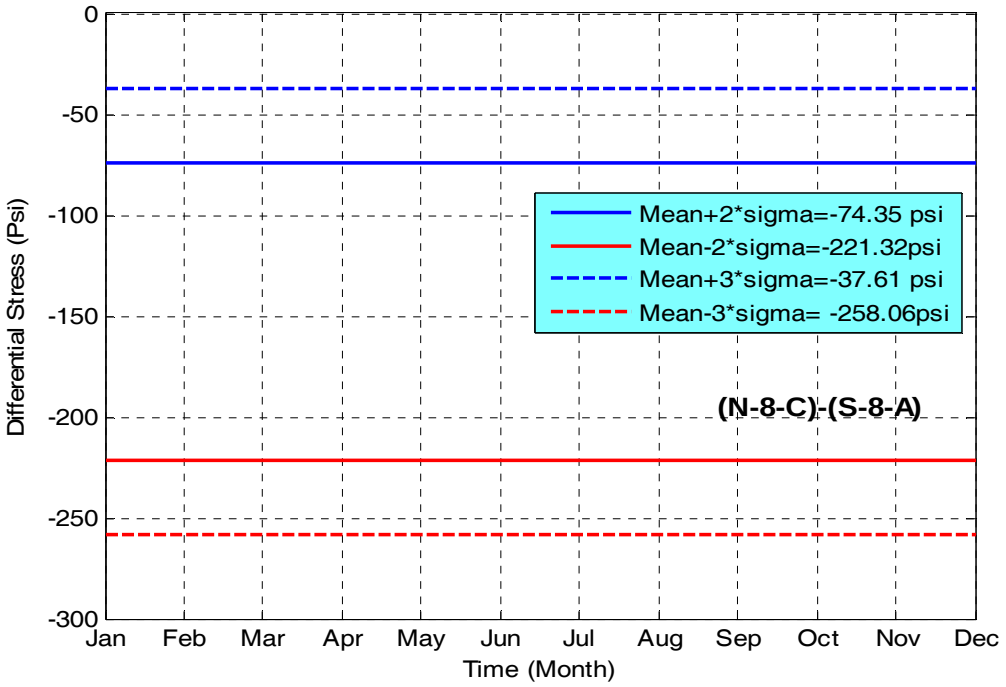


Figure D-31. One-year differential stress envelope for the closure grout sensors between north panel 8 and south panel 8 (span 2)

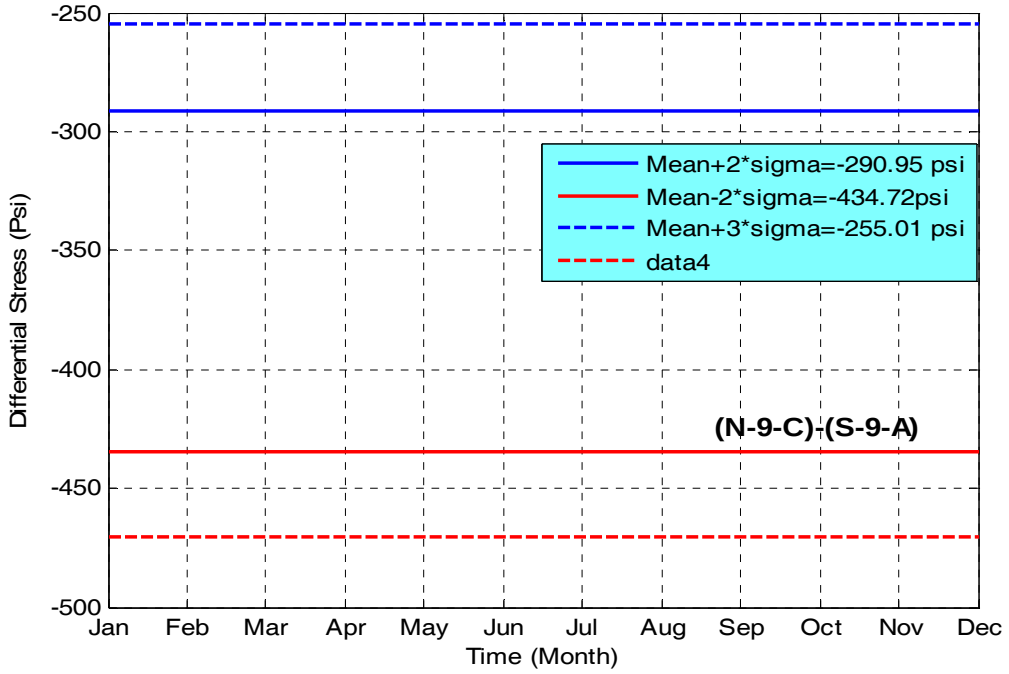


Figure D-32. One-year differential stress envelope for the closure grout sensors between north panel 9 and south panel 9 (span 2)

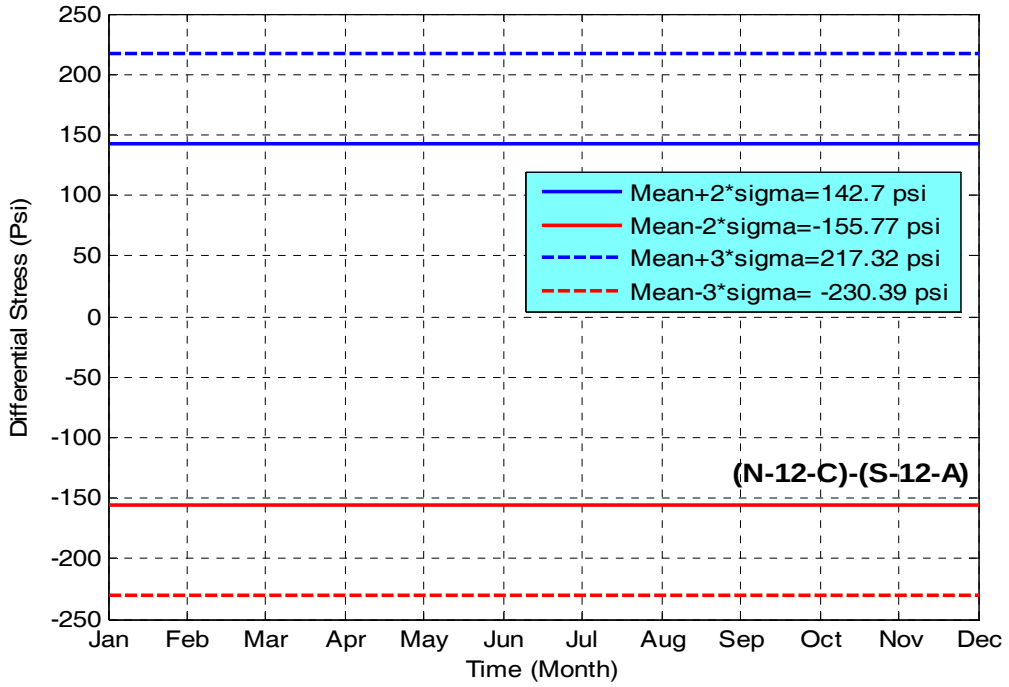


Figure D-33. One-year differential stress envelope for the closure grout sensors between north pier 2 and south pier 2 (pier 2)

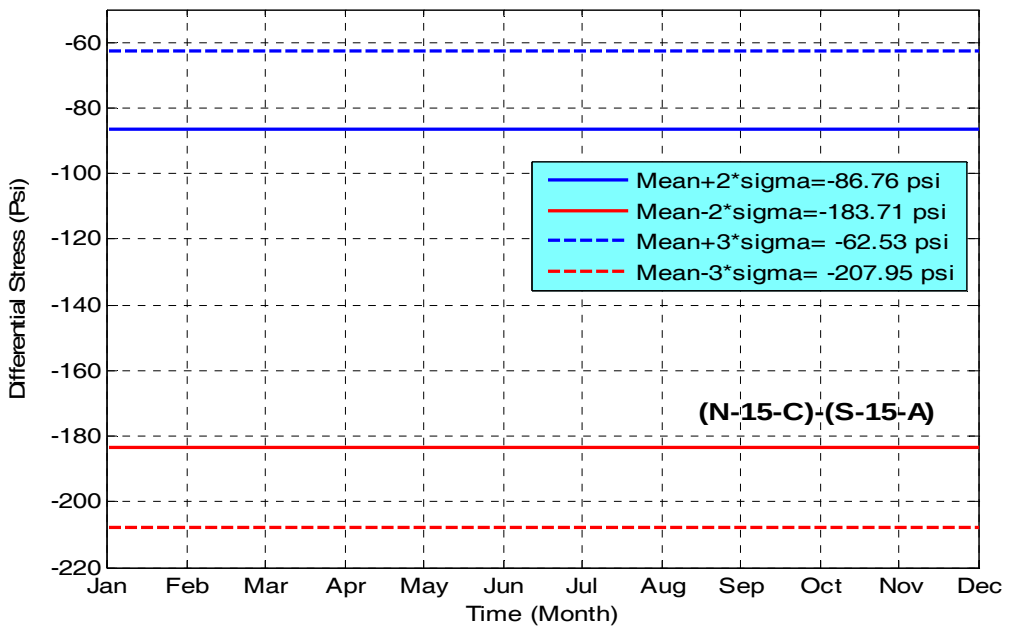


Figure D-34. One-year differential stress envelope for the closure grout sensors between north panel 15 and south panel 15 (span 3)

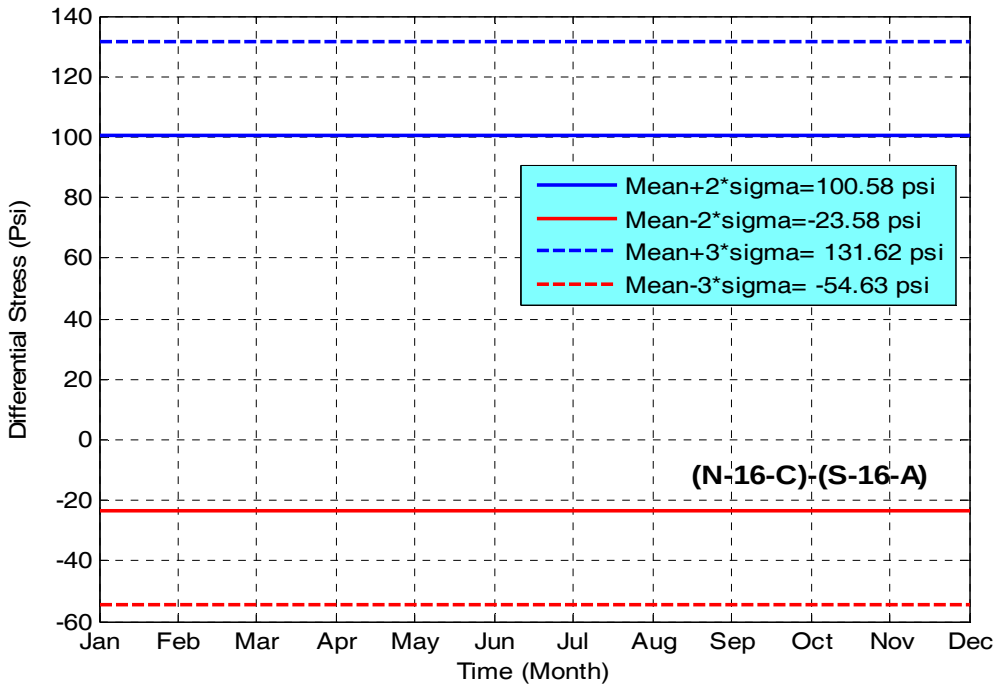


Figure D-35. One-year differential stress envelope for the closure grout sensors between north panel 16 and south panel 16 (span 3)

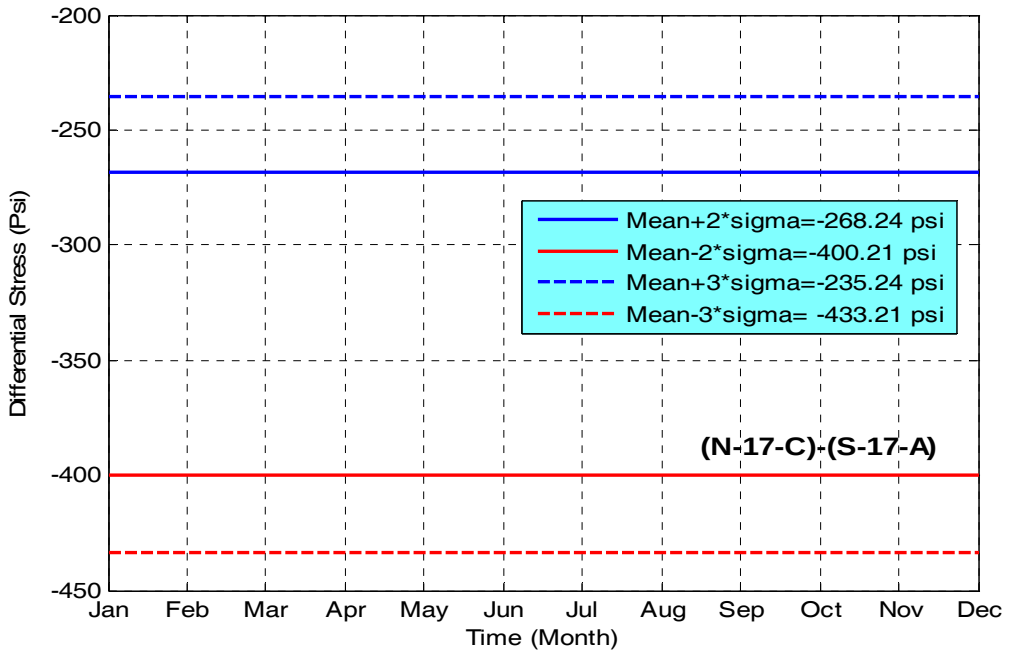


Figure D-36. One-year differential stress envelope for the closure grout sensors between north panel 17 and south panel 17 (span 3)

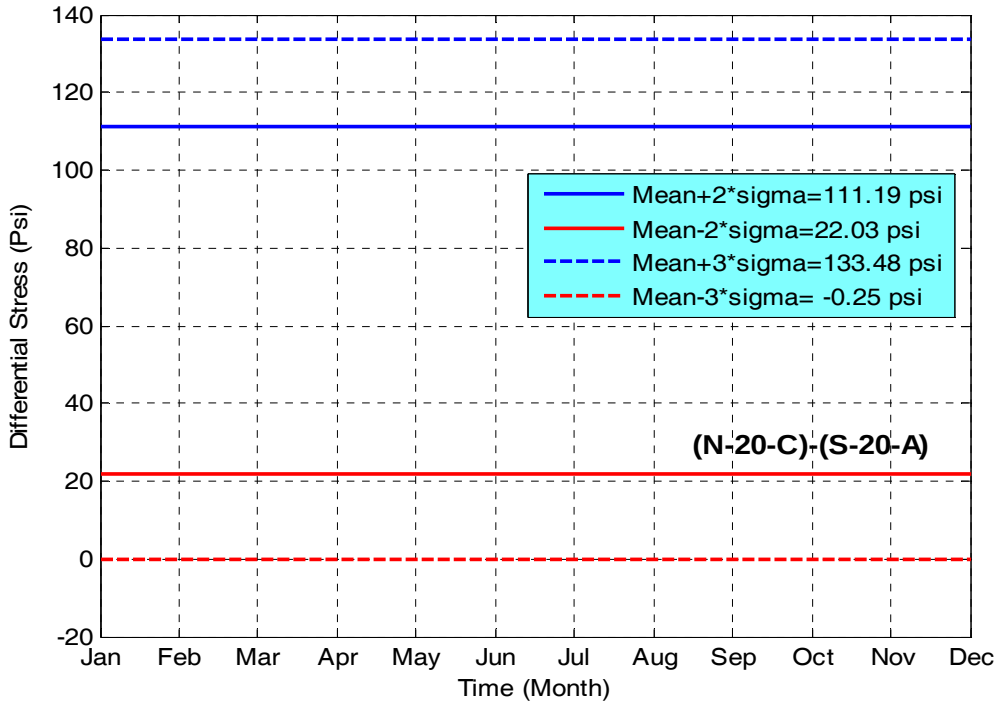


Figure D-37. One-year differential stress envelope for the closure grout sensors between north pier 3 and south pier 3 (pier 3)

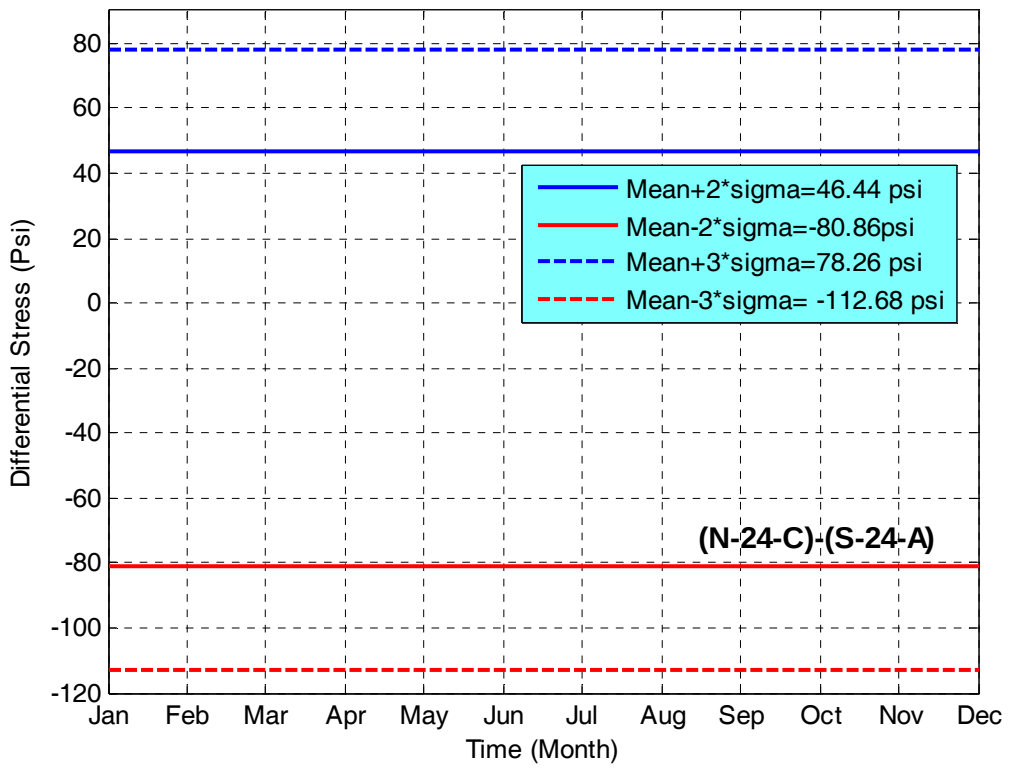


Figure D-38. One-year differential stress envelope for the closure grout sensors between north span 4 and south span 4 (span 4)

D.4 Panel Joint Stress Envelopes:

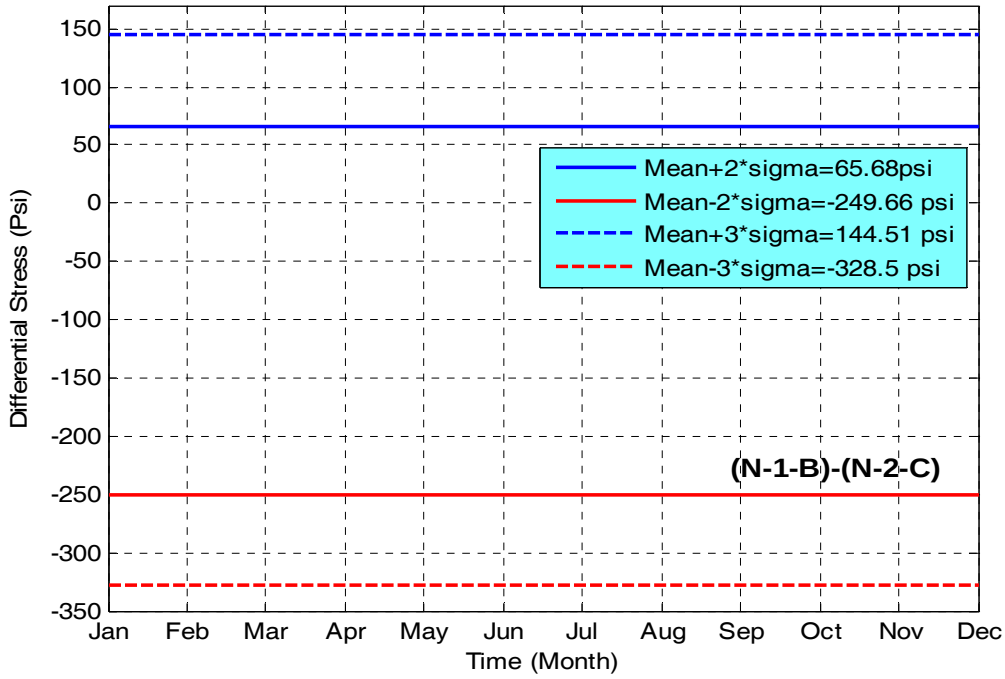


Figure D-39. One-year differential stress envelope for the joint between north panels 1 and 2 (span 1)

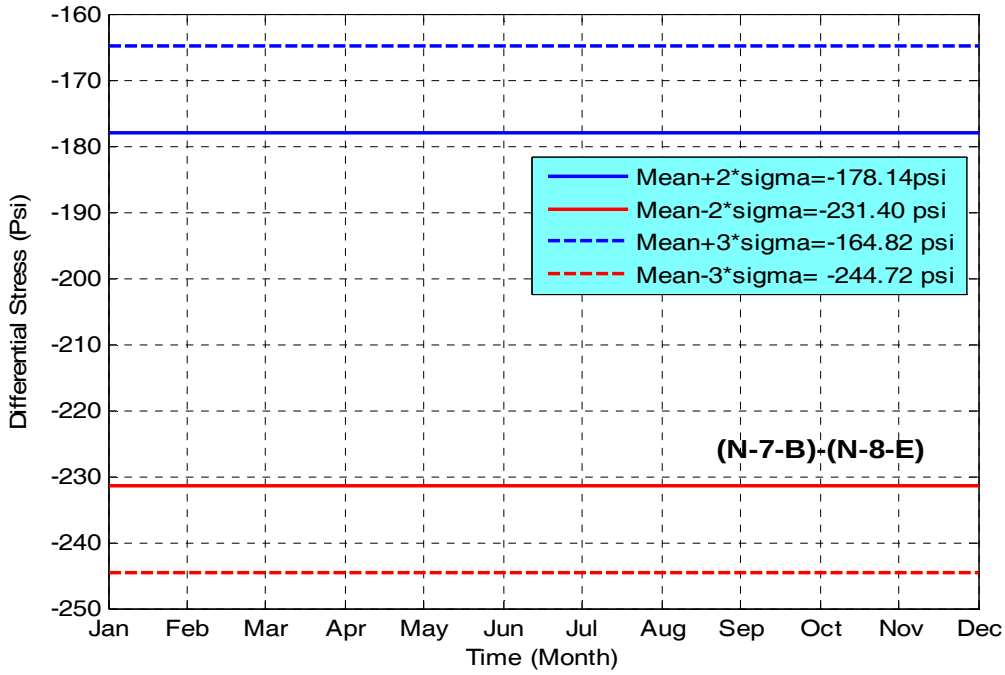


Figure D-40. One-year differential stress envelope the joint between north panels 7 and 8 (Span 2)

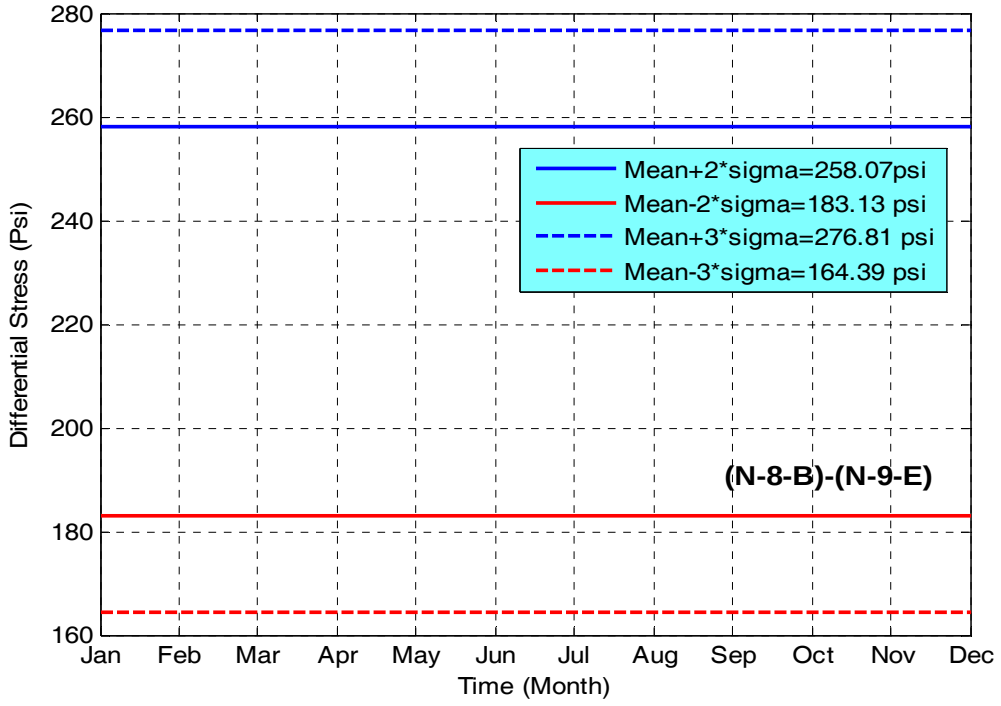


Figure D-41. One-year differential stress envelope for joint between north panels 8 and 9 (span 2)

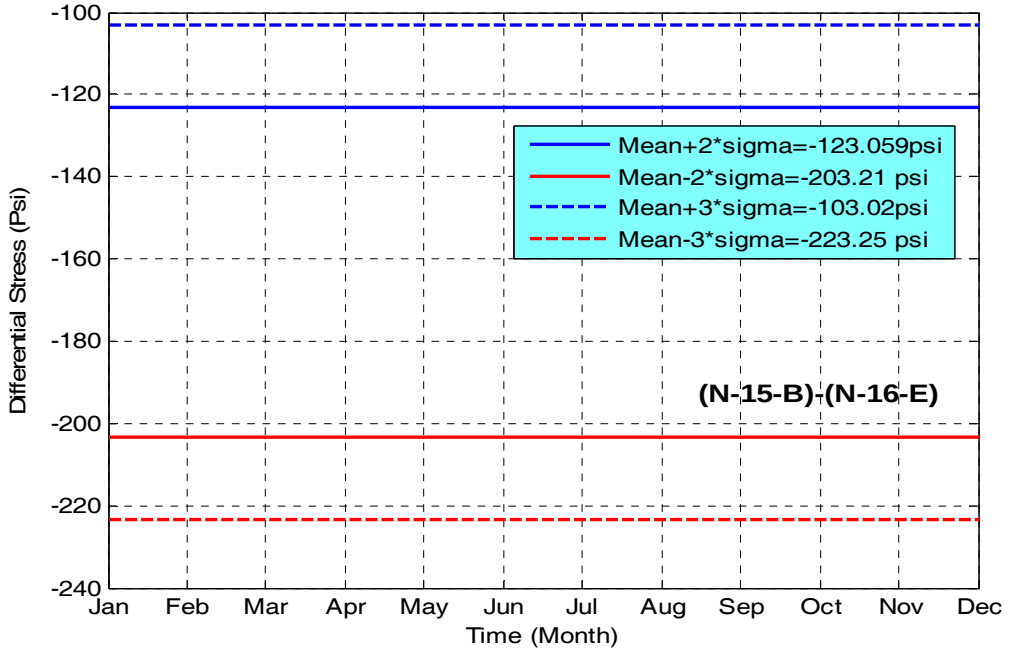


Figure D-42. One-year differential stress envelope for joint between north panels 15 and 16 (span 3)

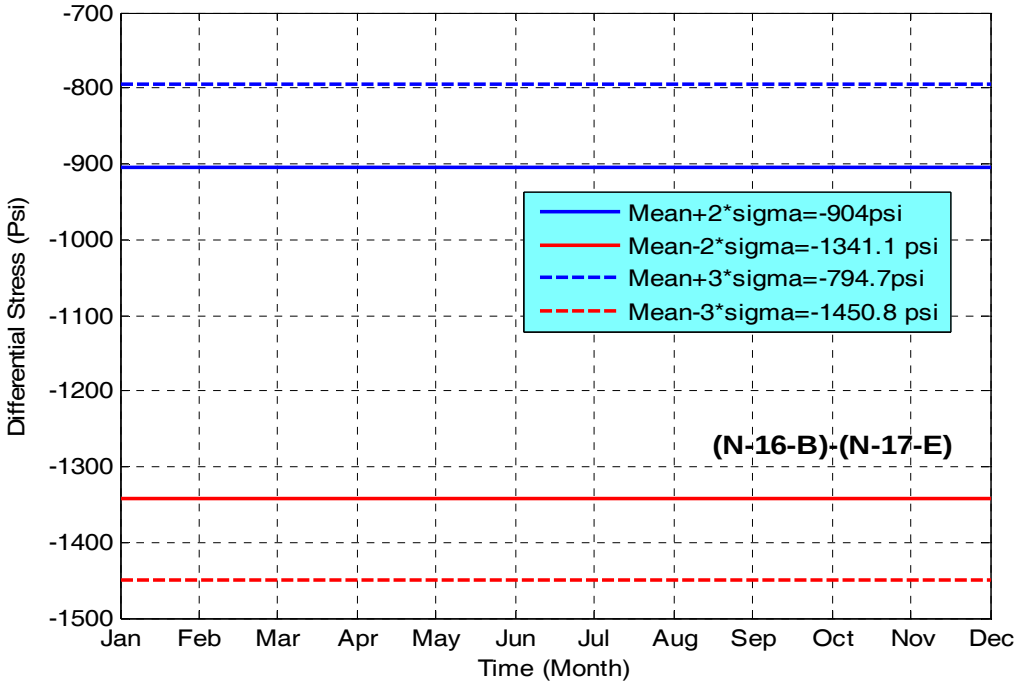


Figure D-43. One-year differential stress envelope for joint between north panels 16 and 17 (span 3)

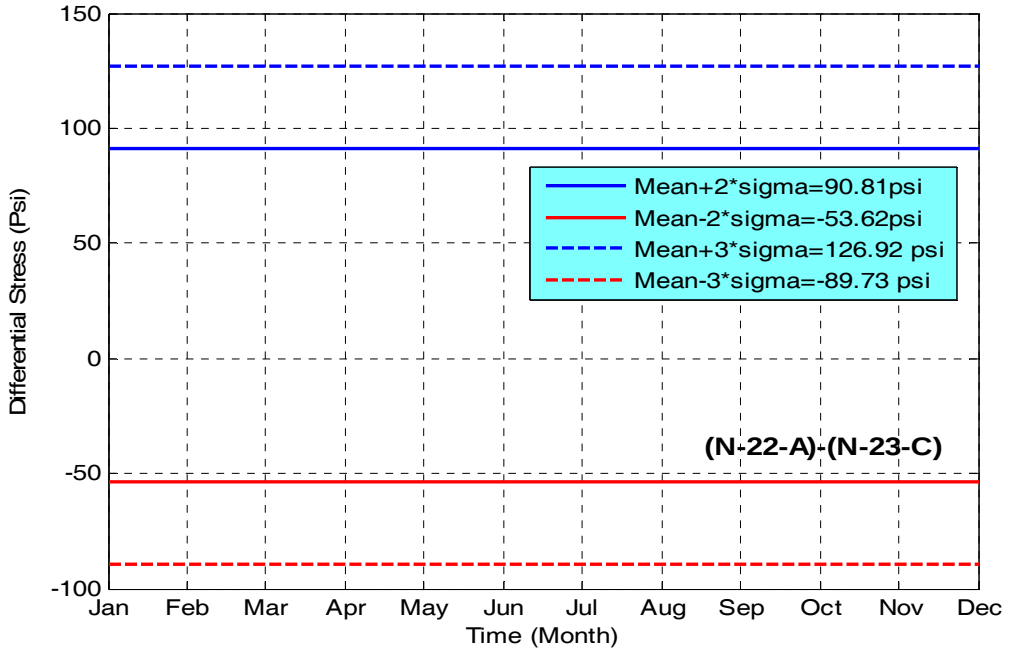


Figure D-44. One-year differential stress envelope for joint between north panels 22 and 23 (span 4)

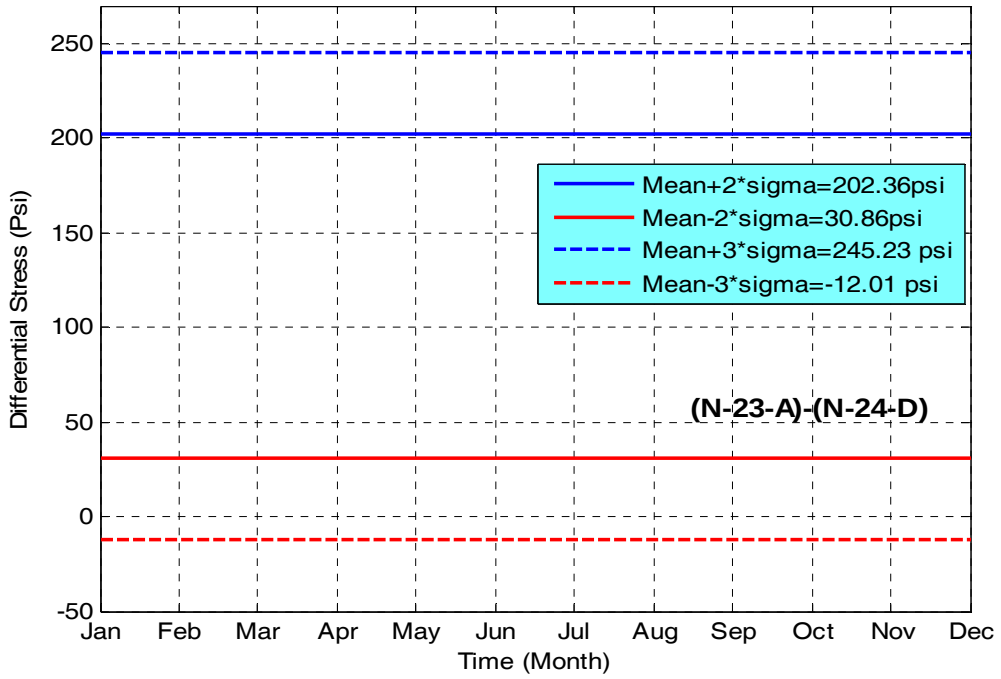


Figure D-45. One-year differential stress envelope for joint between north panels 23 and 24 (span 4)

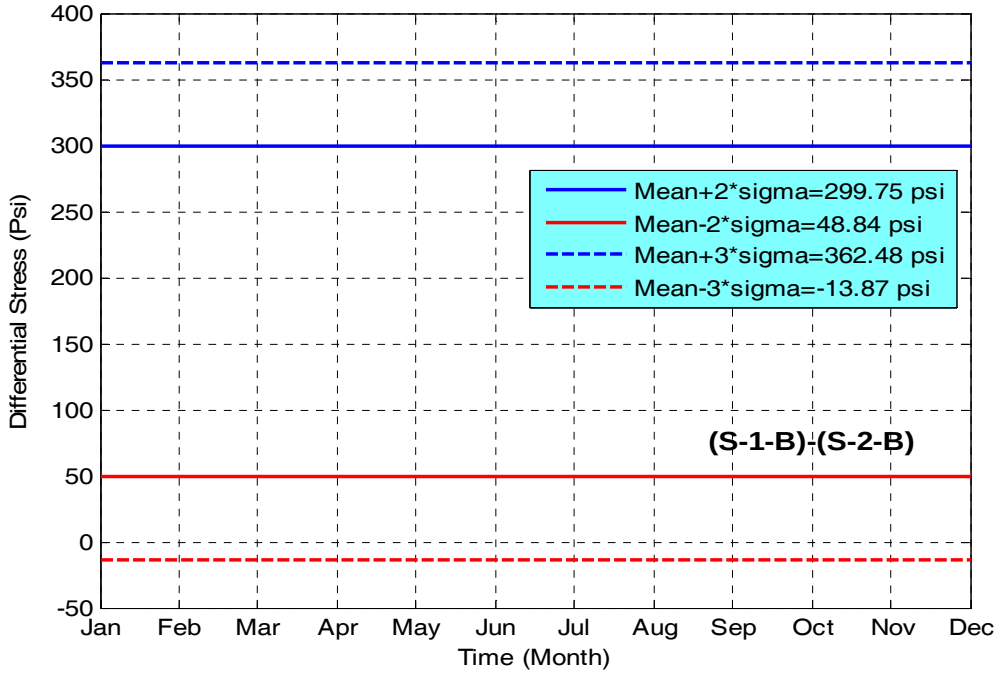


Figure D-46. One-year differential stress envelope for joint between south panels 1 and 2 (span 1)

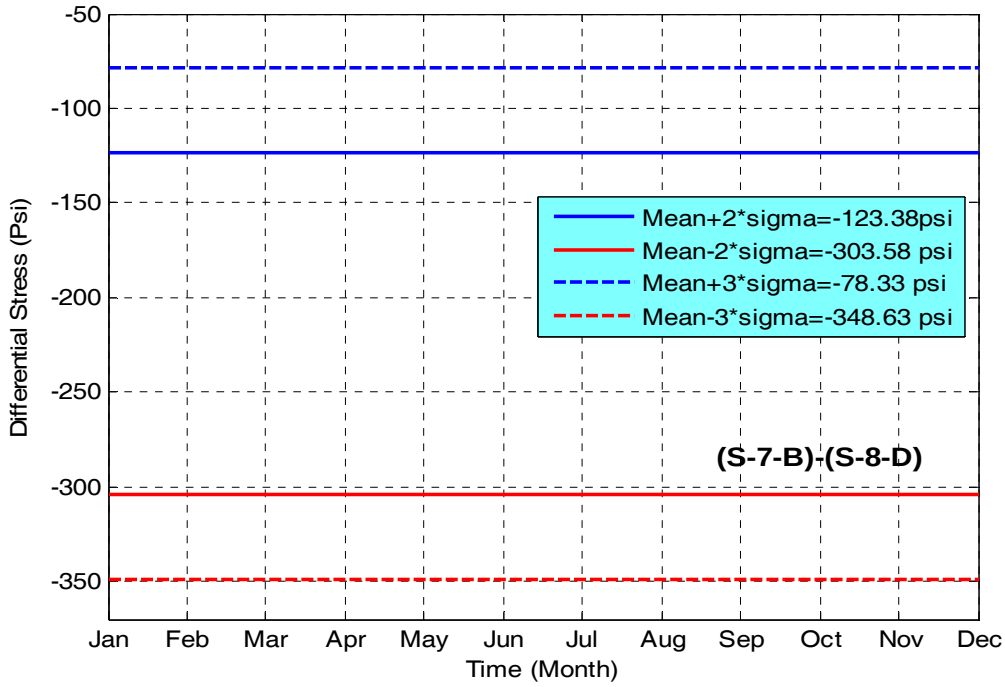


Figure D-47. One-year differential stress envelope for joint between south panels 7 and 8 (span 2)

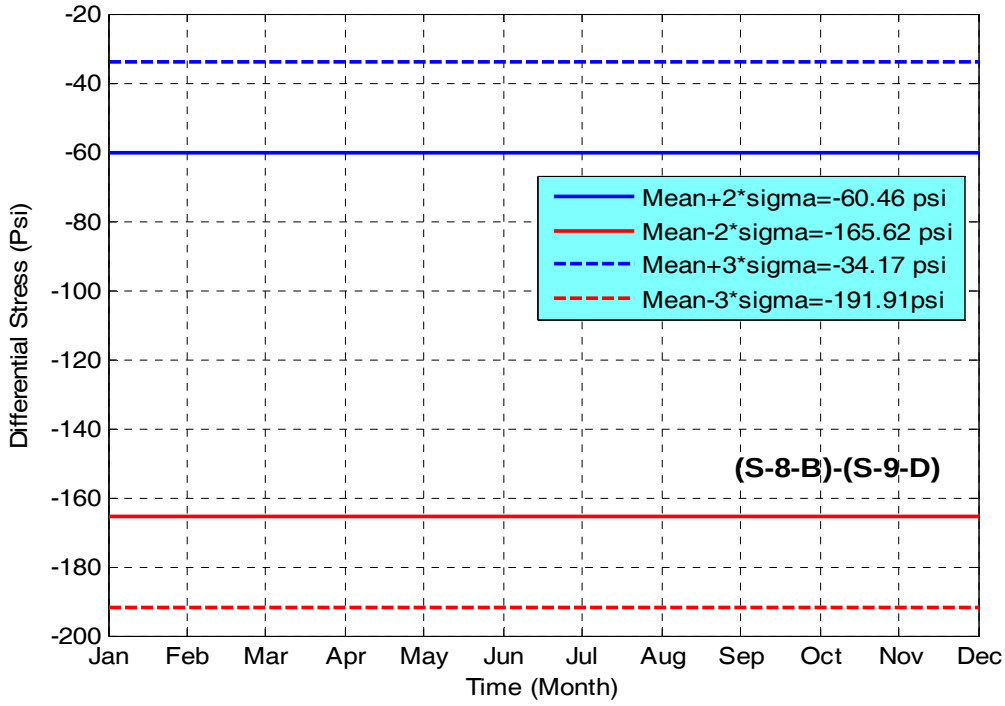


Figure D-48. One-year differential stress envelope for joint between south panels 8 and 9 (span 2)

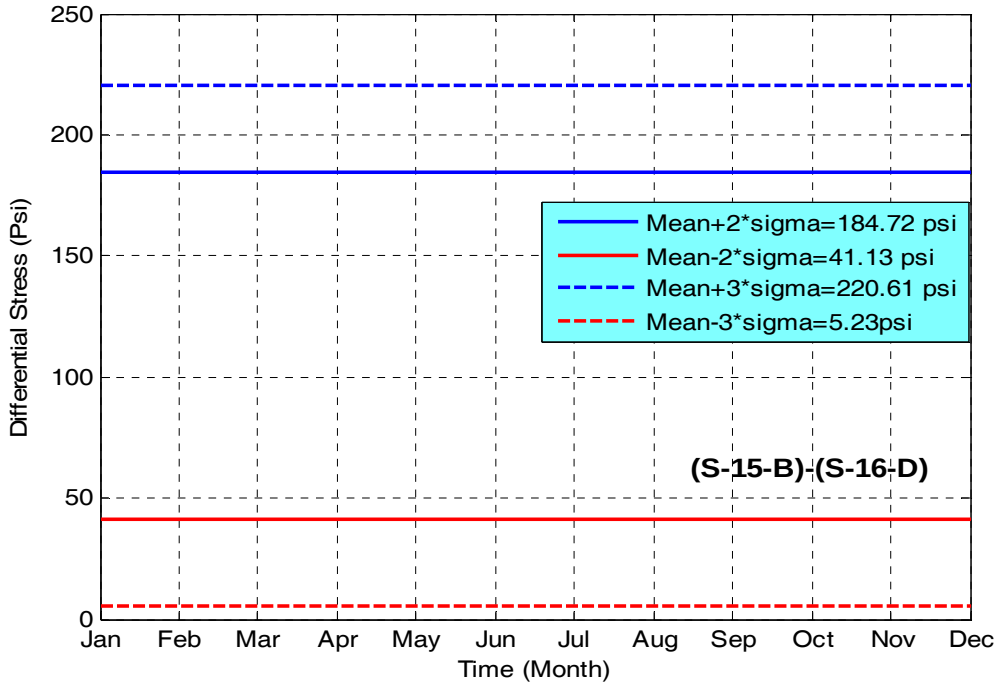


Figure D-49. One-year differential stress envelope for joint between south panels 15 and 16 (span 3)

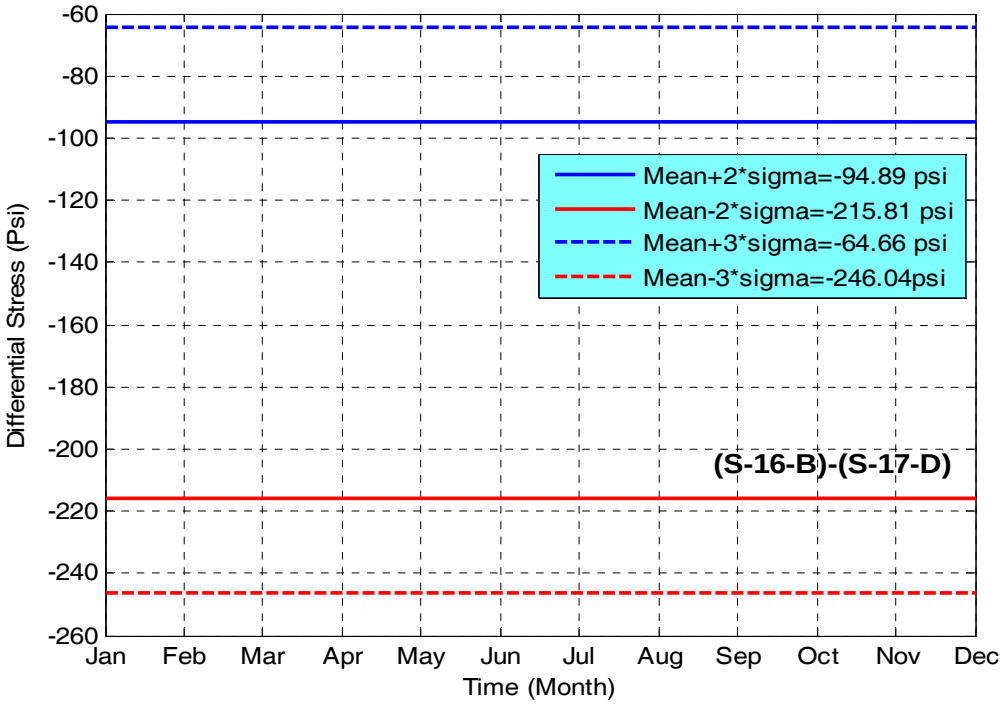


Figure D-50. One-year differential stress envelope for joint between south panels 16 and 17 (span 3)

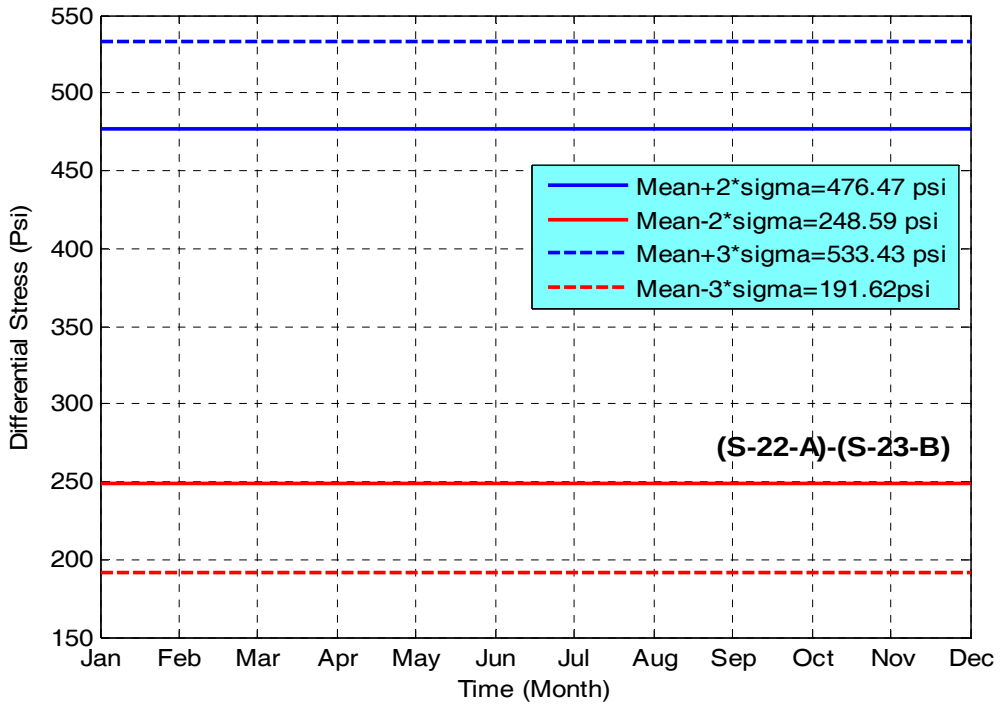


Figure D-51. One-year differential stress envelope for joint between south panels 22 and 23 (span 4)

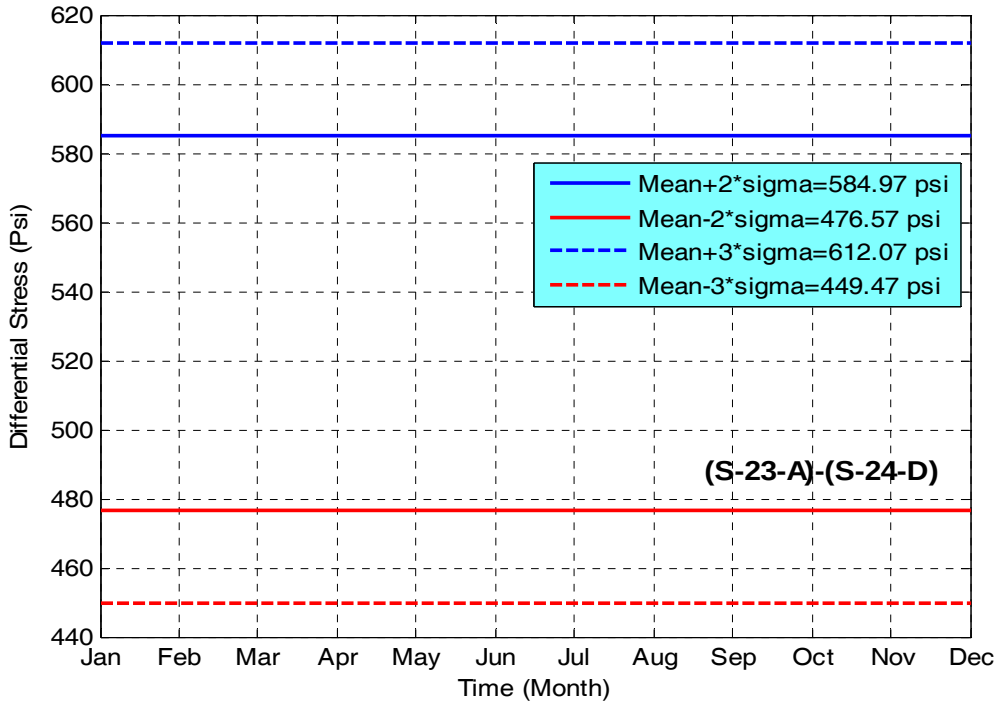


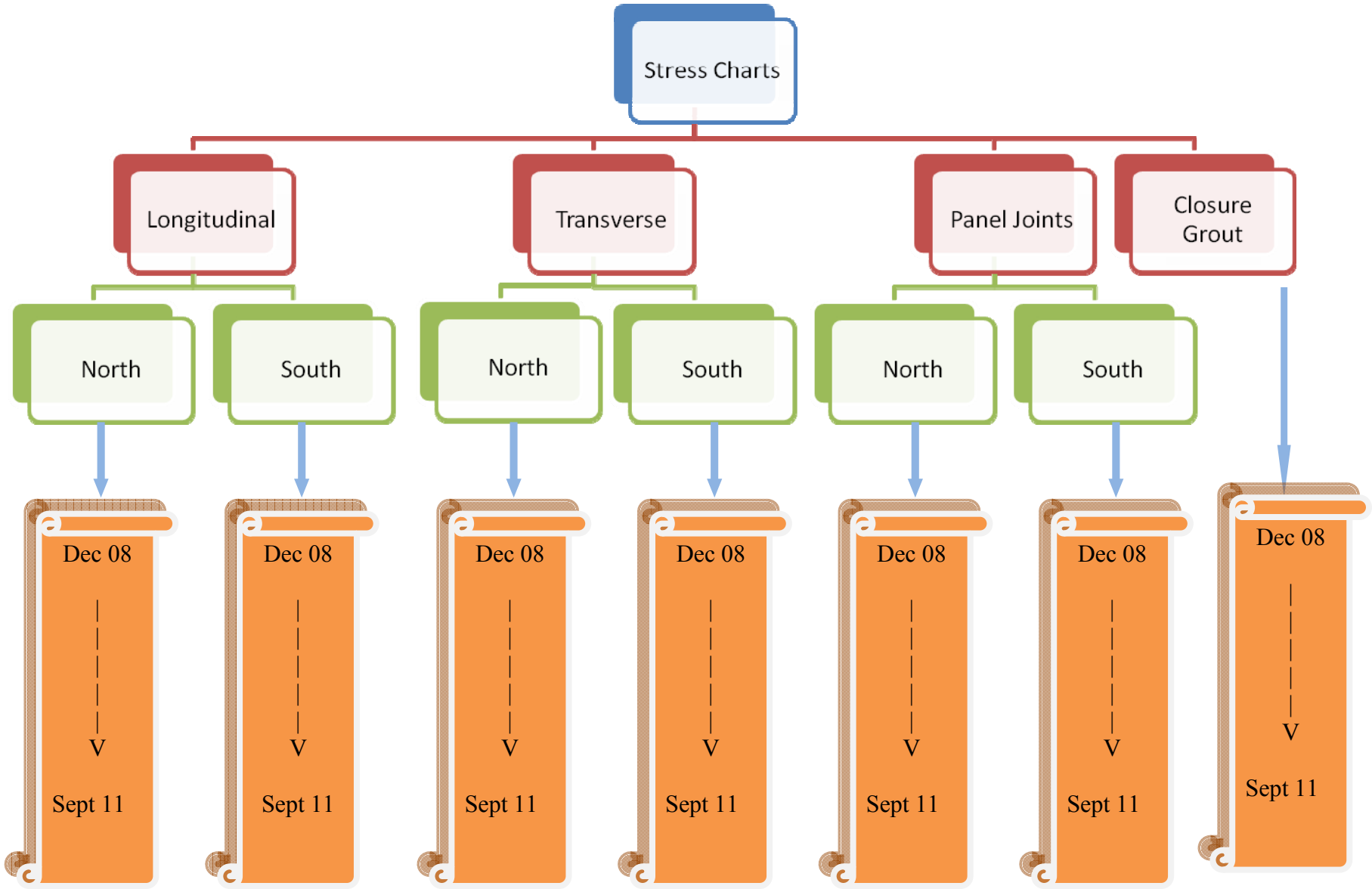
Figure D-52. One-year differential stress envelope for joint between south panels 23 and 24 (span 4)

APPENDIX E: SENSOR STRESS CHARTS AND DATA (CD-ROM)

Three years worth of sensor stress charts and data are provided on the attached CD organized in two separate folders:

- Stress Charts
- Raw Data Spreadsheets

The organization of the stress charts and the raw data folders are shown in the following two illustrations.


Stress Charts
Longitudinal
Transverse
Panel Joints
Closure Grout
North
South
North
South
North
South
Dec 08
V
Sept 11
Dec 08
V
Sept 11
Dec 08
V
Sept 11
Dec 08
V
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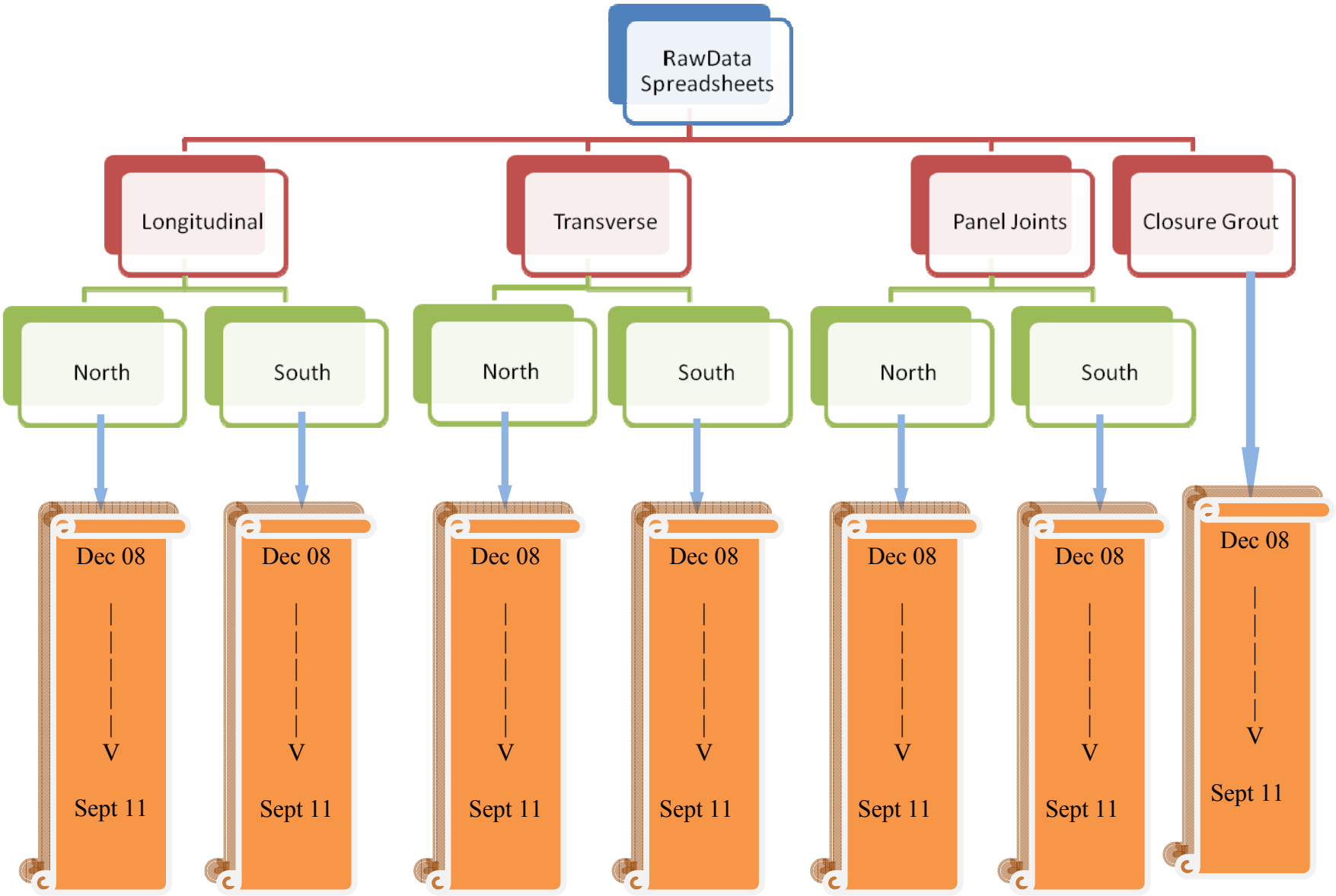
V
Sept 11
Dec 08
V
Sept 11


RawData Spreadsheets
Longitudinal
Transverse
Panel Joints
Closure Grout
North
South
North
South
North
South
Dec 08
V
Sept 11
Dec 08
V
Sept 11
Dec 08
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