Response to Question 19-95: Supporting MAAP Cases Results

APPENDIX A

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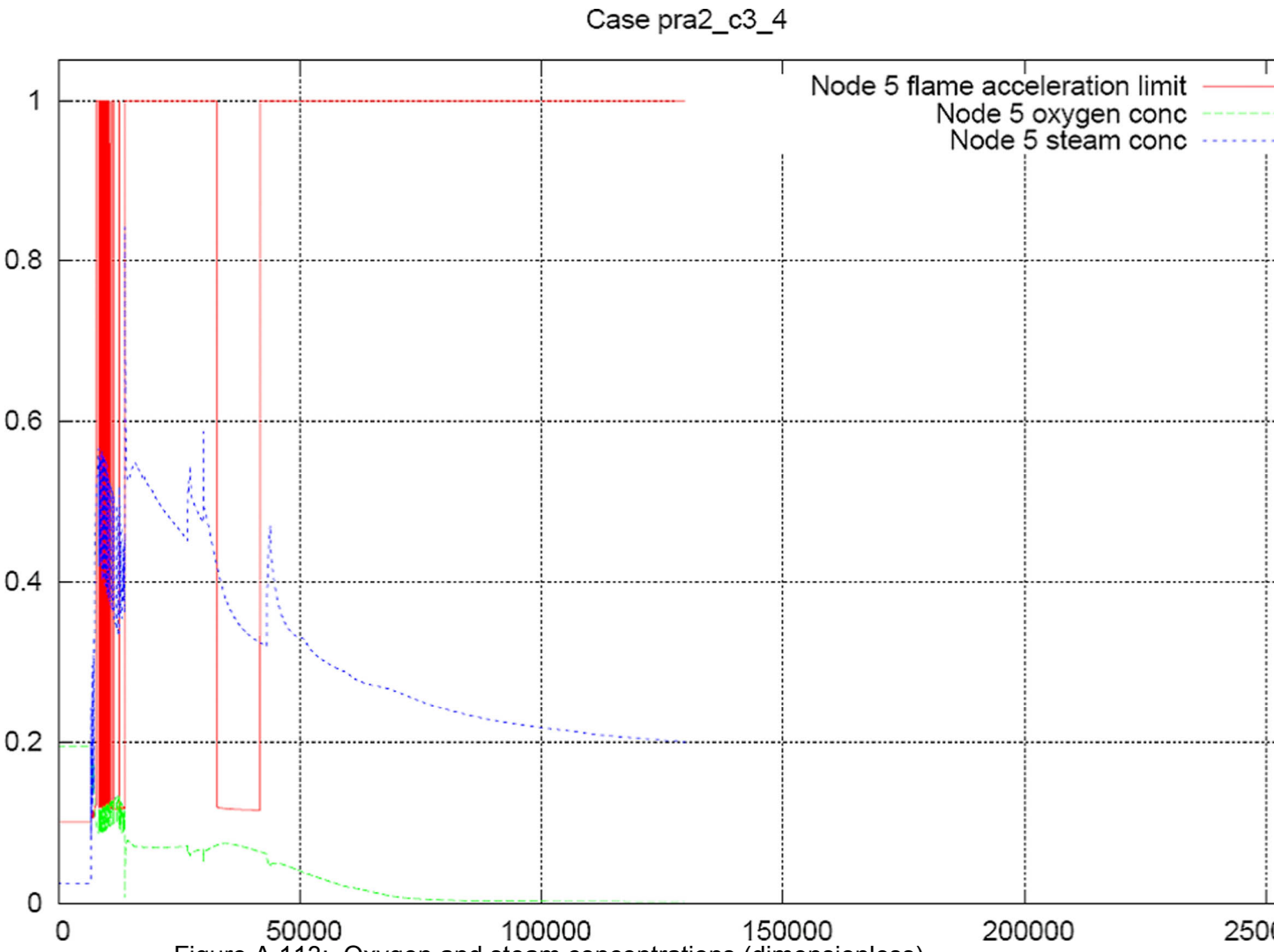

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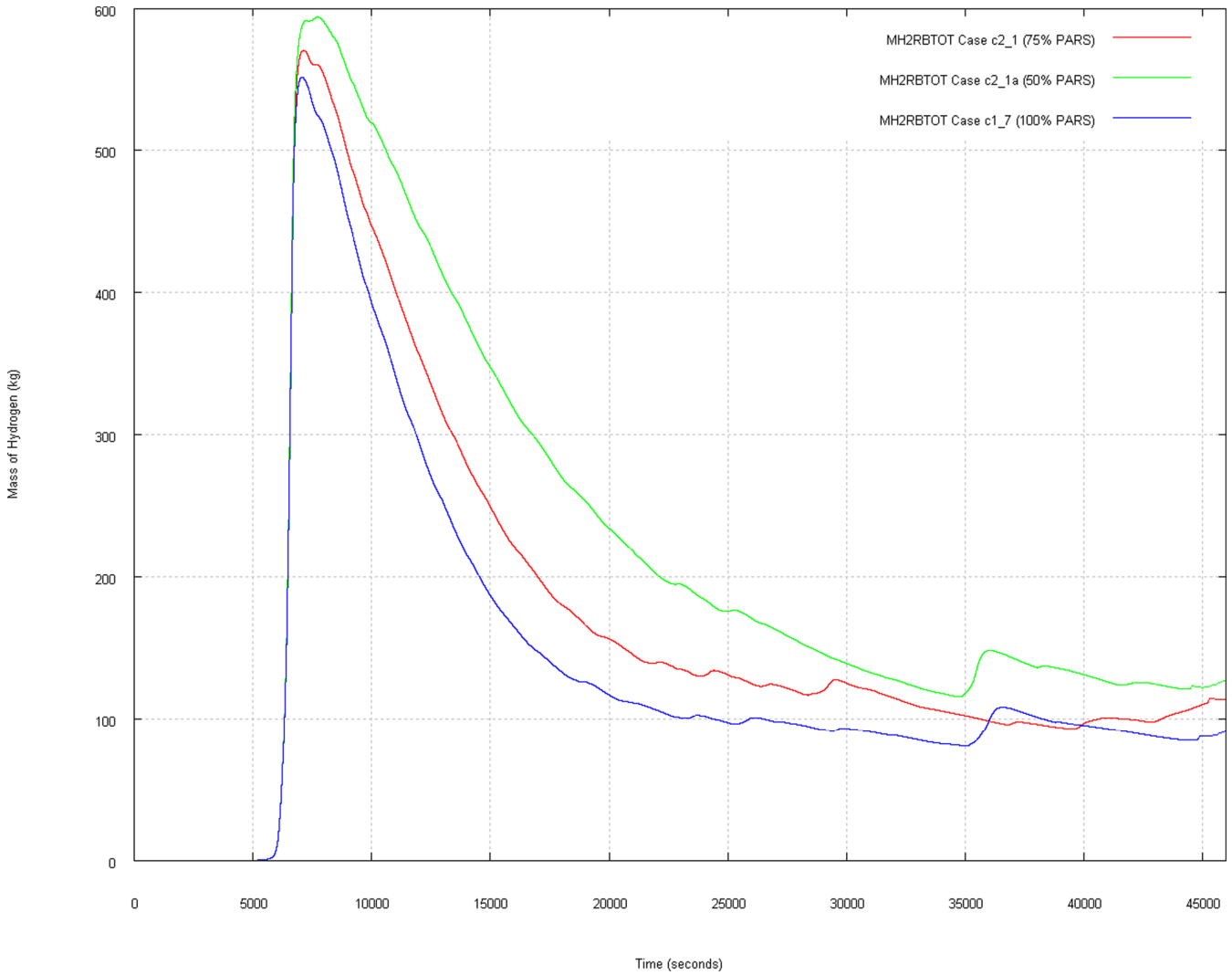

Figure A 1: Hydrogen mass in containment for 2" Seal LOCA cases with 100%, 75% and 50% PARS efficiency

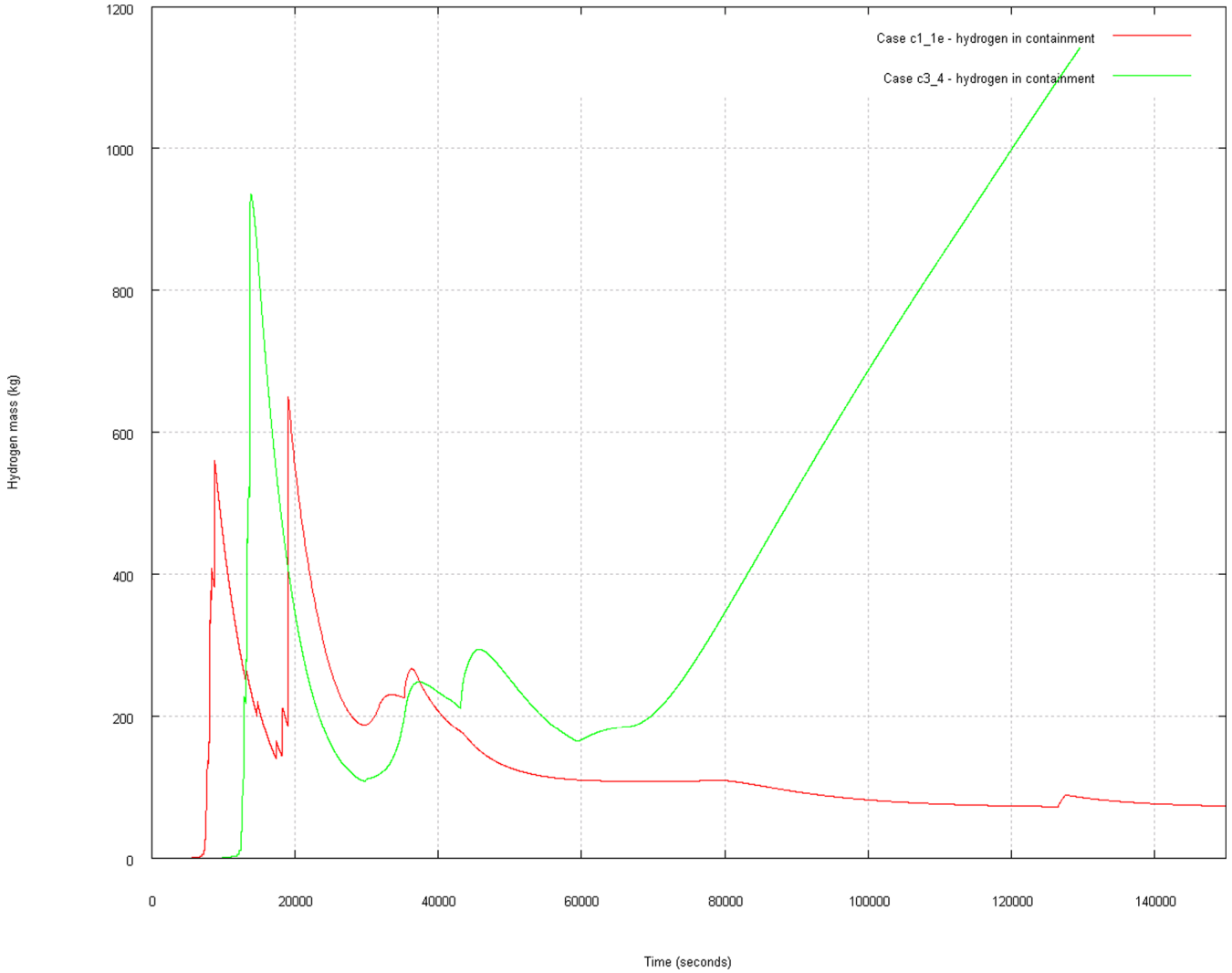

Figure A 2: Hydrogen mass in containment for cases c1_1e and c3_4

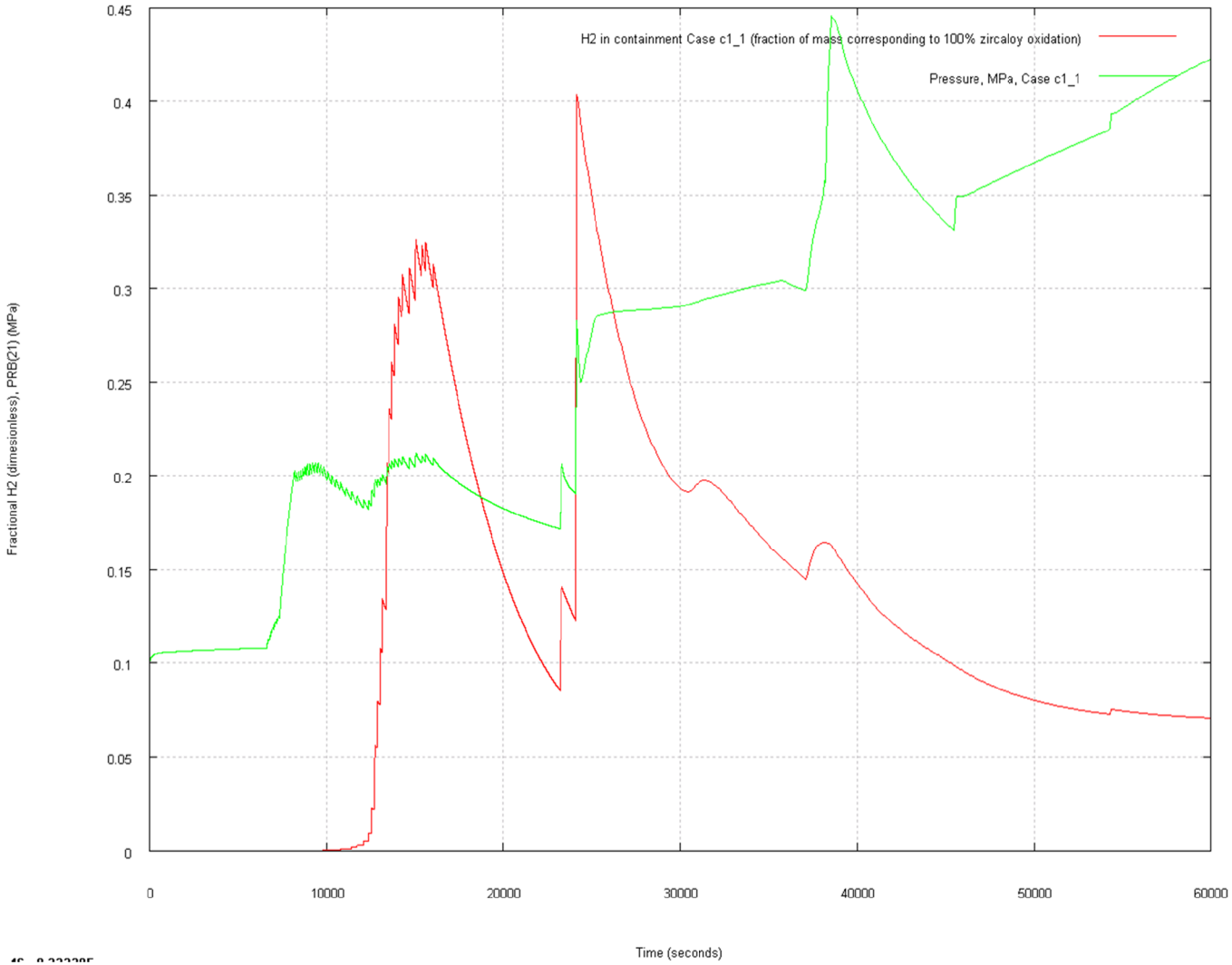

Figure A 3: Hydrogen in containment and containment pressure for case c1_1

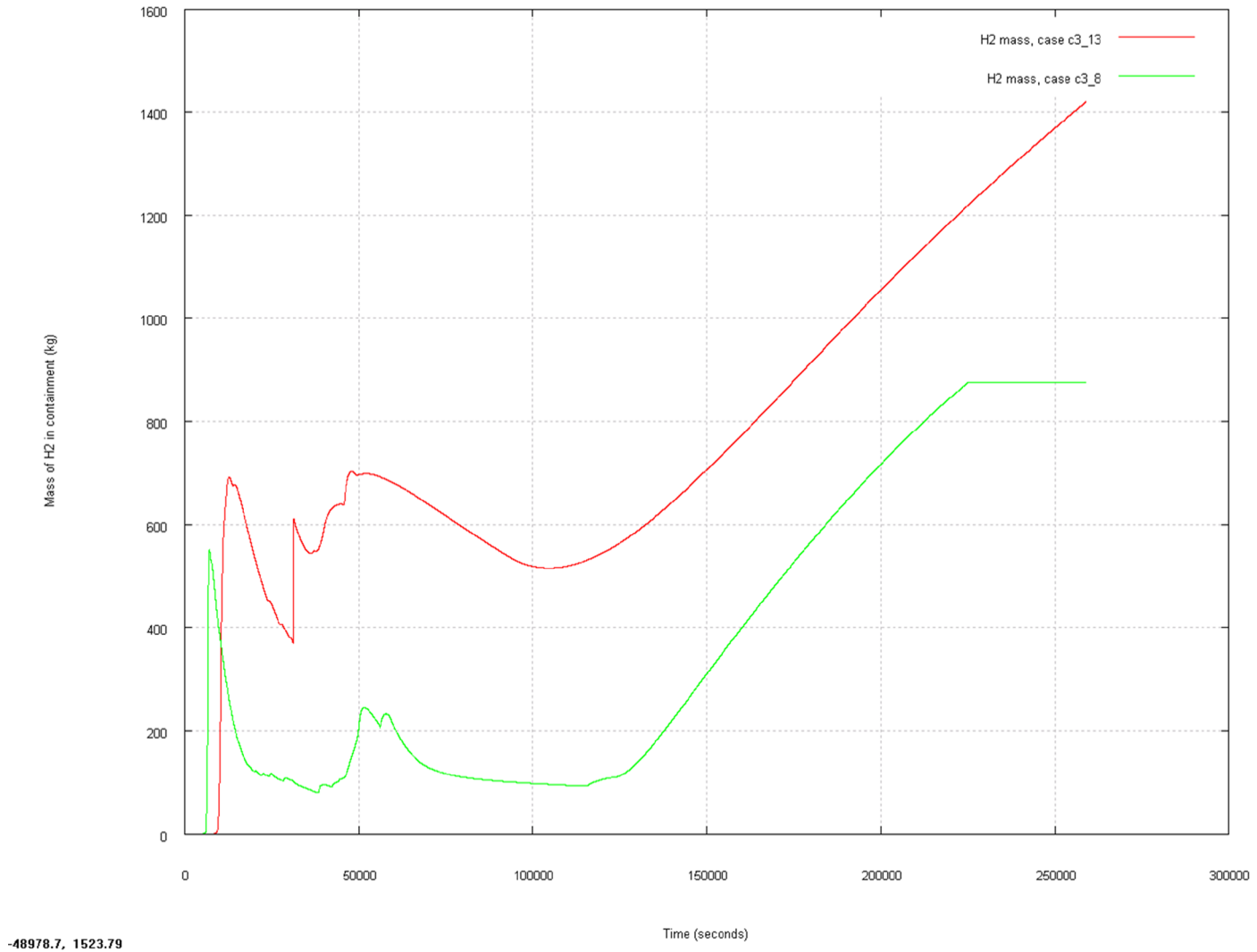

Figure A 4: Hydrogen in containment, cases c3_8 and c3_13

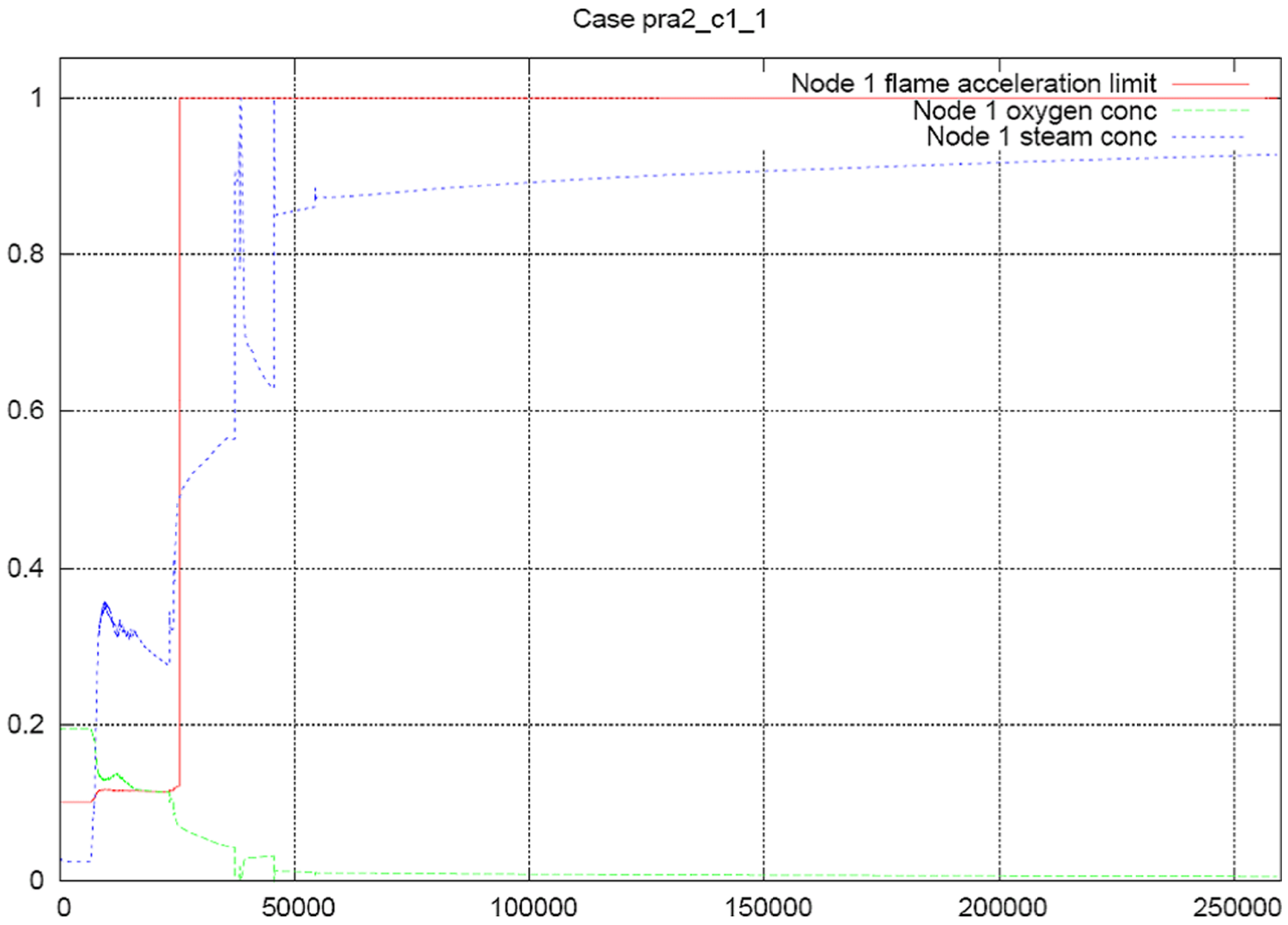

Figure A 5: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1, containment node 1)

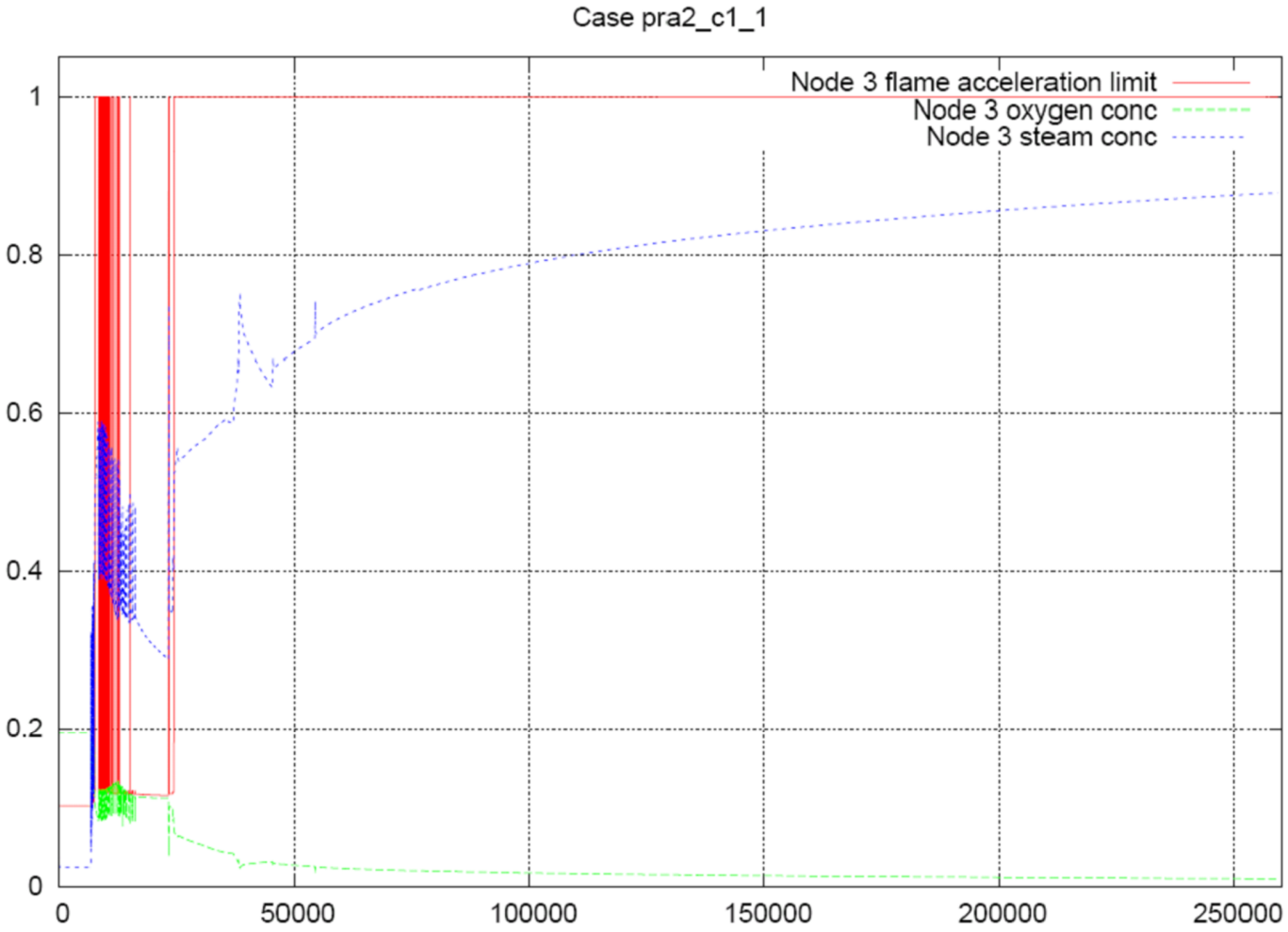

Figure A 6: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1, containment node 3)

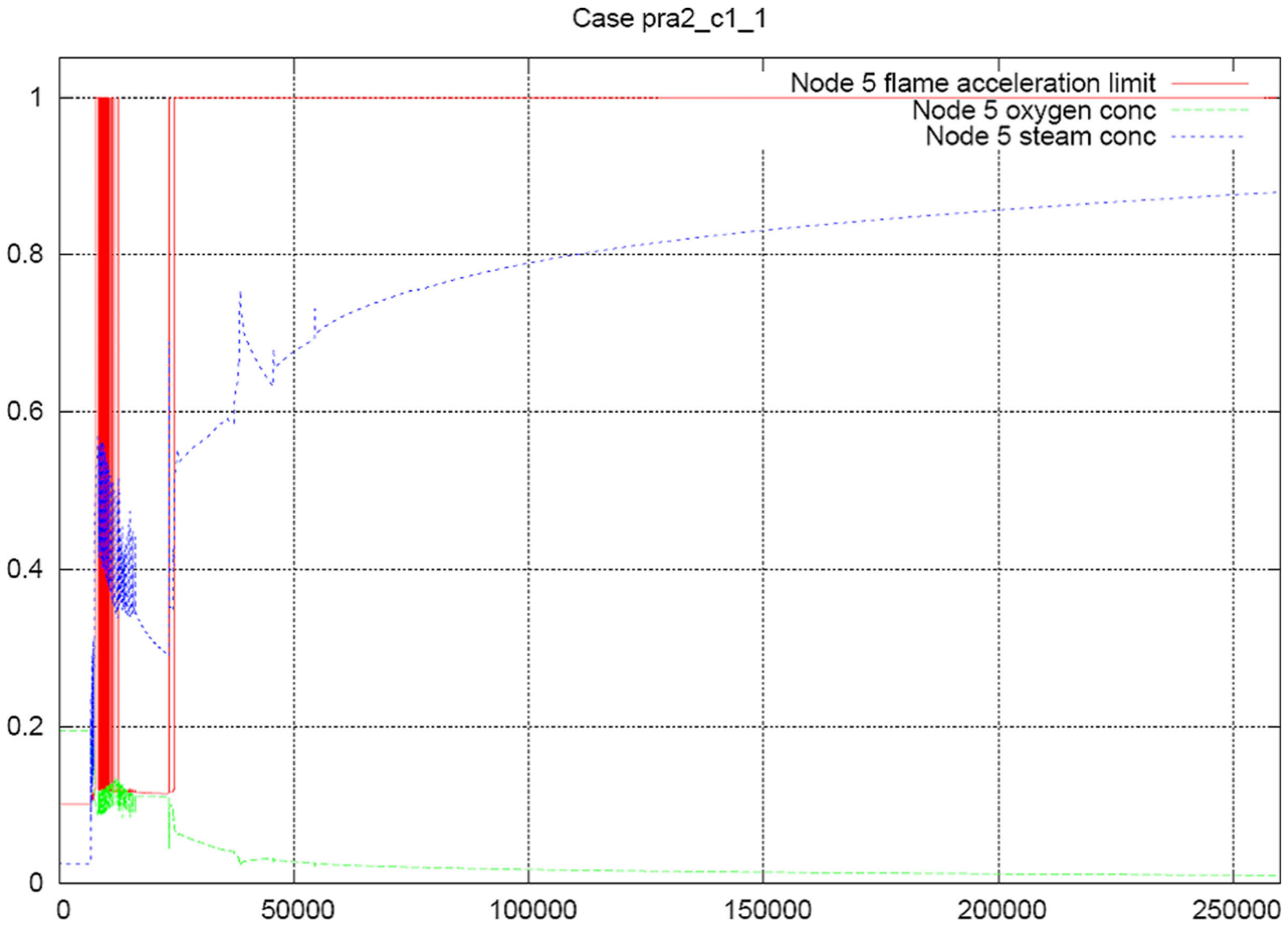

Figure A 7: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1, containment node 5)

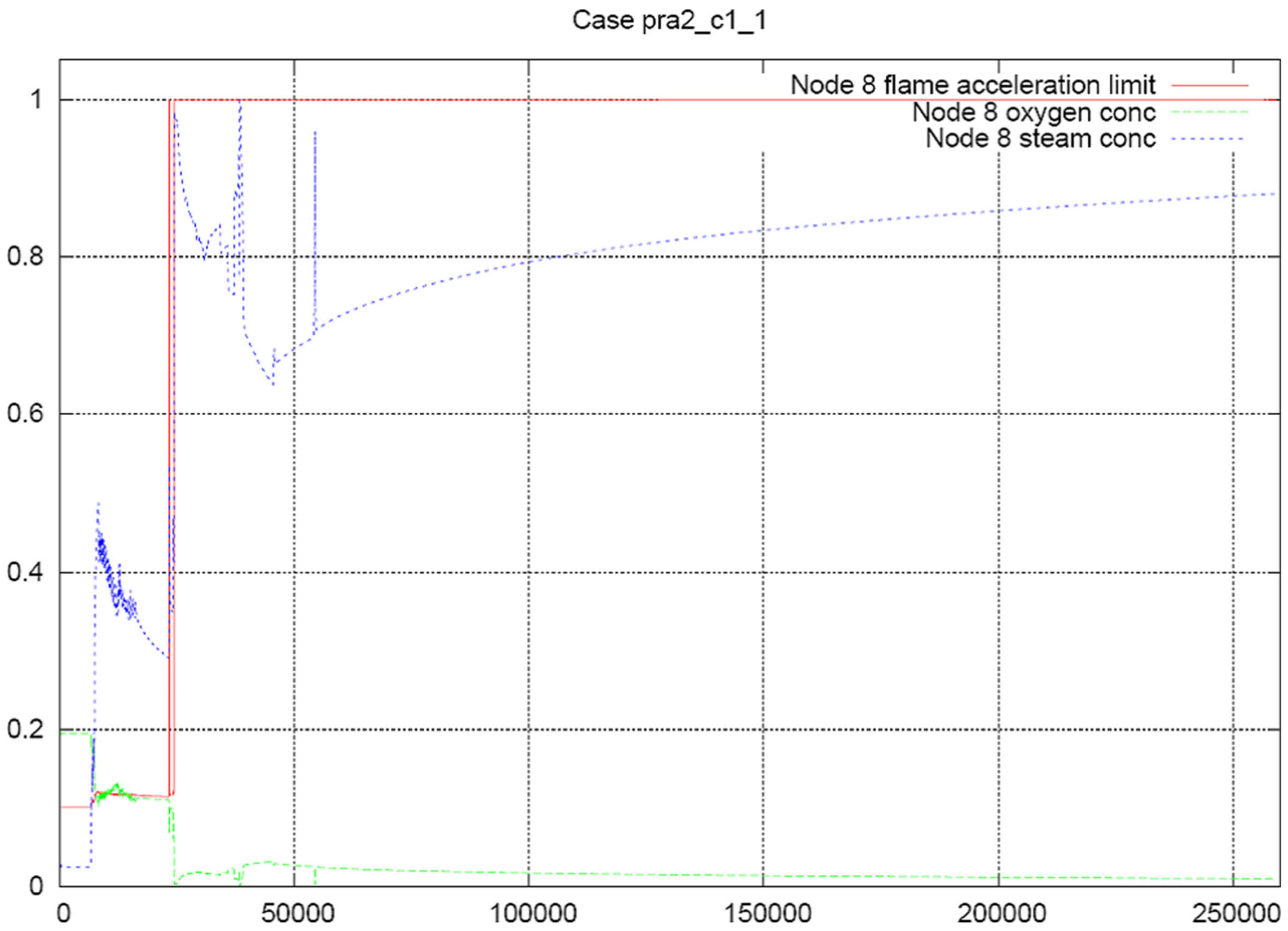

Figure A 8: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1, containment node 8)

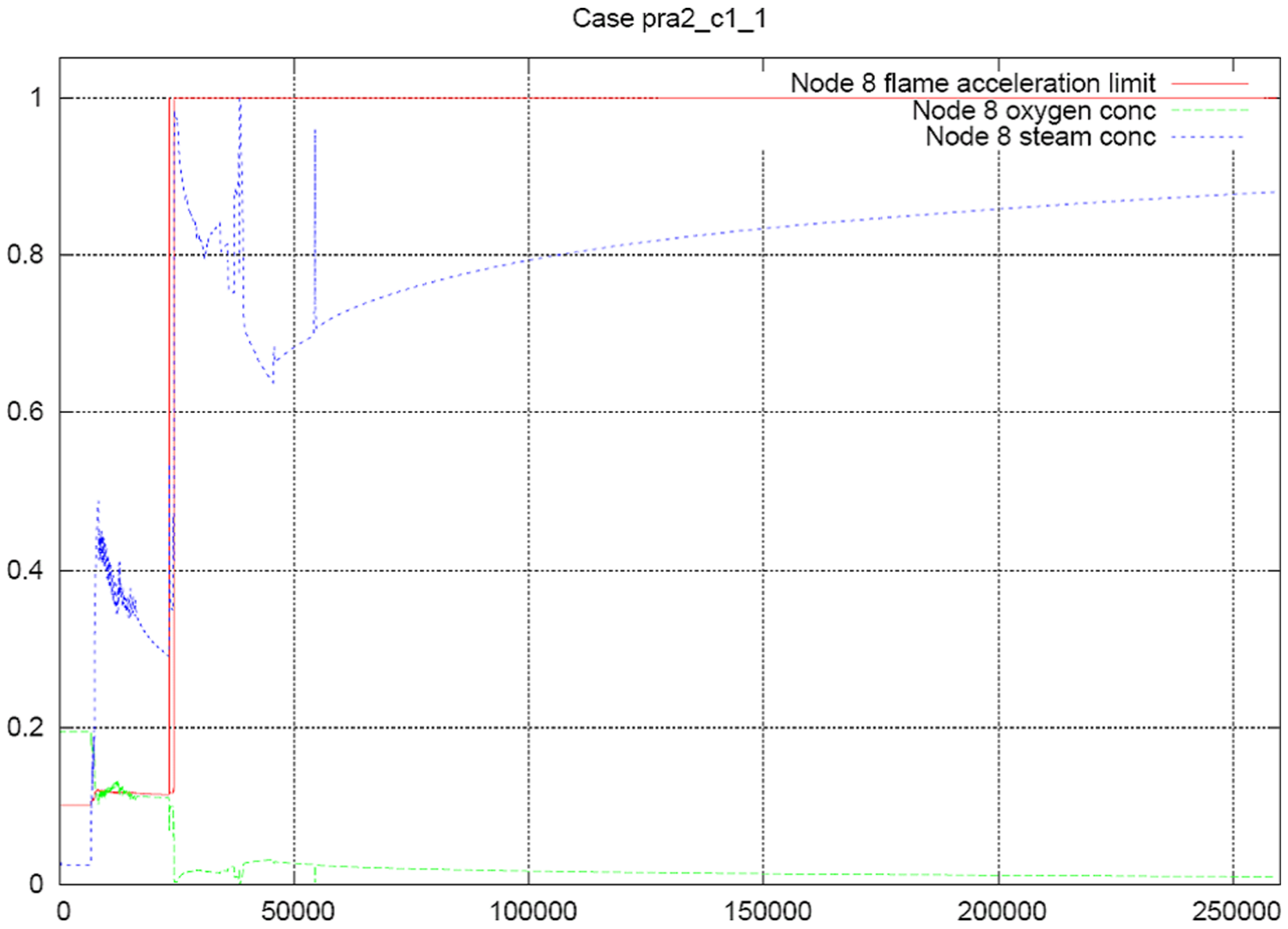

Figure A 9: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1, containment node 10)

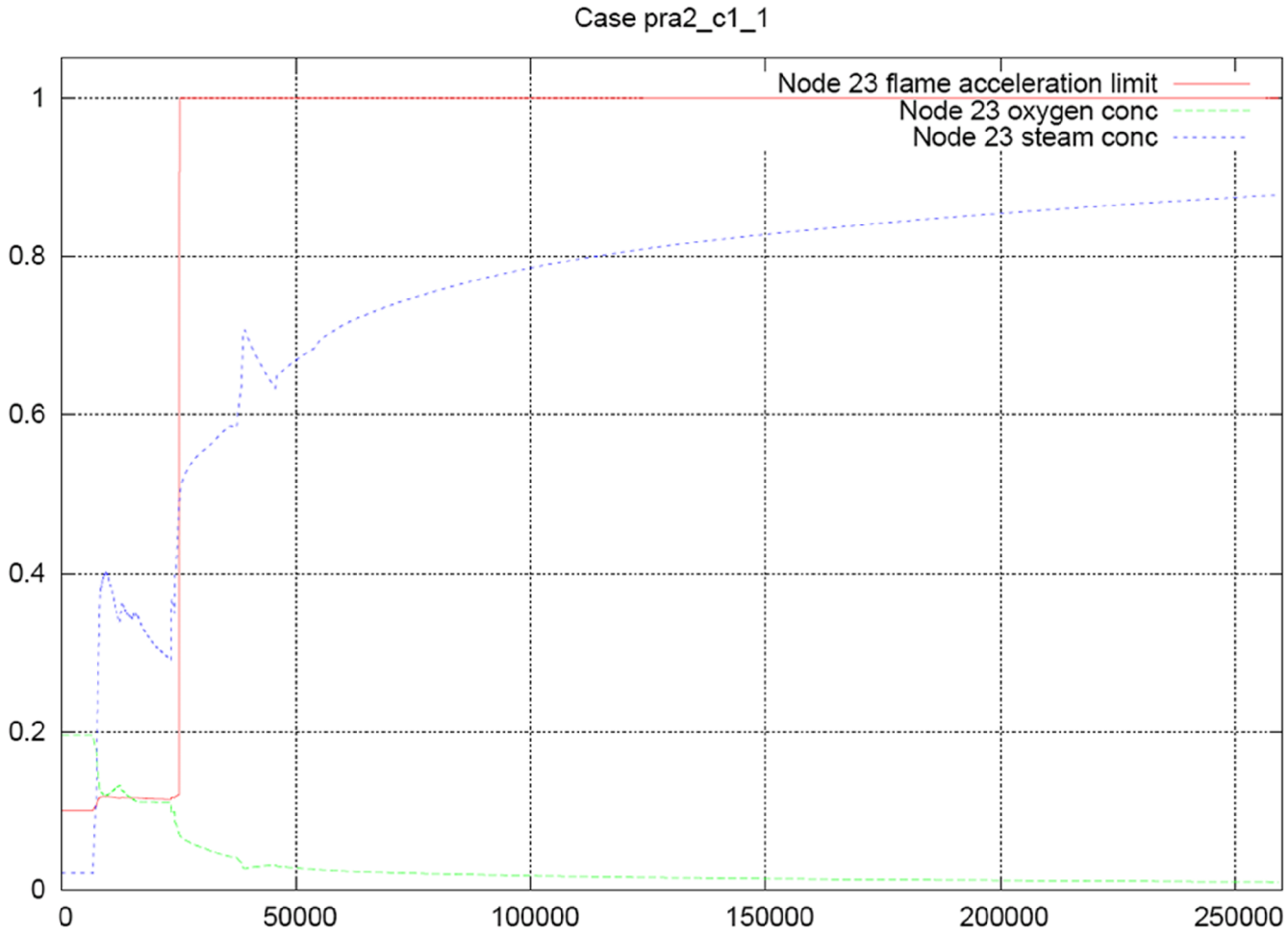

Figure A 10: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1, containment node 23)

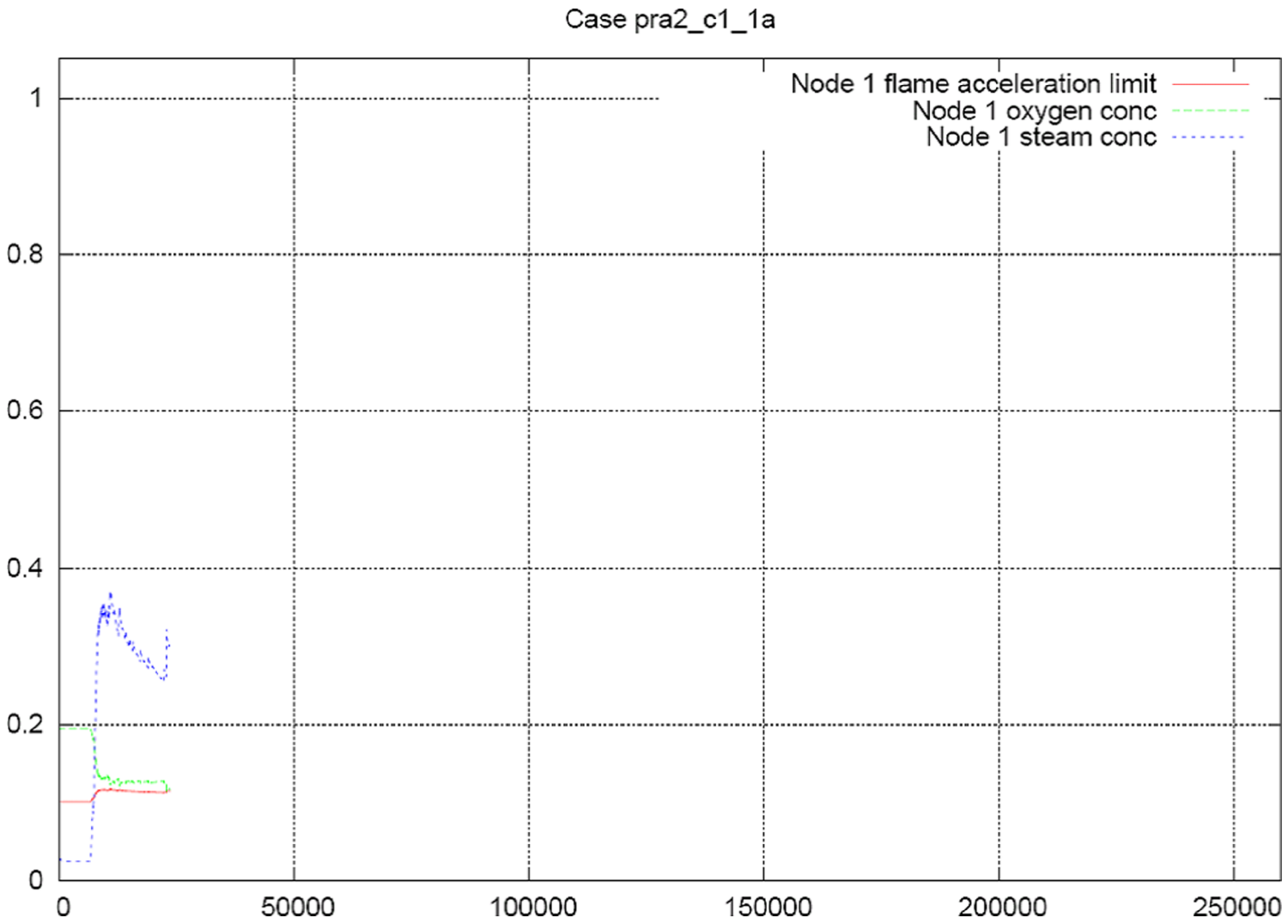

Figure A 11: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1a, containment node 1)

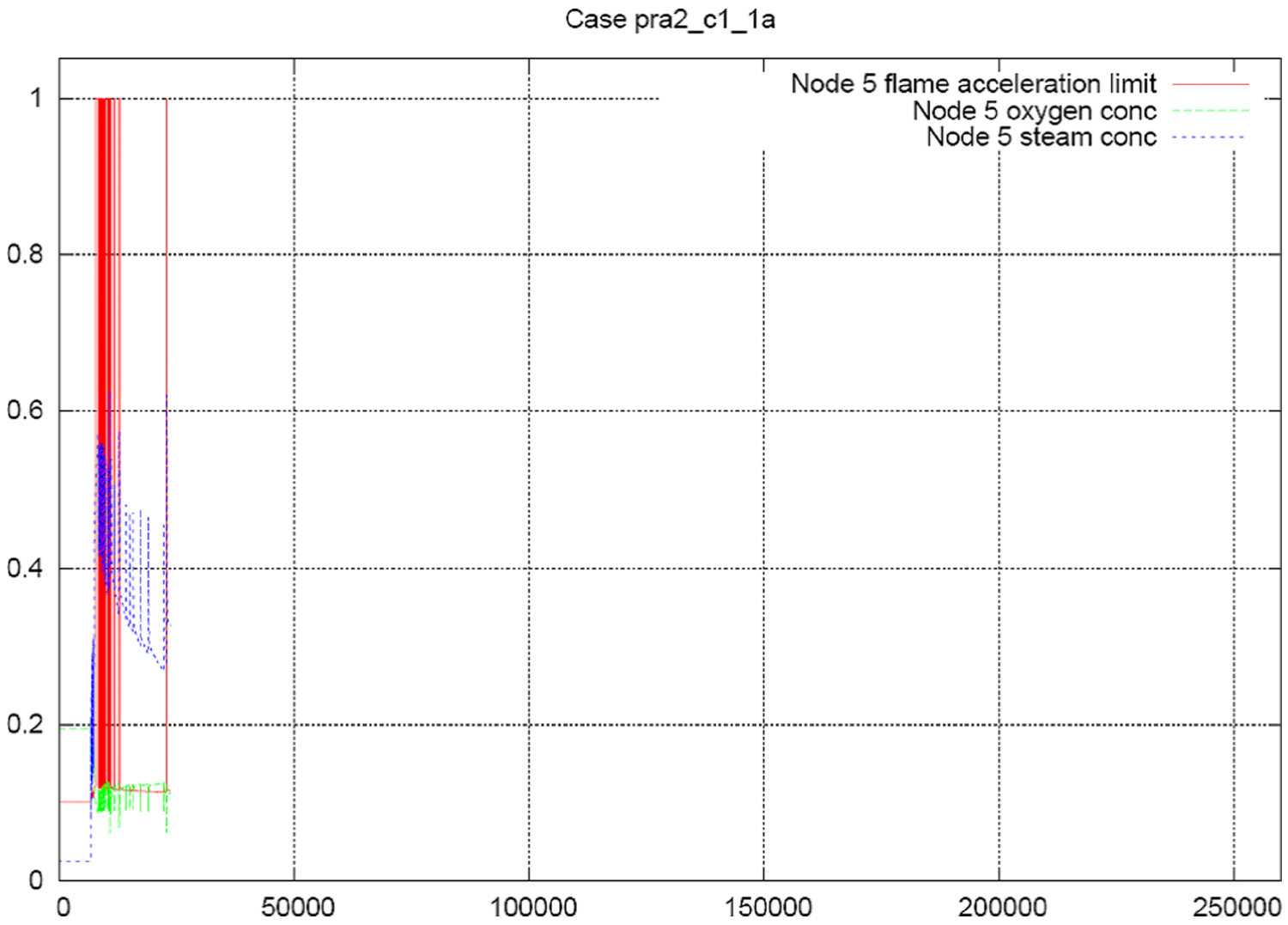

Figure A 12: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1a, containment node 5)

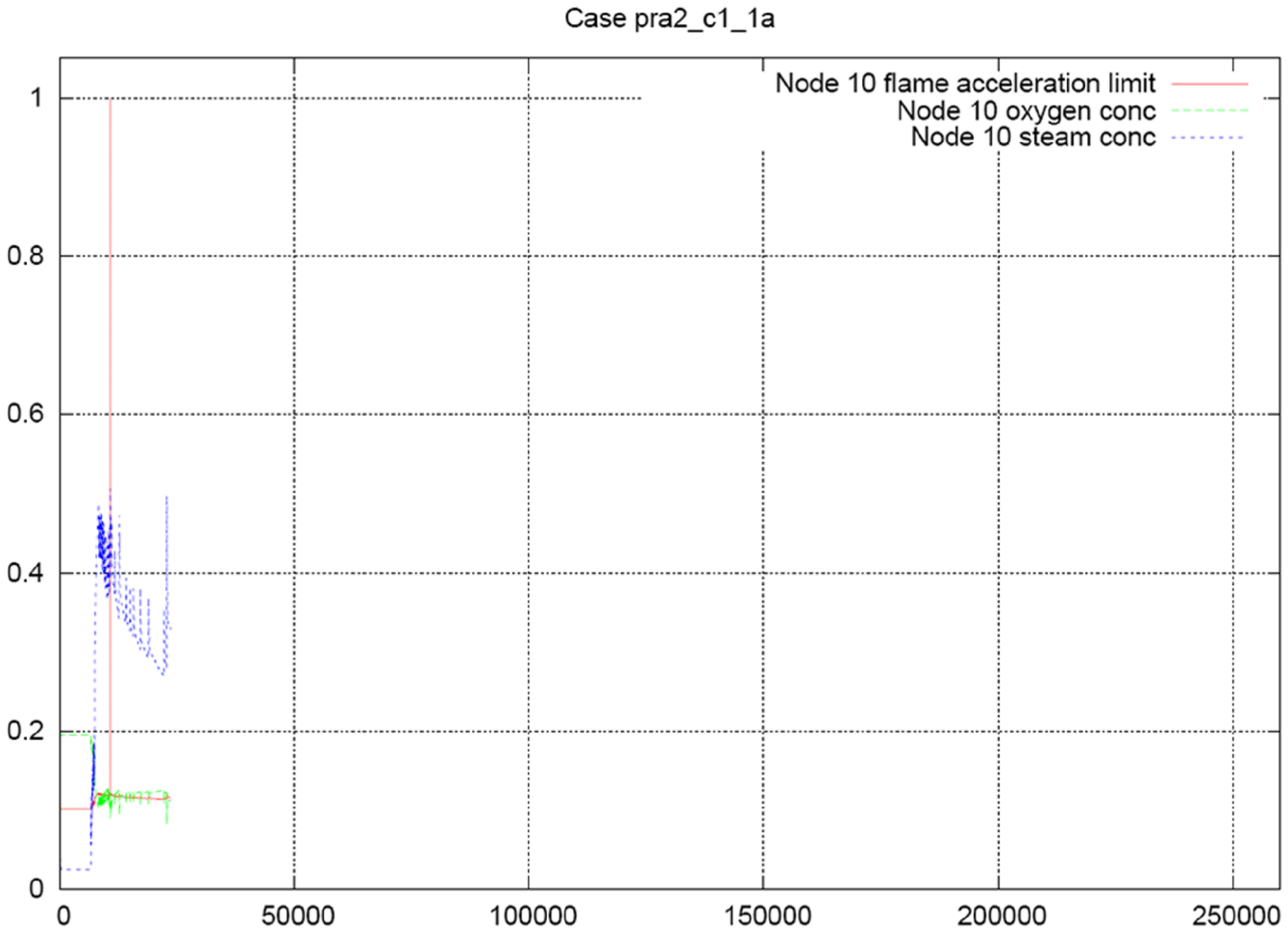

Figure A 13: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1a, containment node 10)

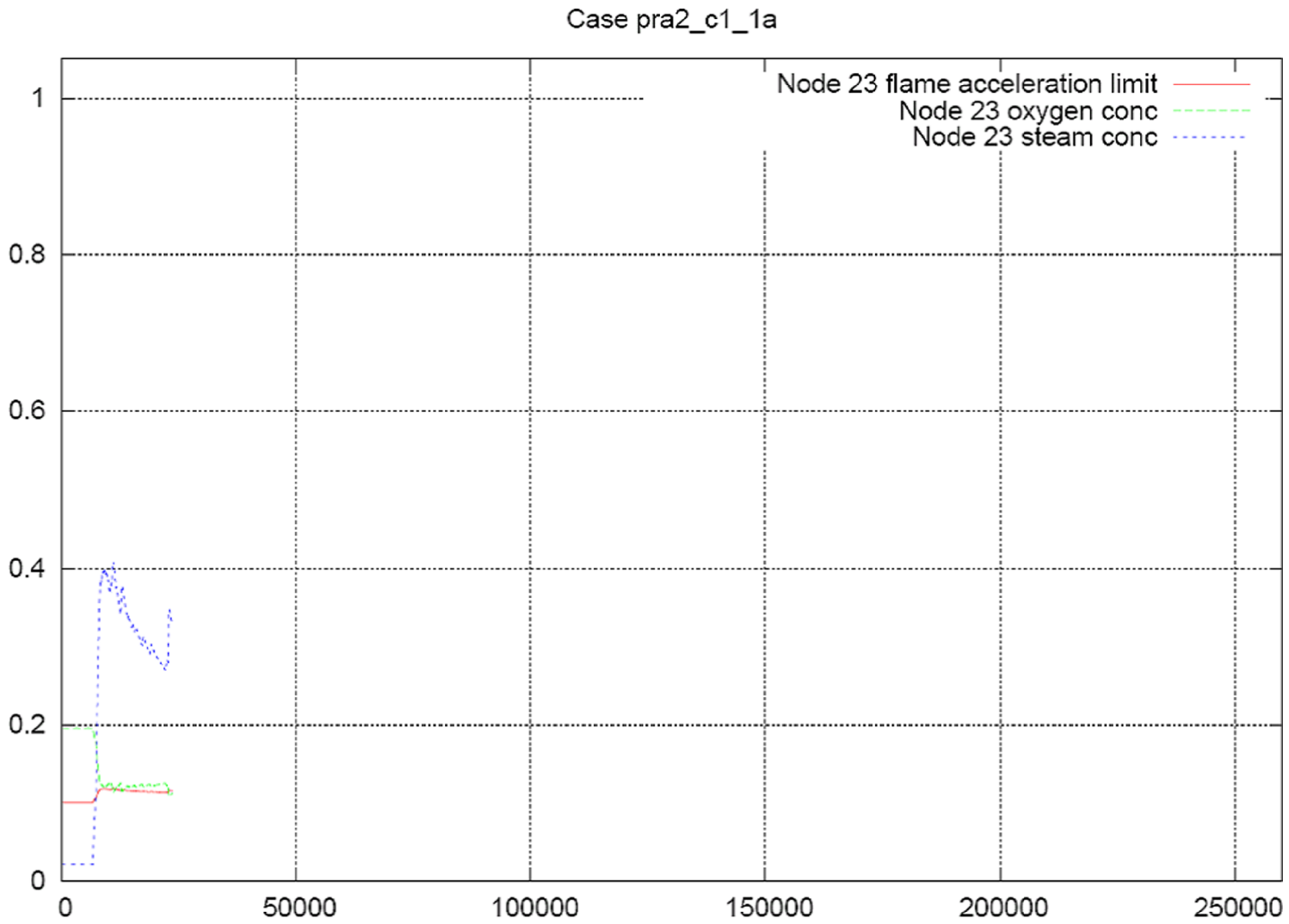

Figure A 14: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1a, containment node 23)

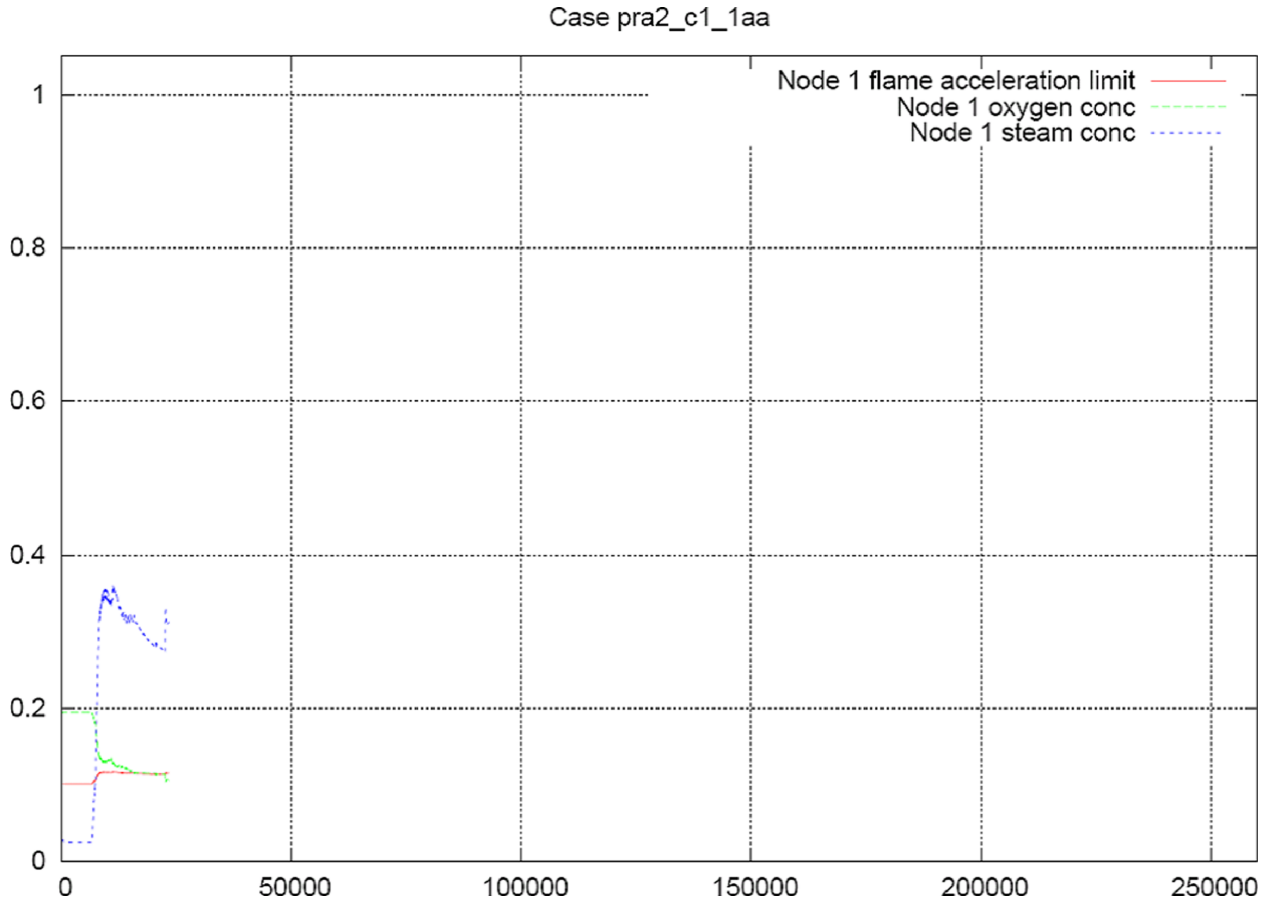

Figure A 15: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1aa, containment node 1)

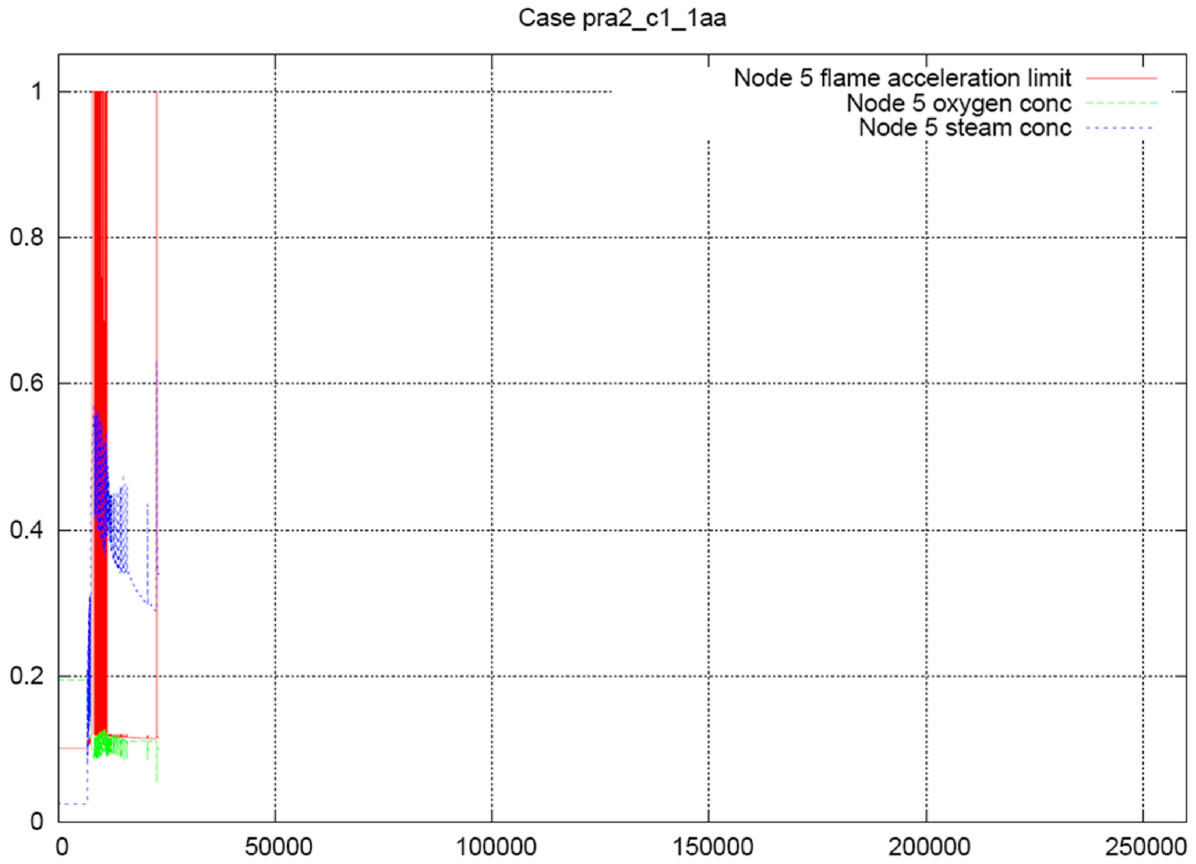

Figure A 16: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1aa, containment node 5)

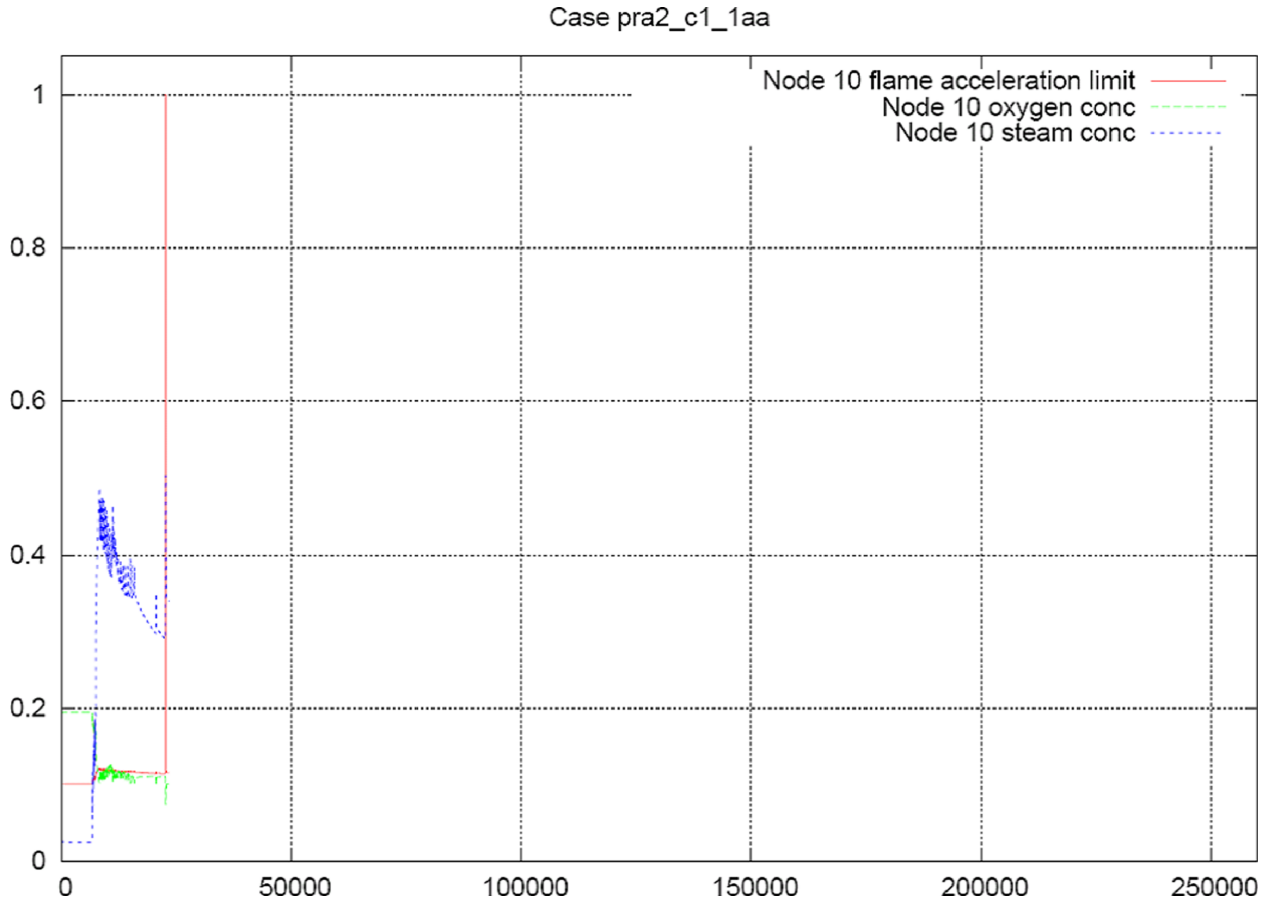

Figure A 17: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1aa, containment node 10)

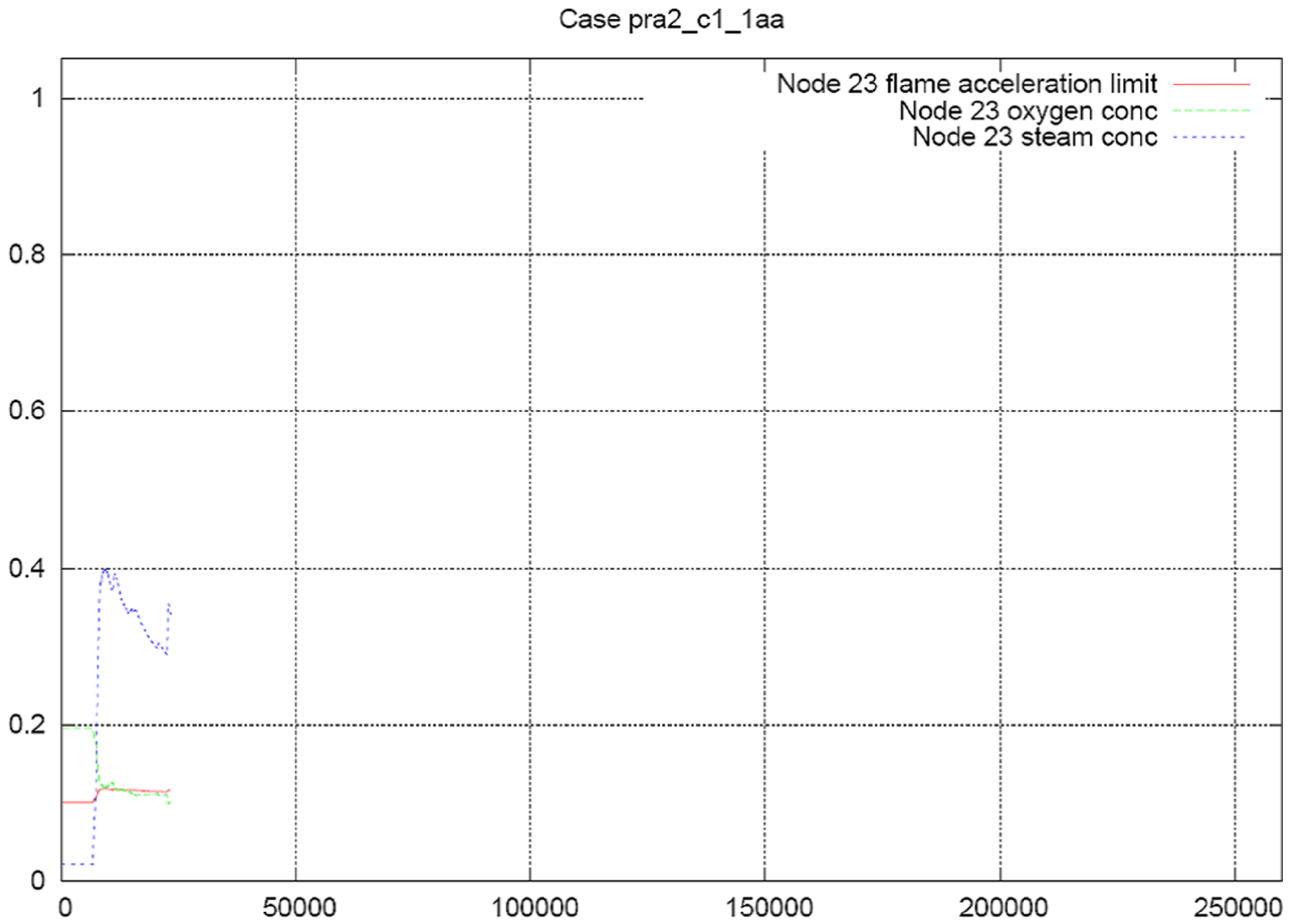

Figure A 18: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1aa, containment node 23)

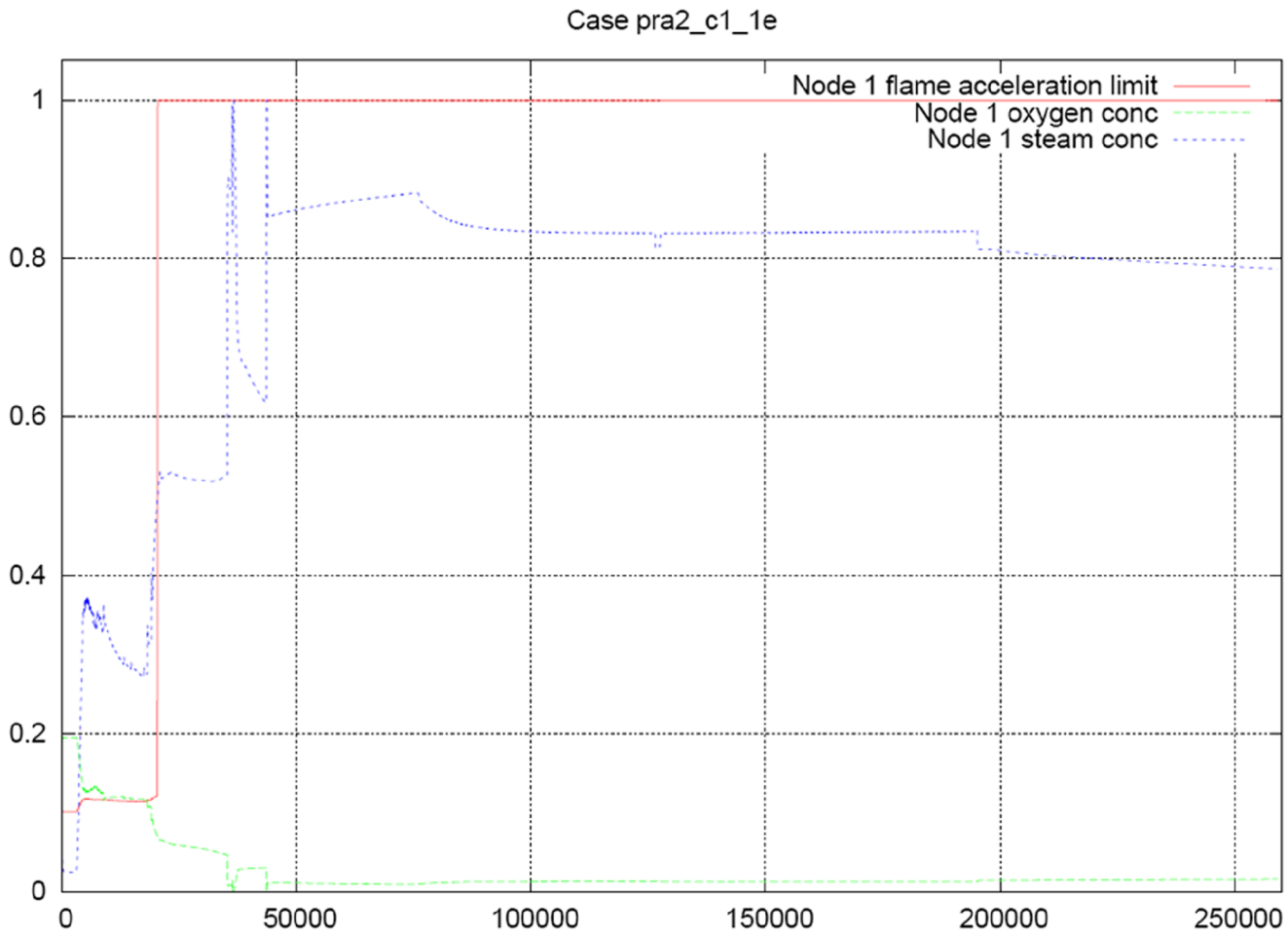

Figure A 19: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1e, containment node 1)

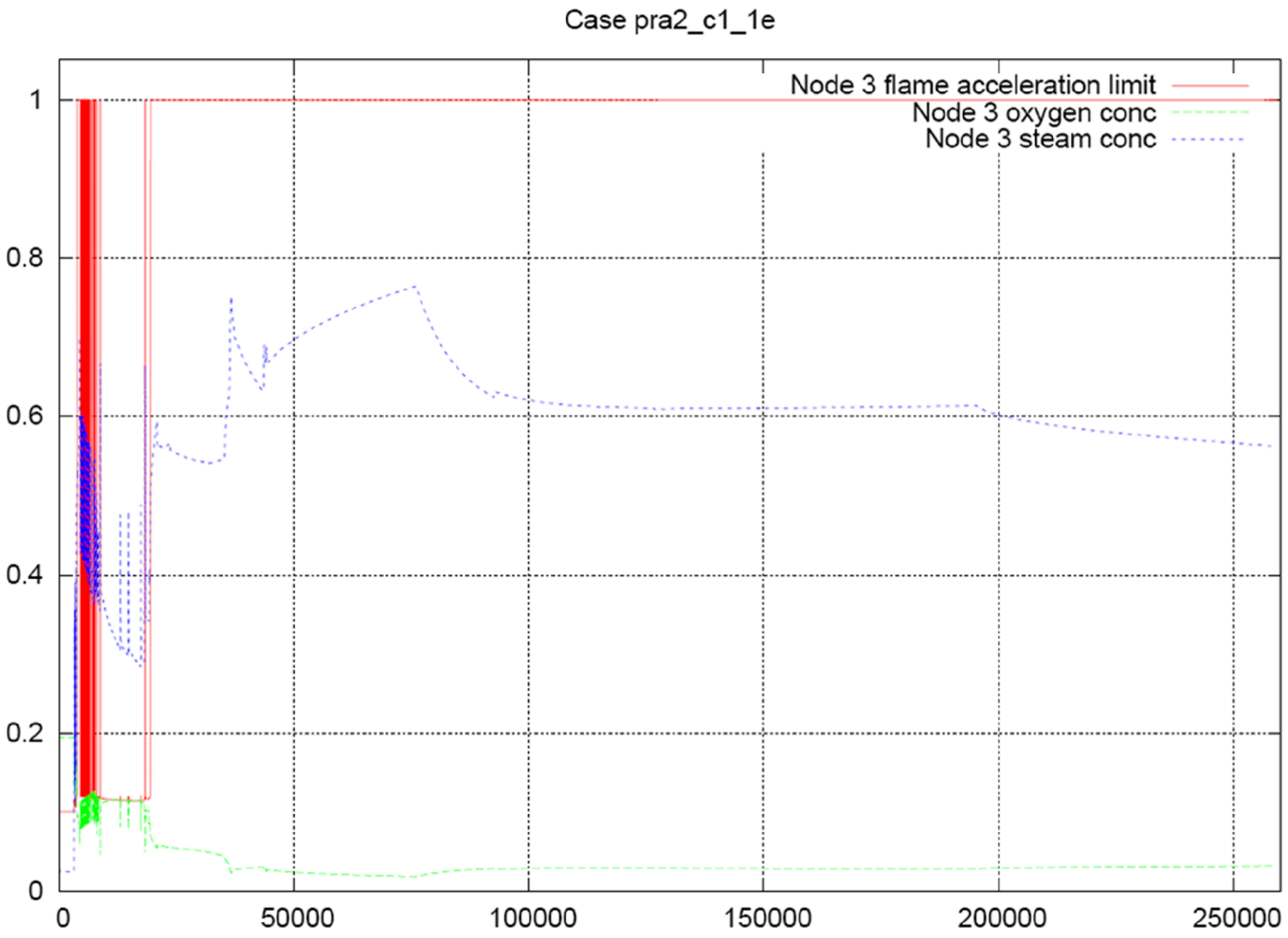

Figure A 20: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1e, containment node 3)

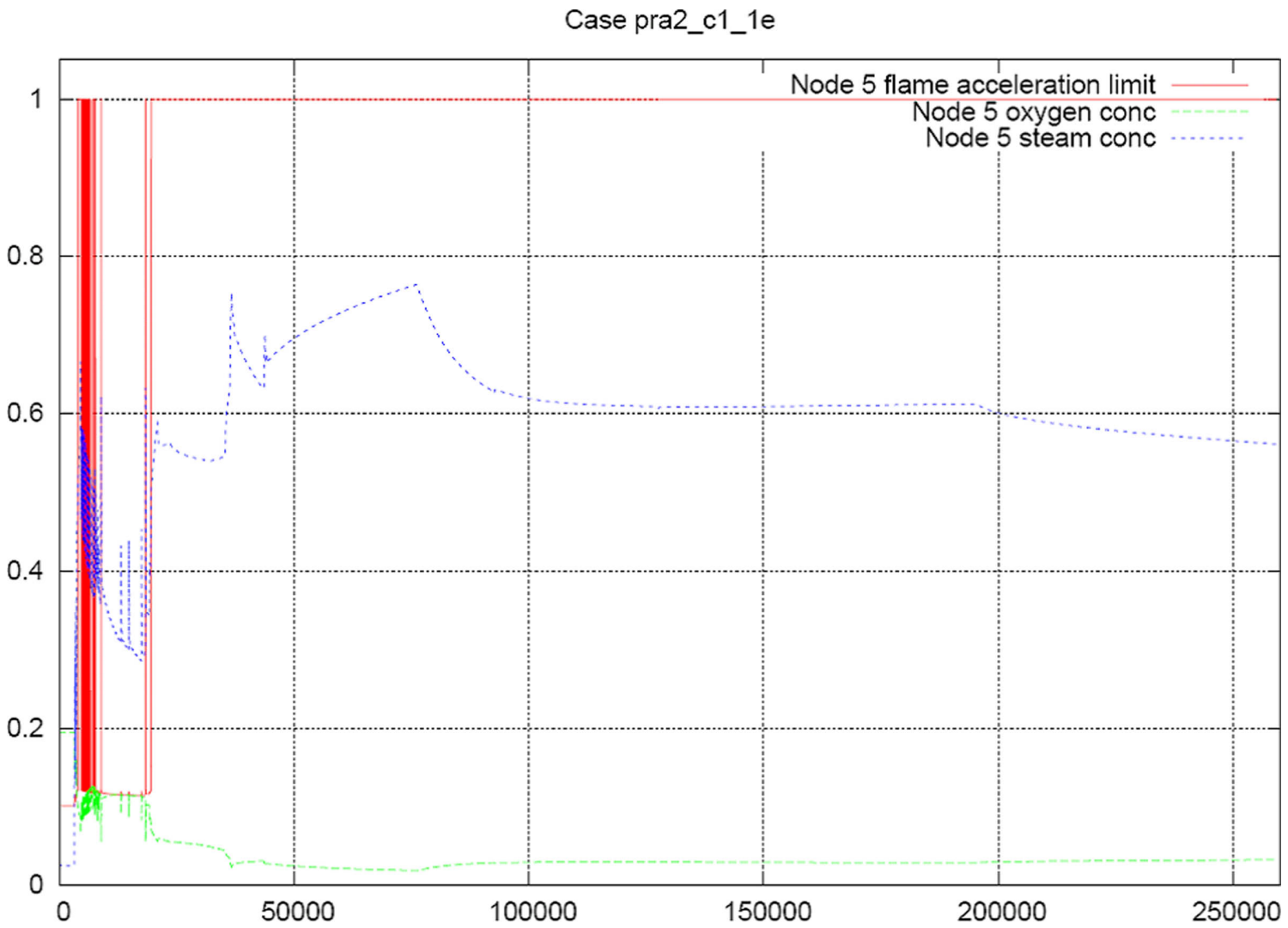

Figure A 21: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1e, containment node 5)

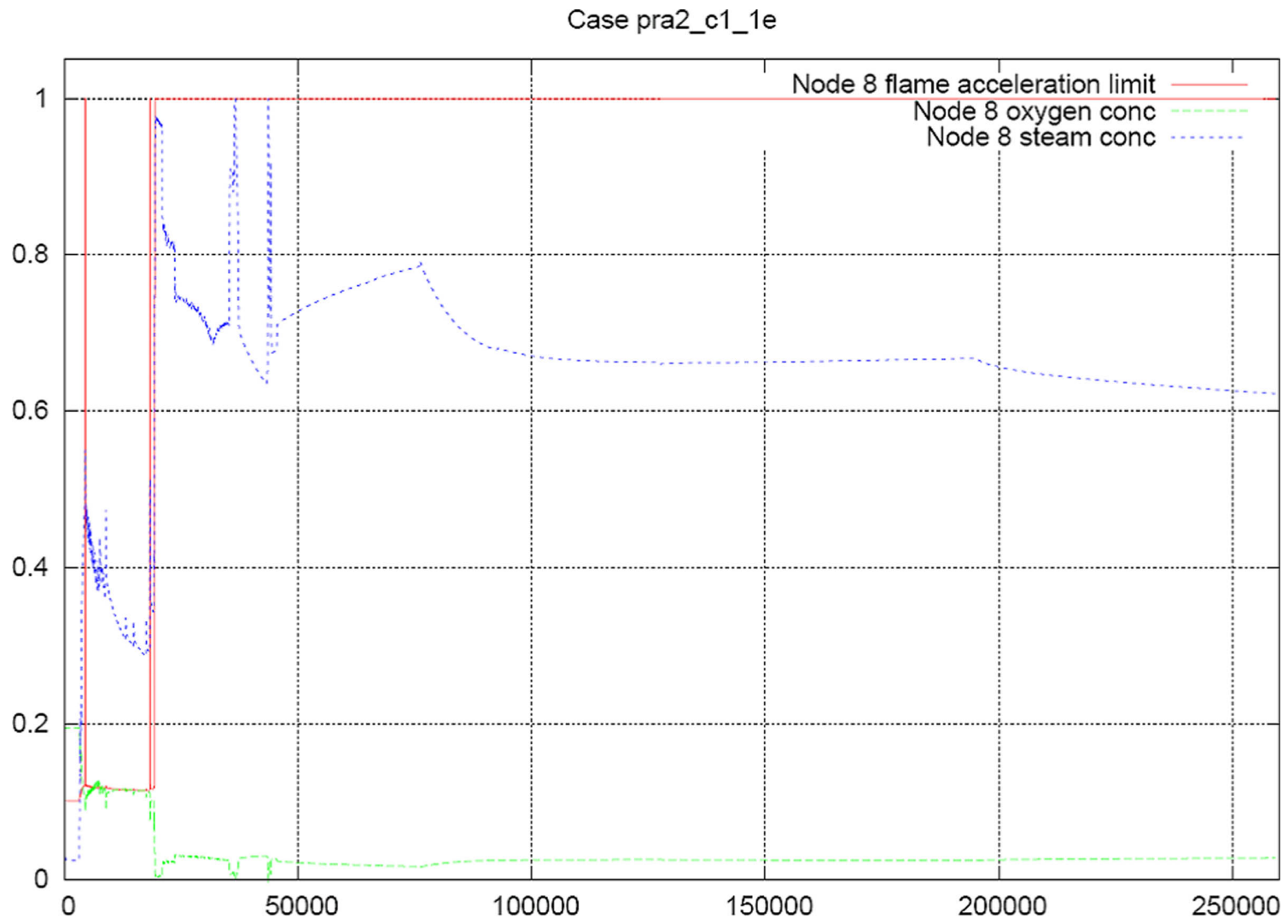

Figure A 22: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1e, containment node 8)

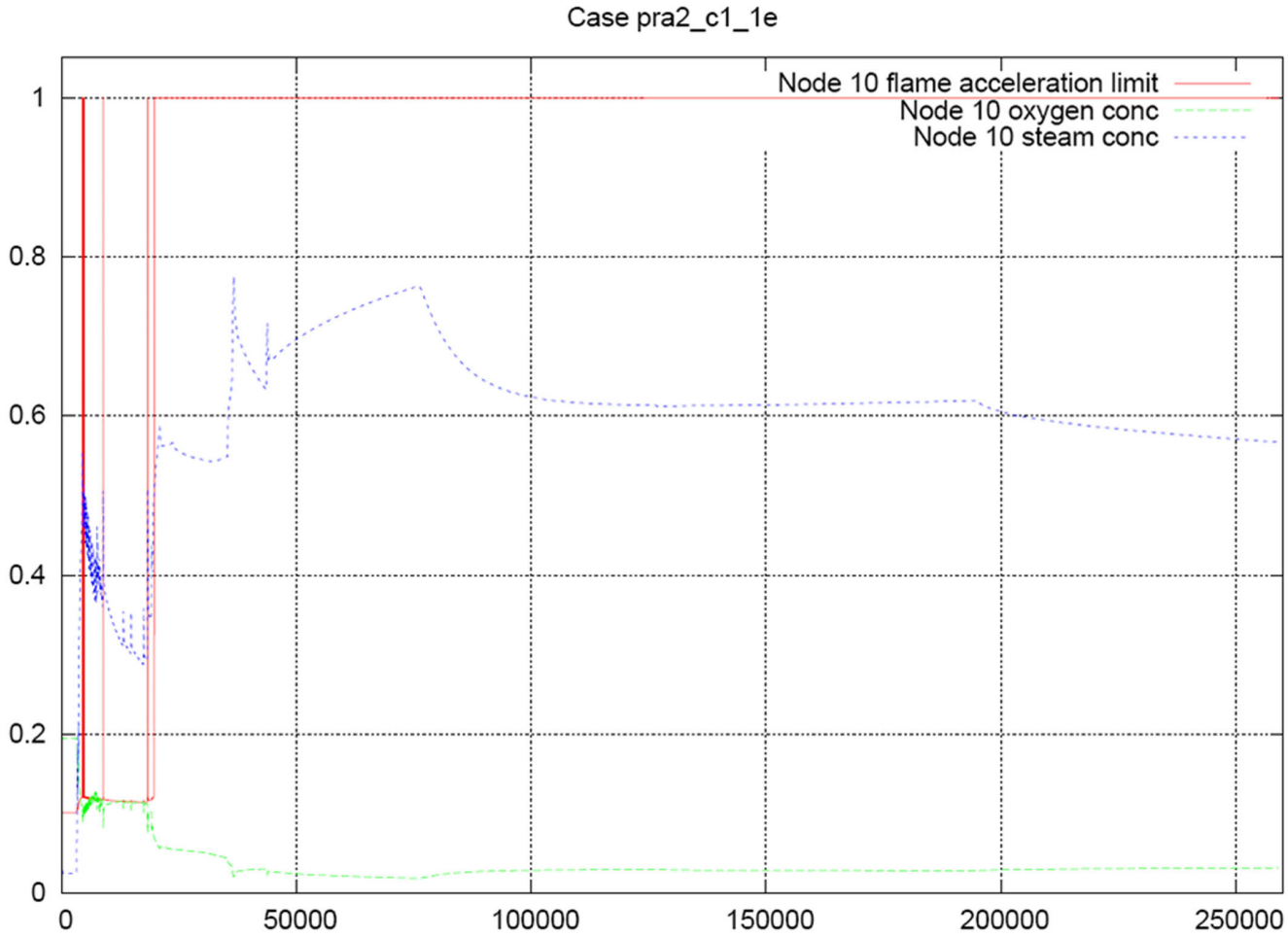

Figure A 23: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1e, containment node 10)

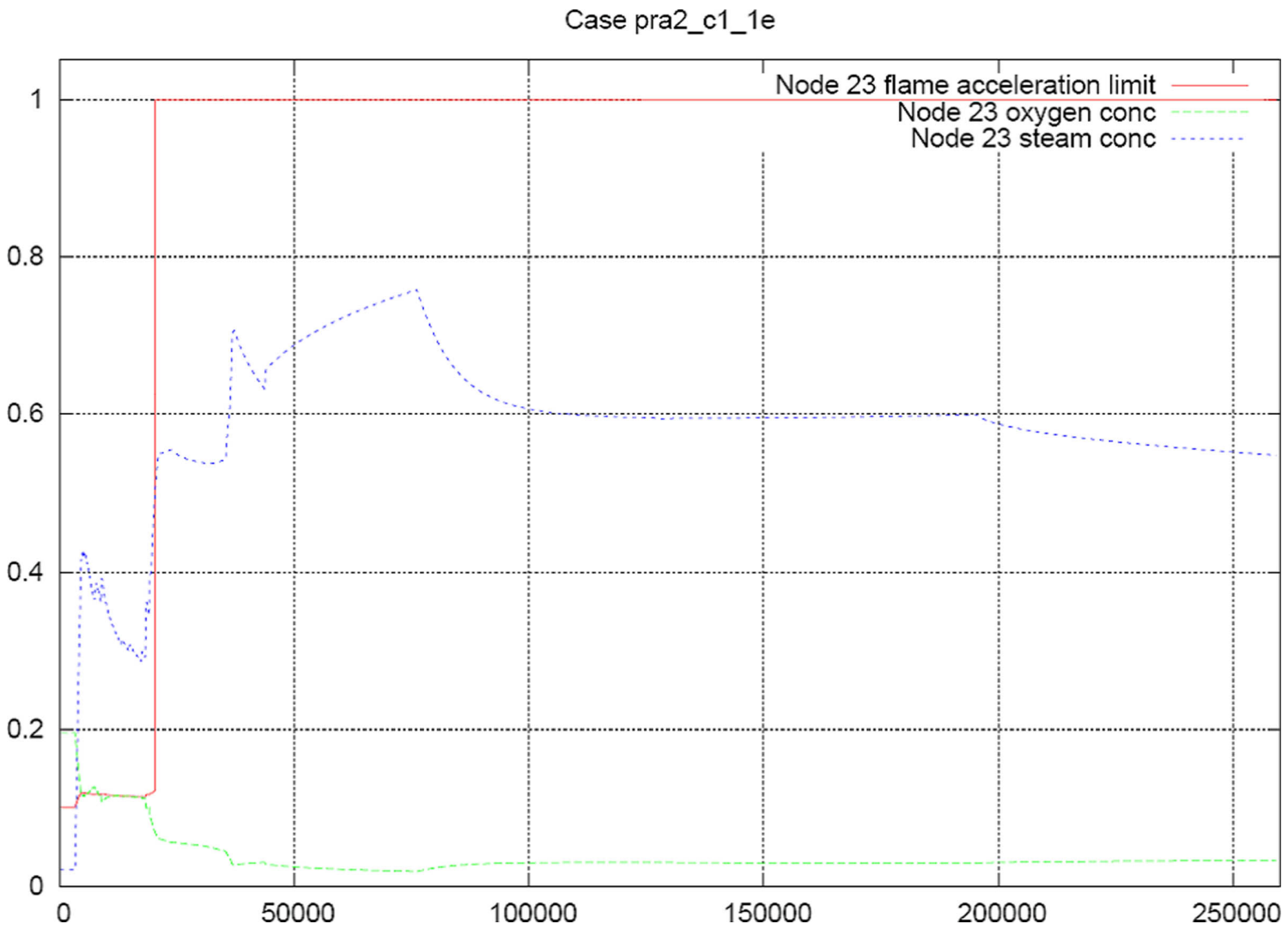

Figure A 24: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_1e, containment node 23)

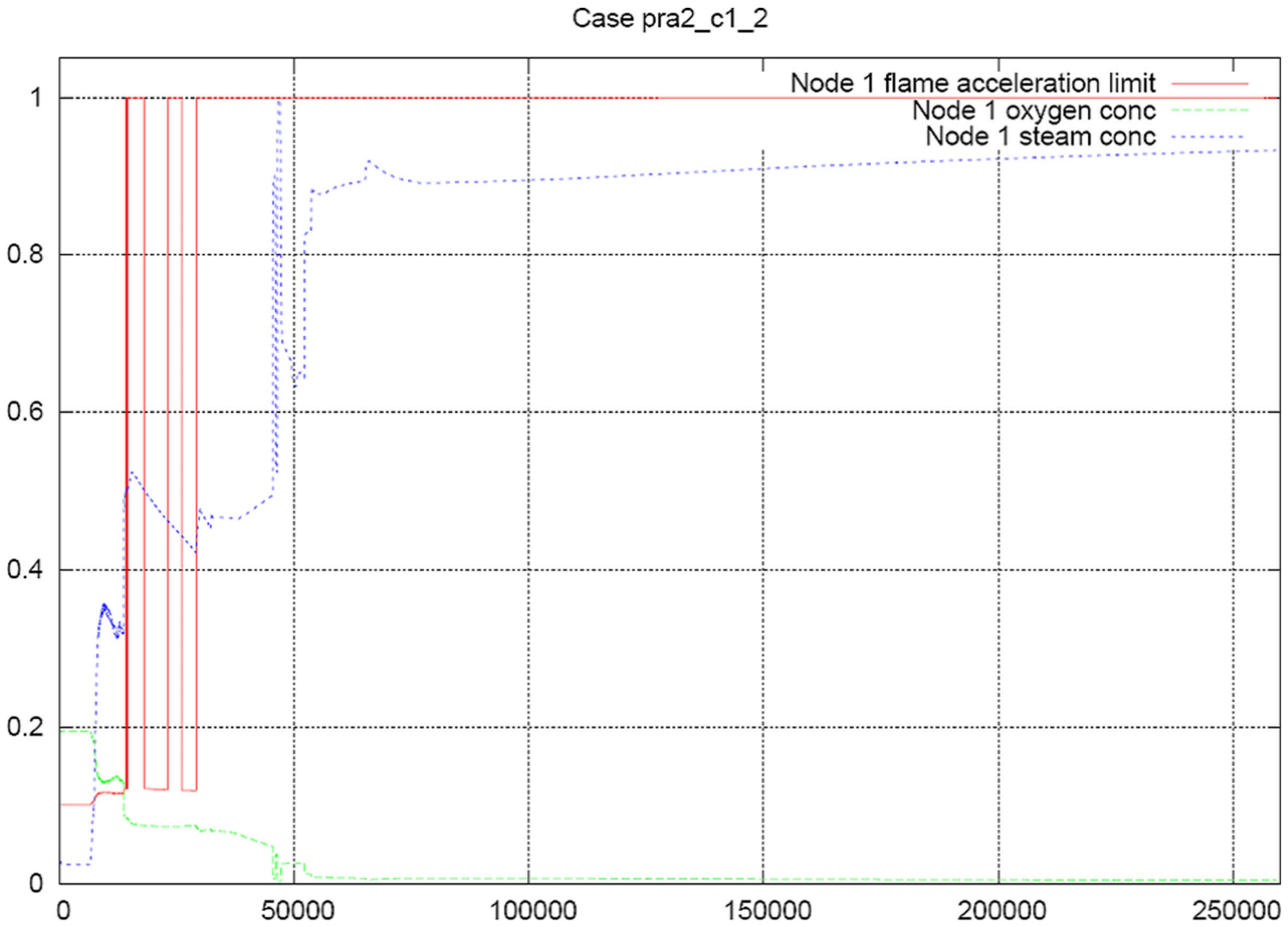

Figure A 25: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_2, containment node 1)

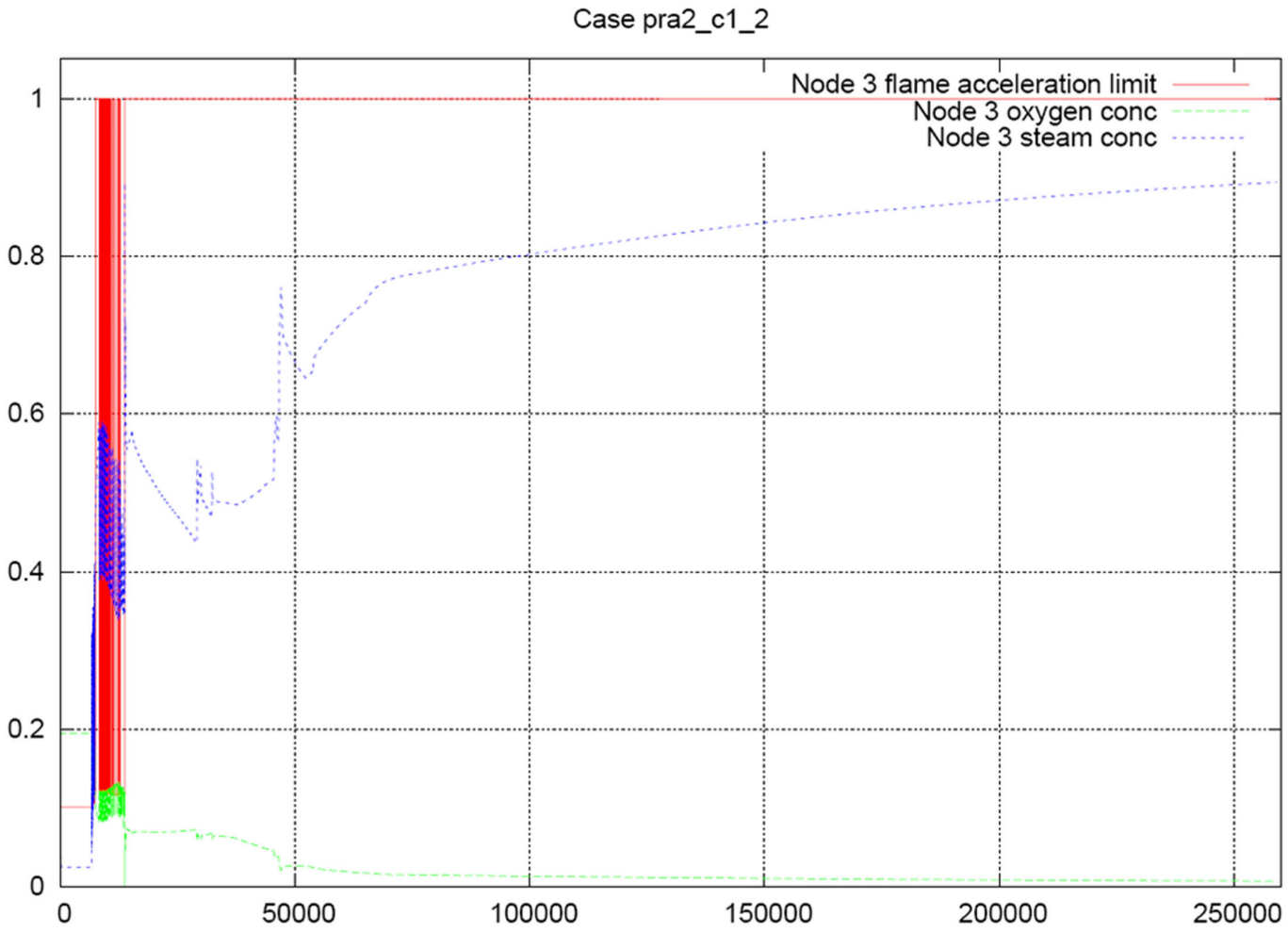

Figure A 26: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_2, containment node 3)

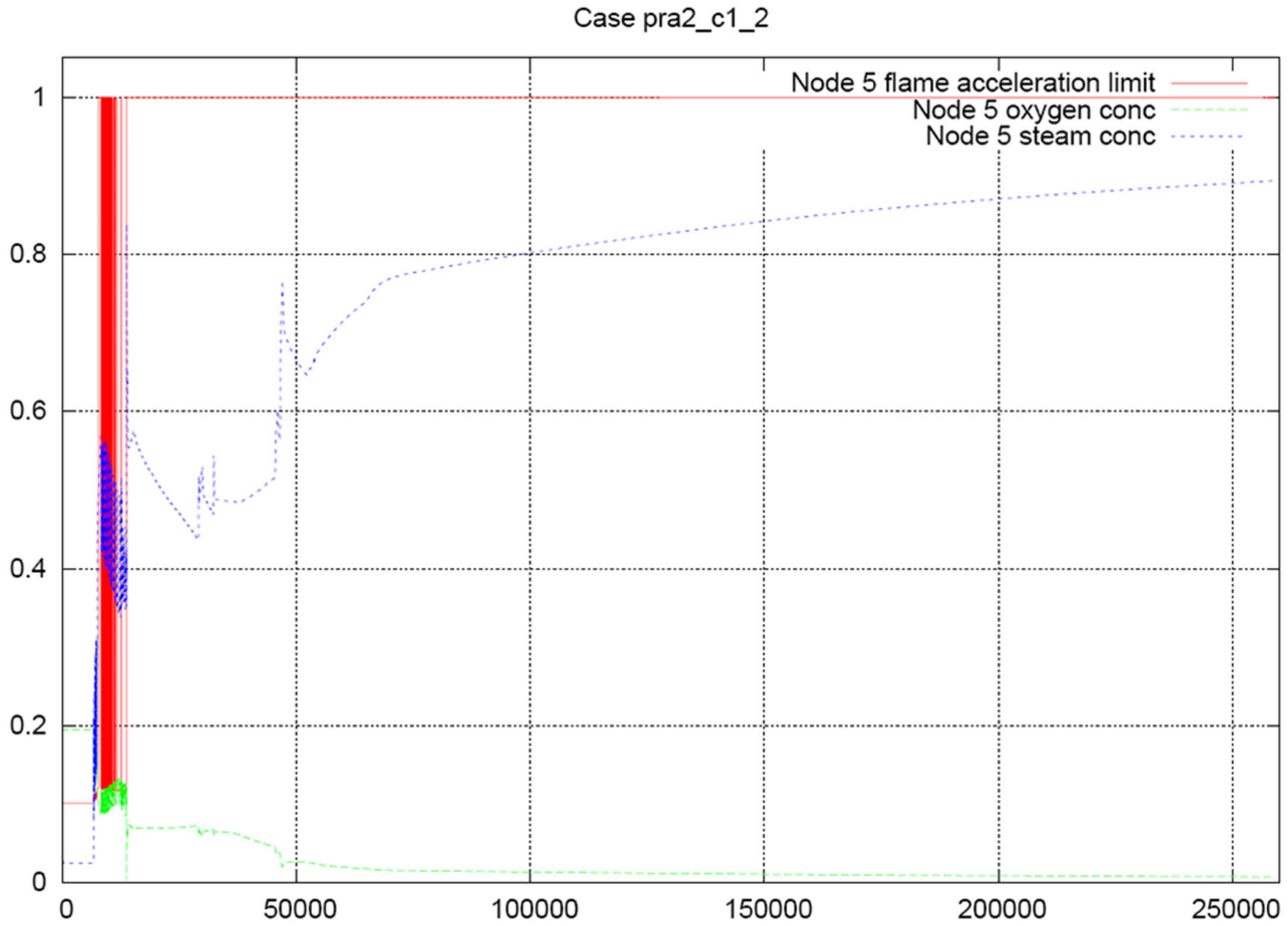

Figure A 27: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_2, containment node 5)

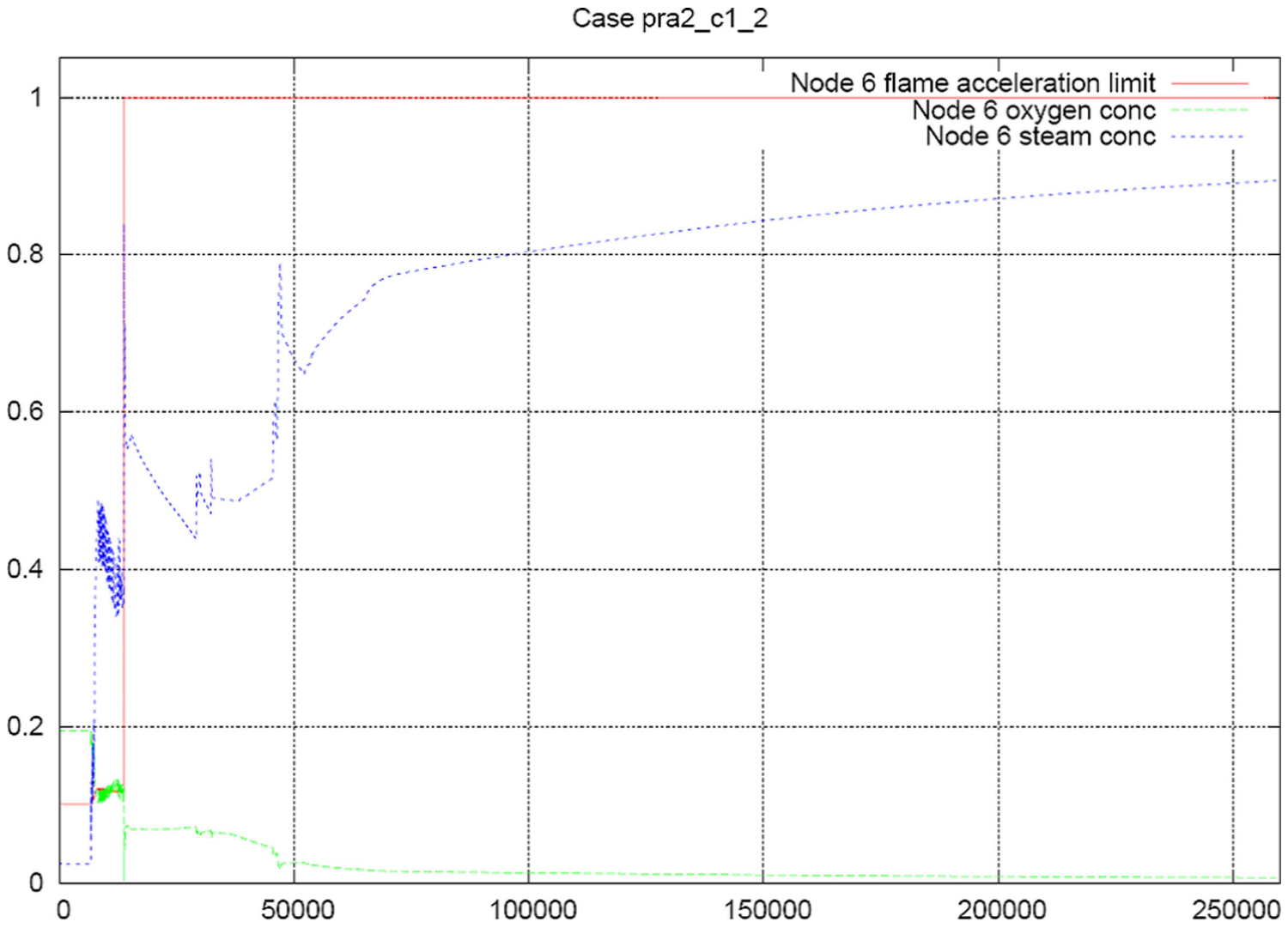

Figure A 28: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_2, containment node 6)

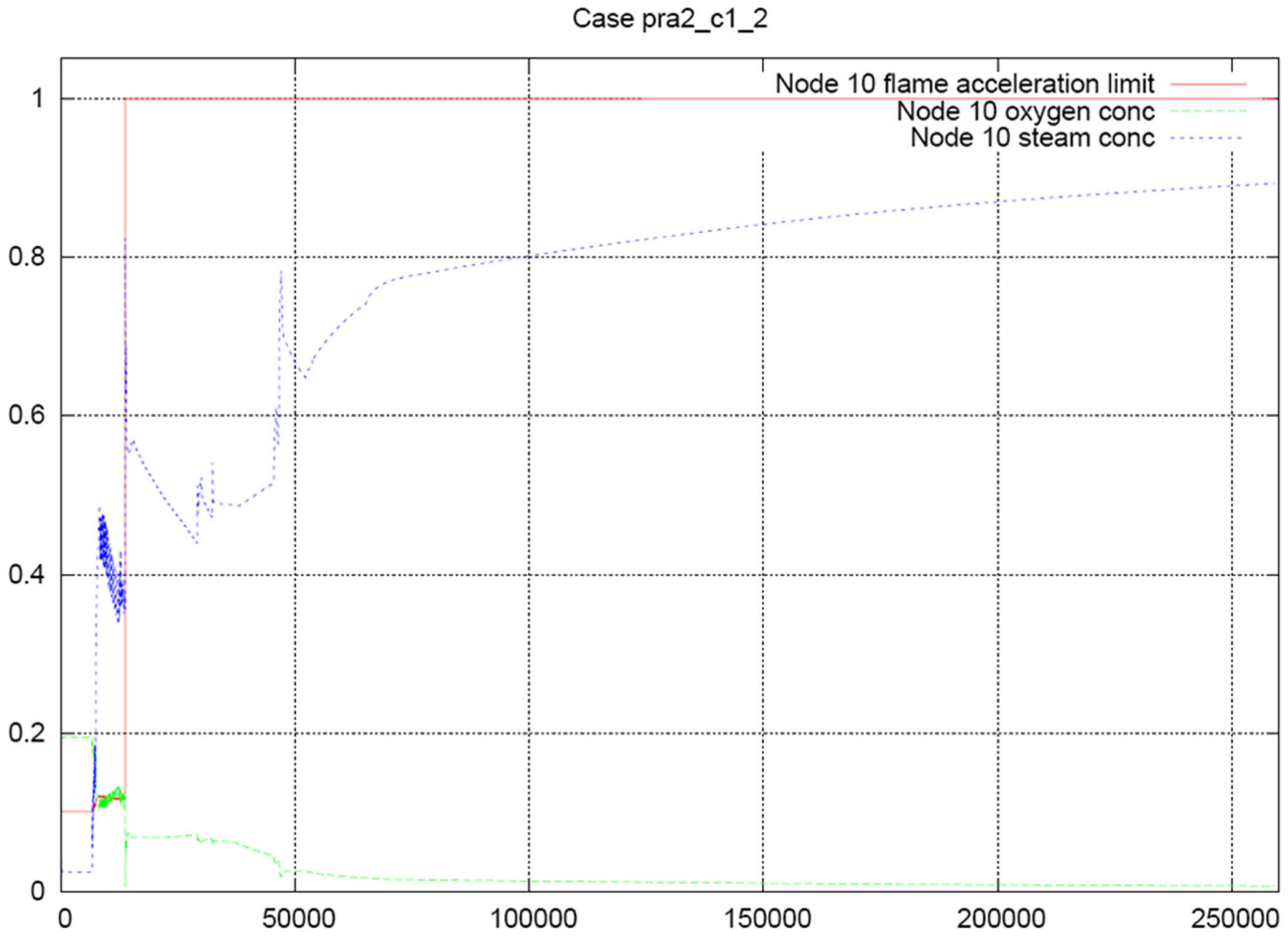

Figure A 29: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_2, containment node 10)

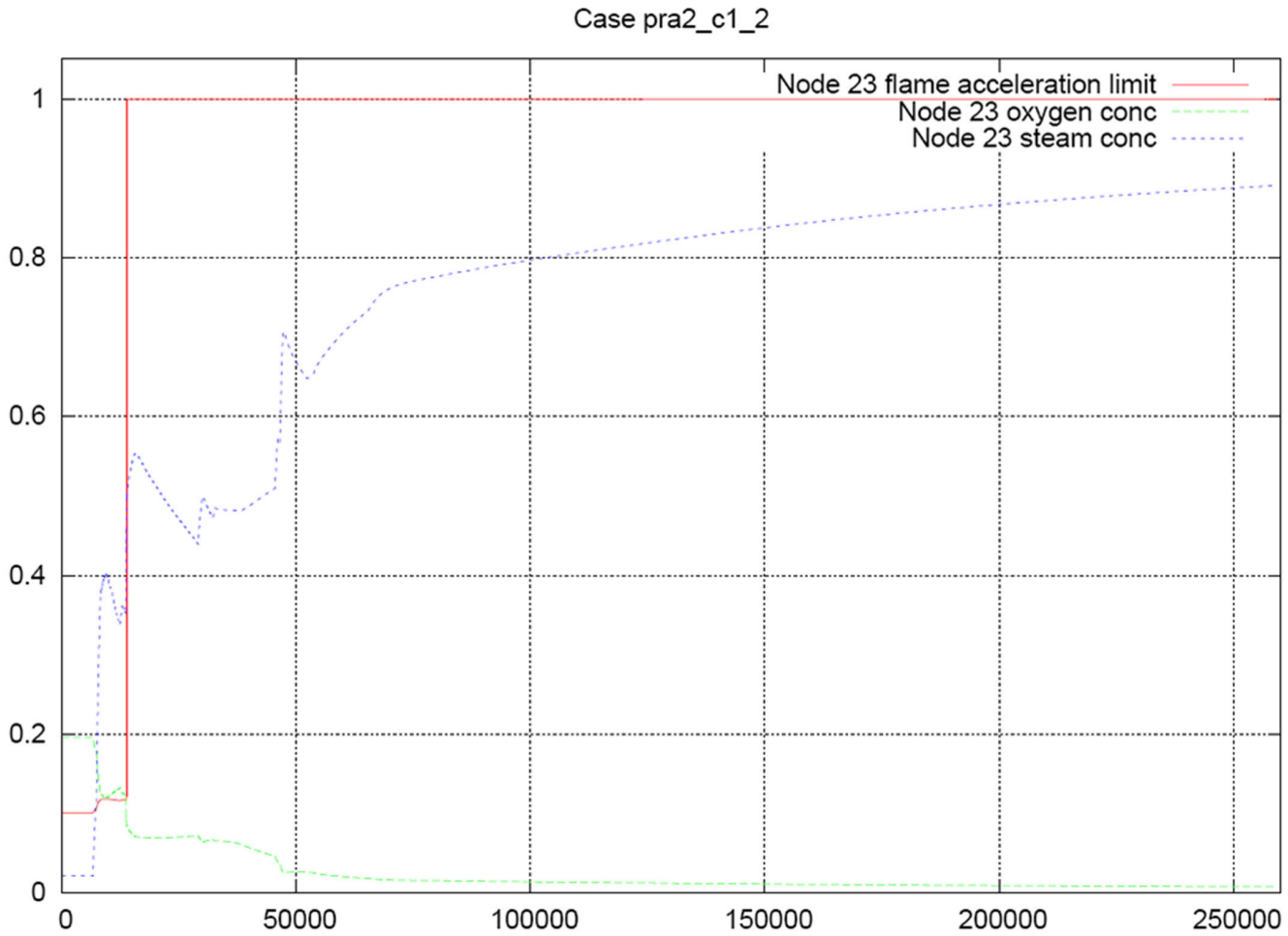

Figure A 30: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_2, containment node 23)

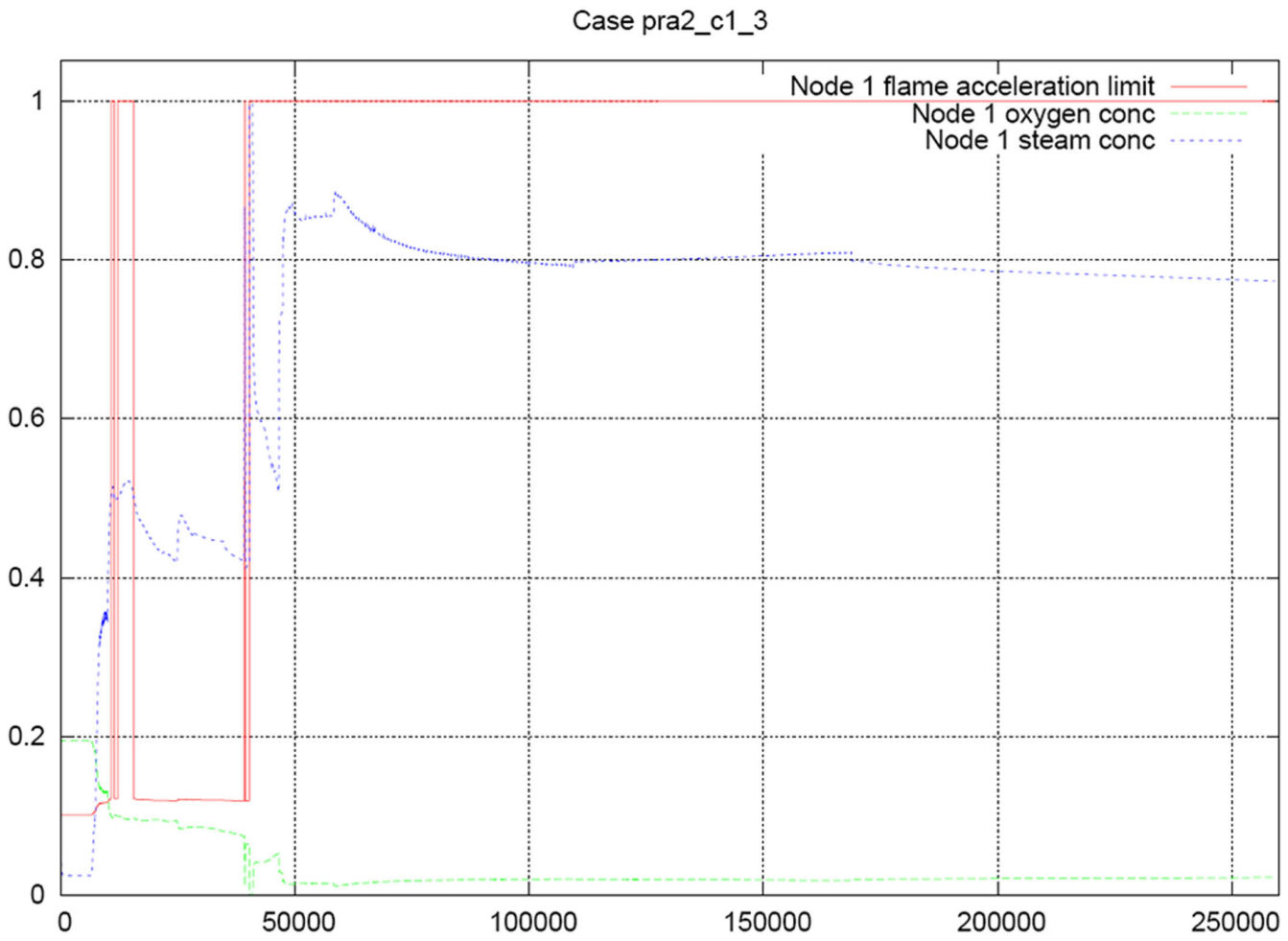

Figure A 31: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_3, containment node 1)

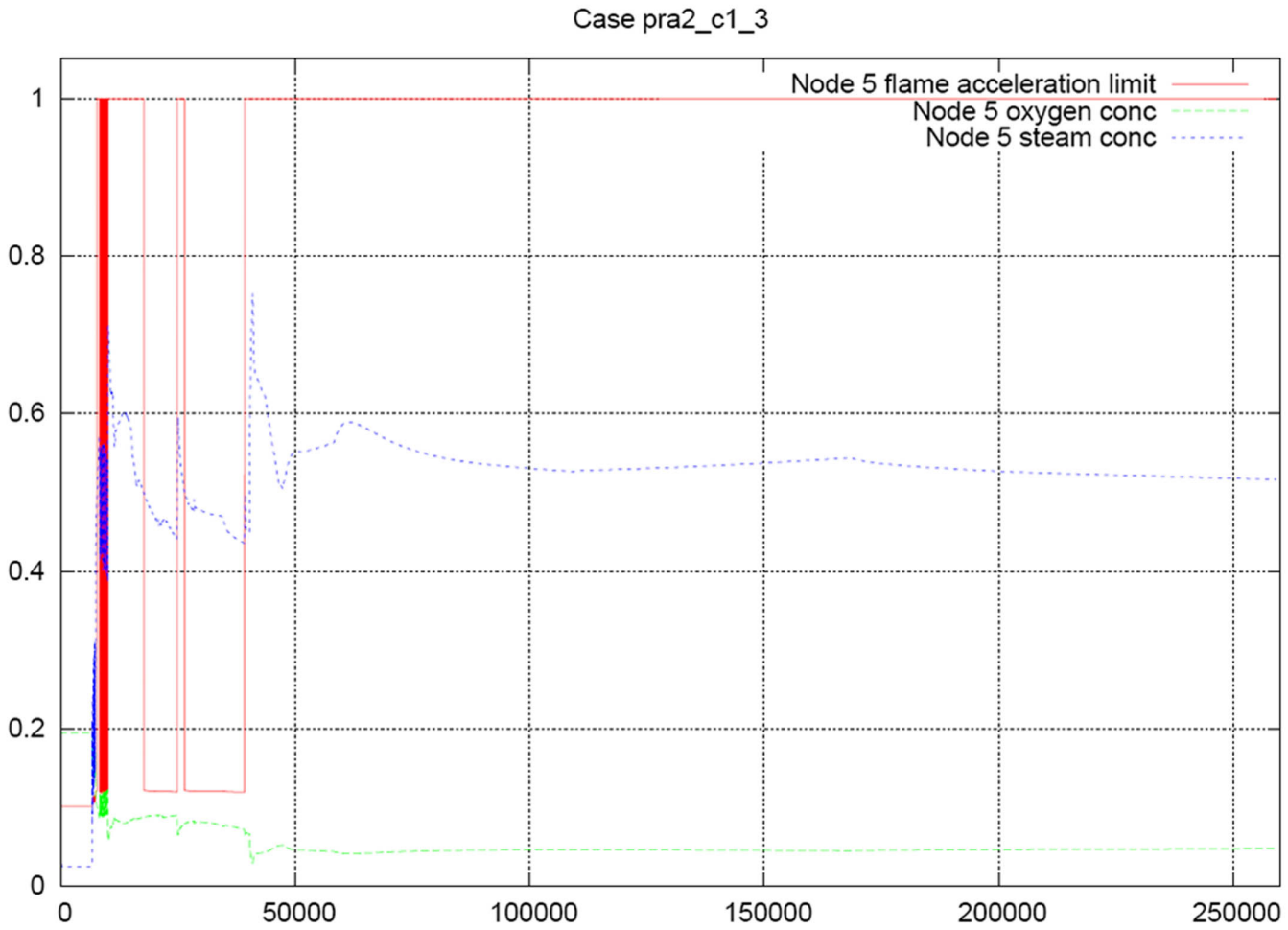

Figure A 32: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_3, containment node 5)

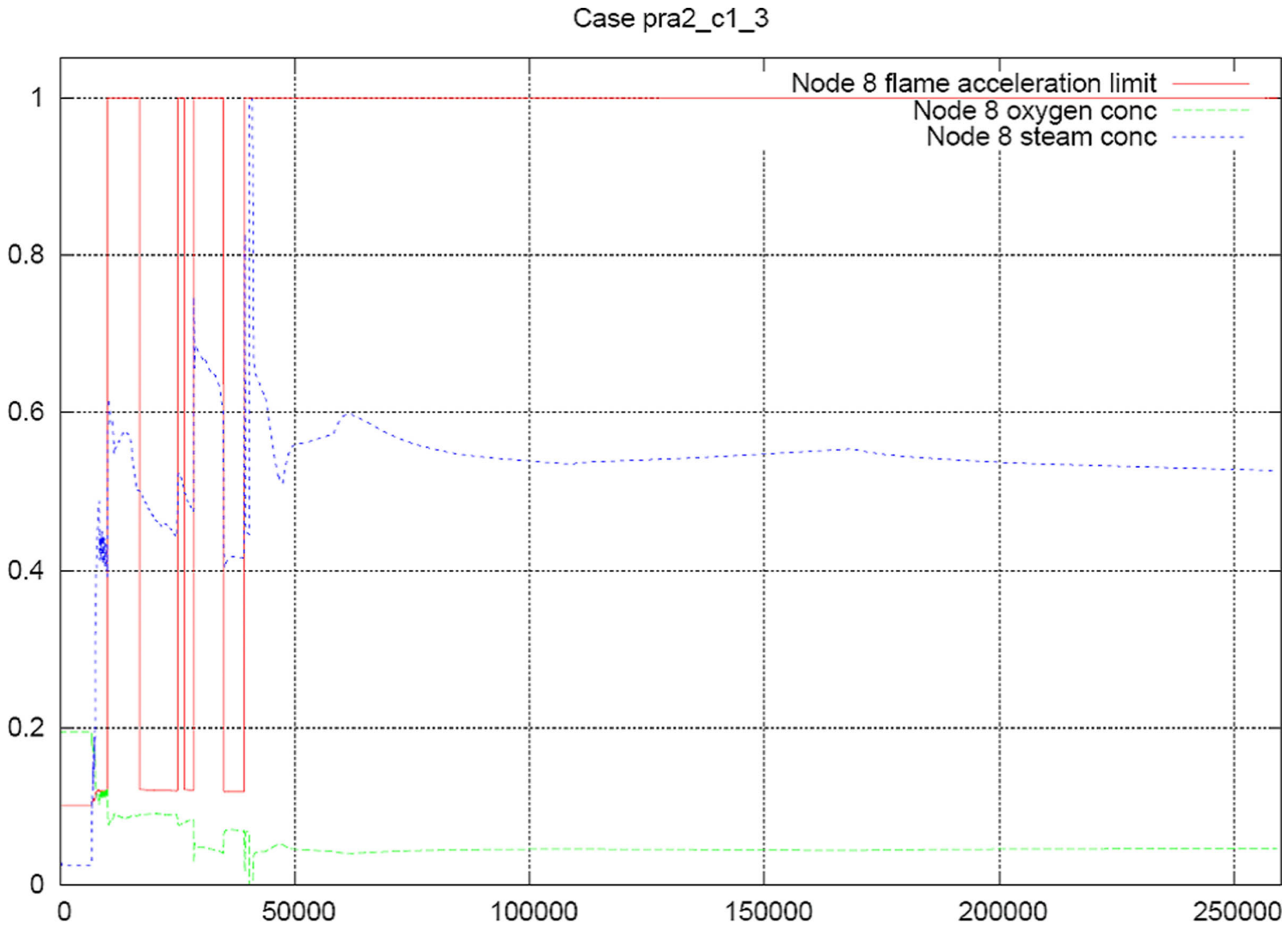

Figure A 33: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_3, containment node 8)

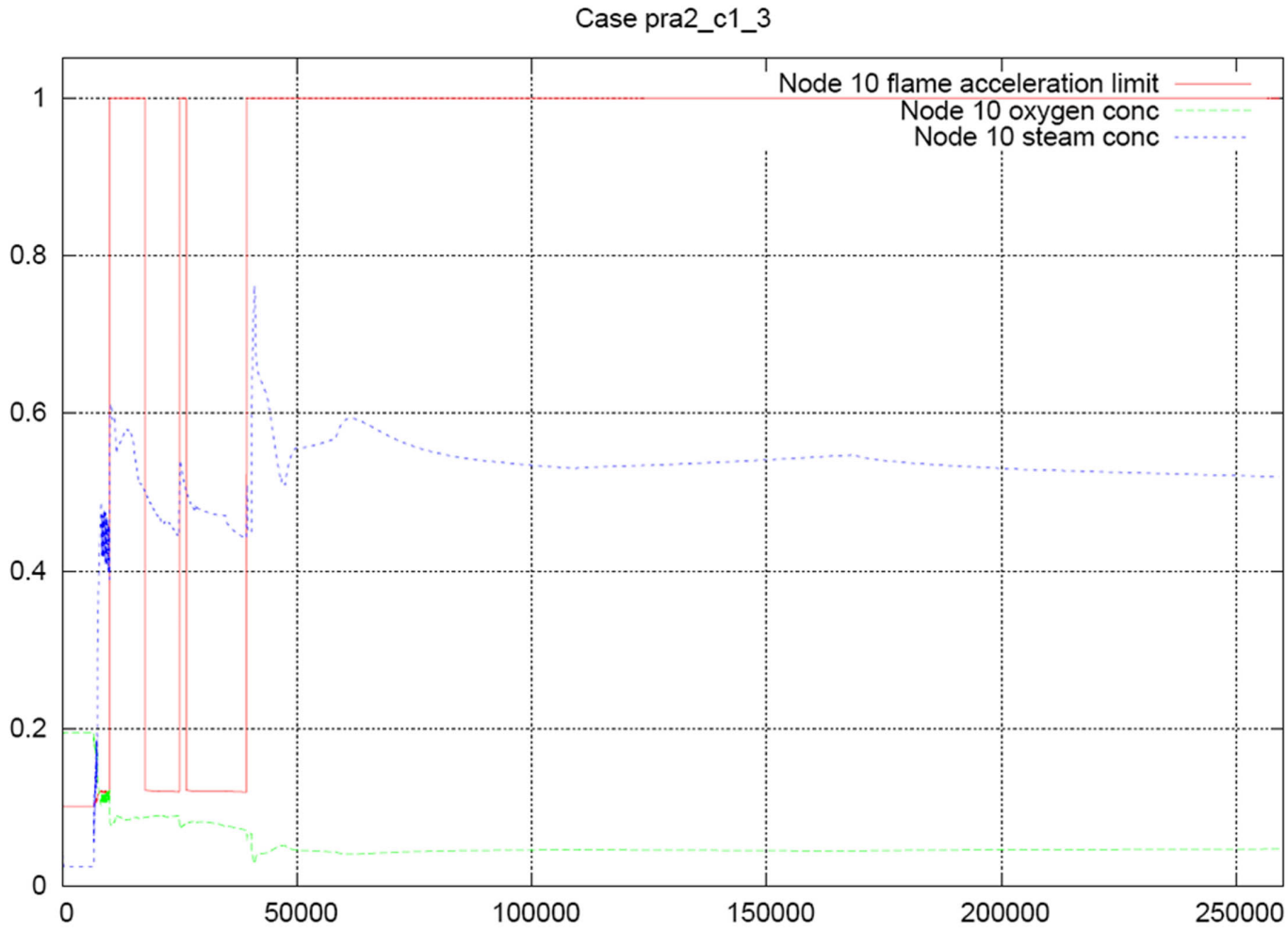

Figure A 34: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_3, containment node 10)

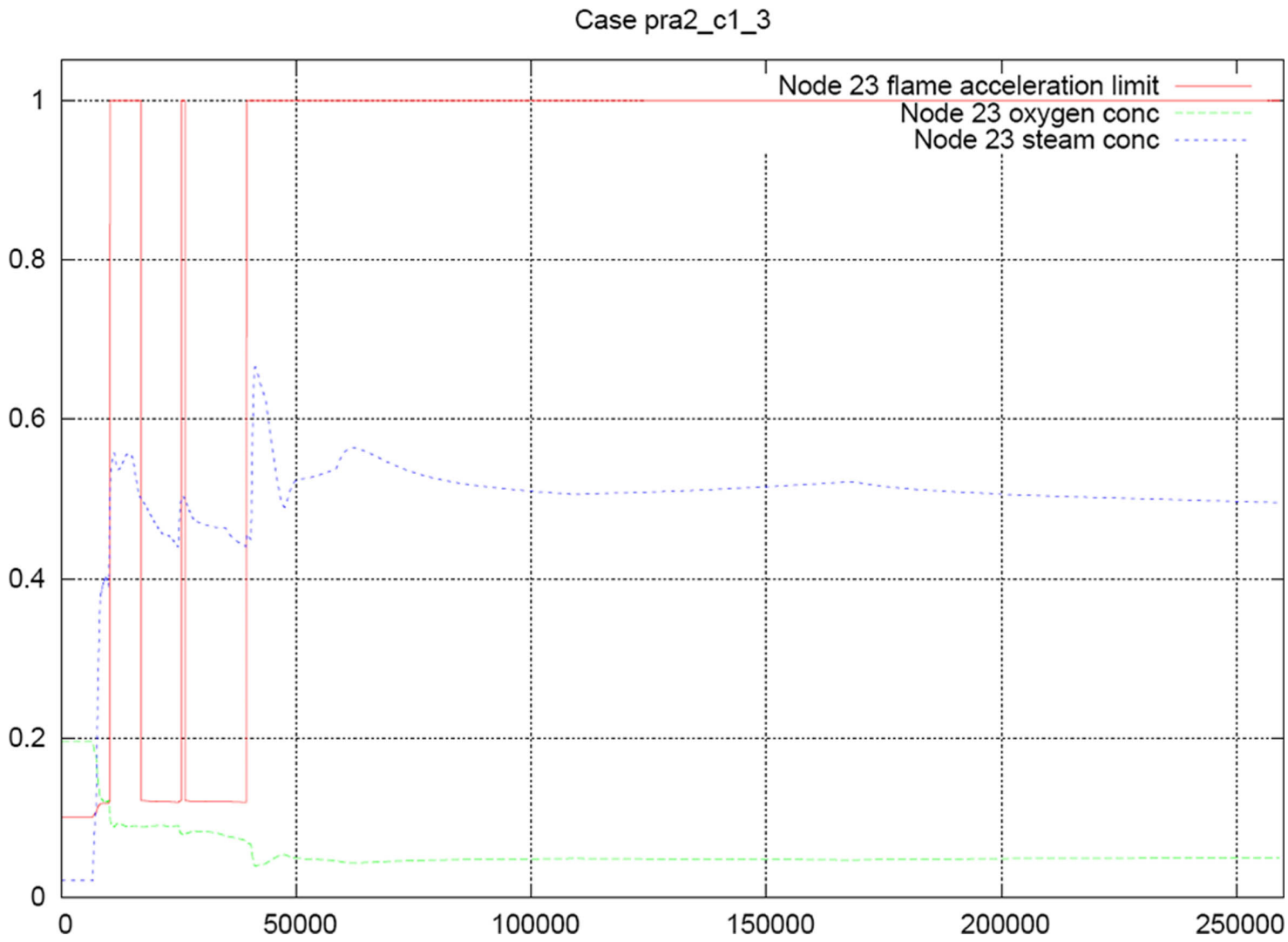

Figure A 35: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_3, containment node 23)

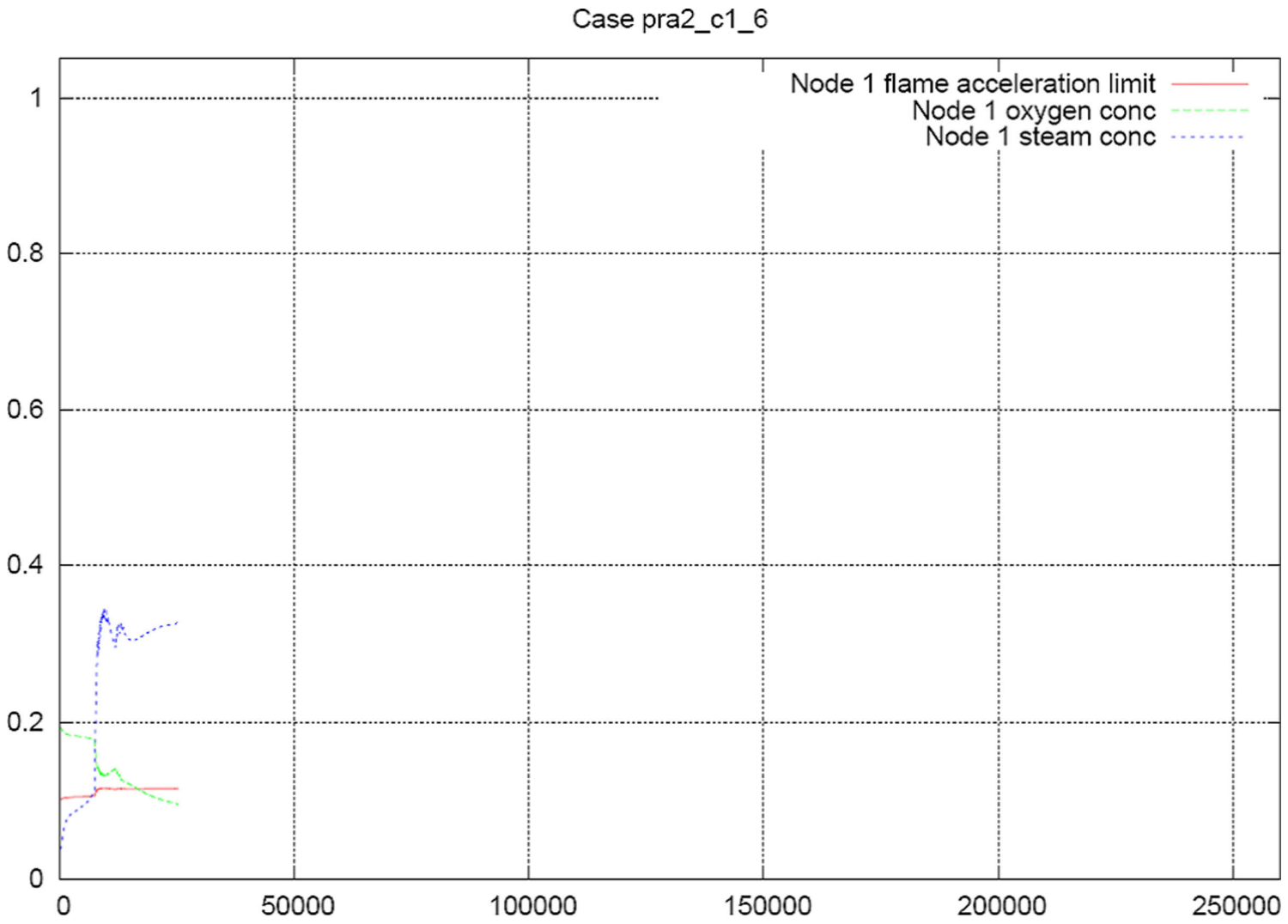

Figure A 36: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_6, containment node 1)

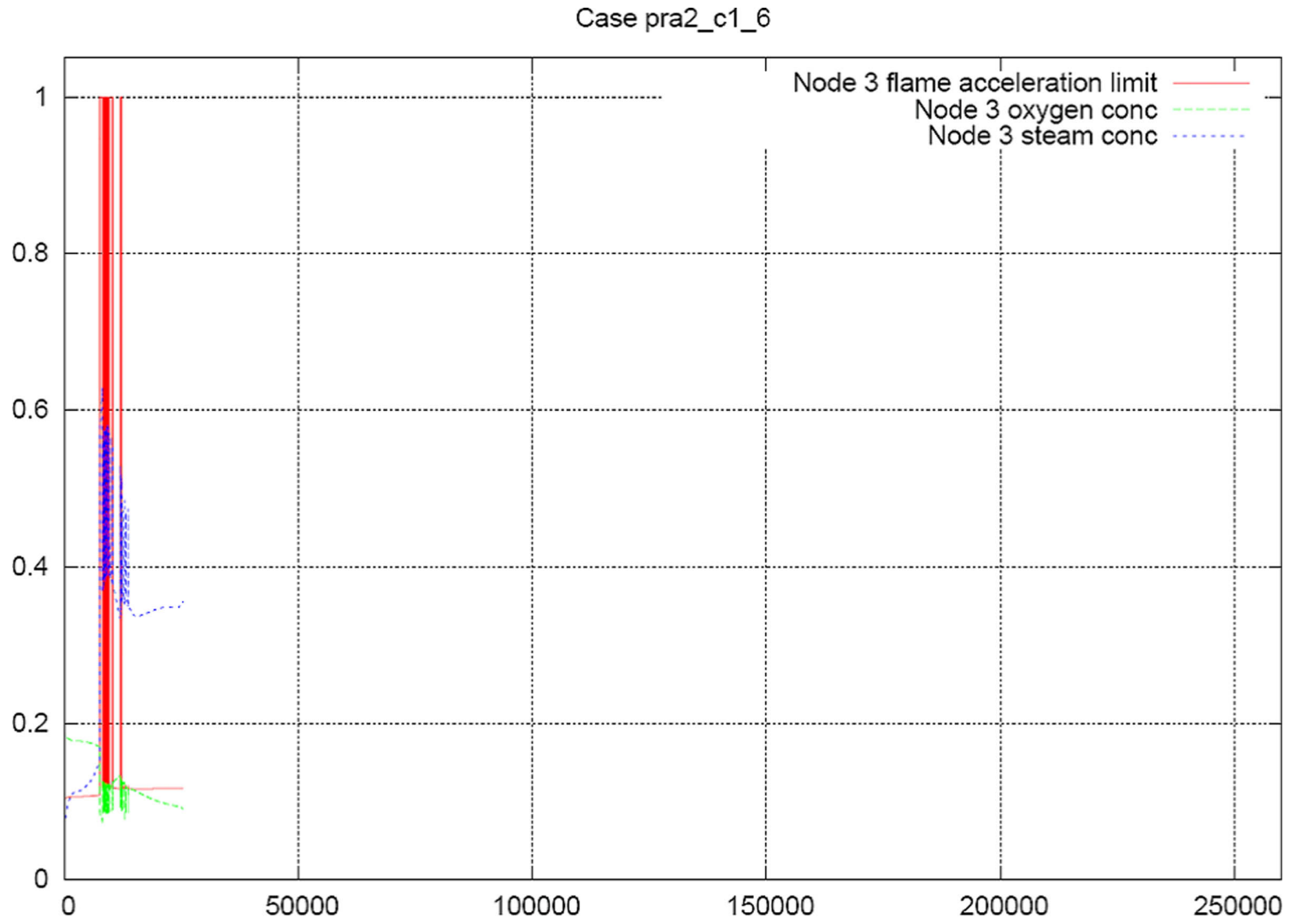

Figure A 37: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_6, containment node 3)

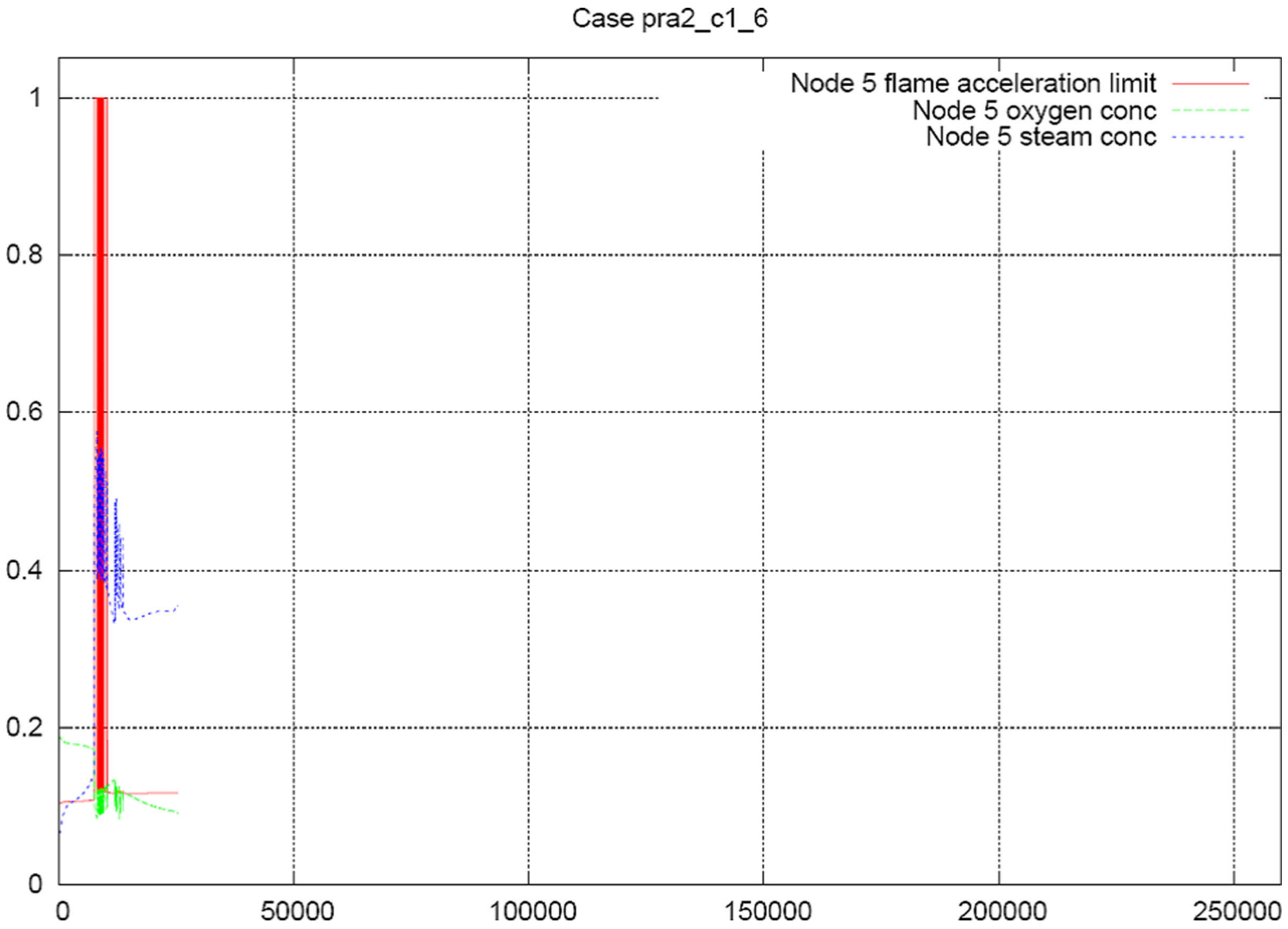

Figure A 38: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_6, containment node 5)

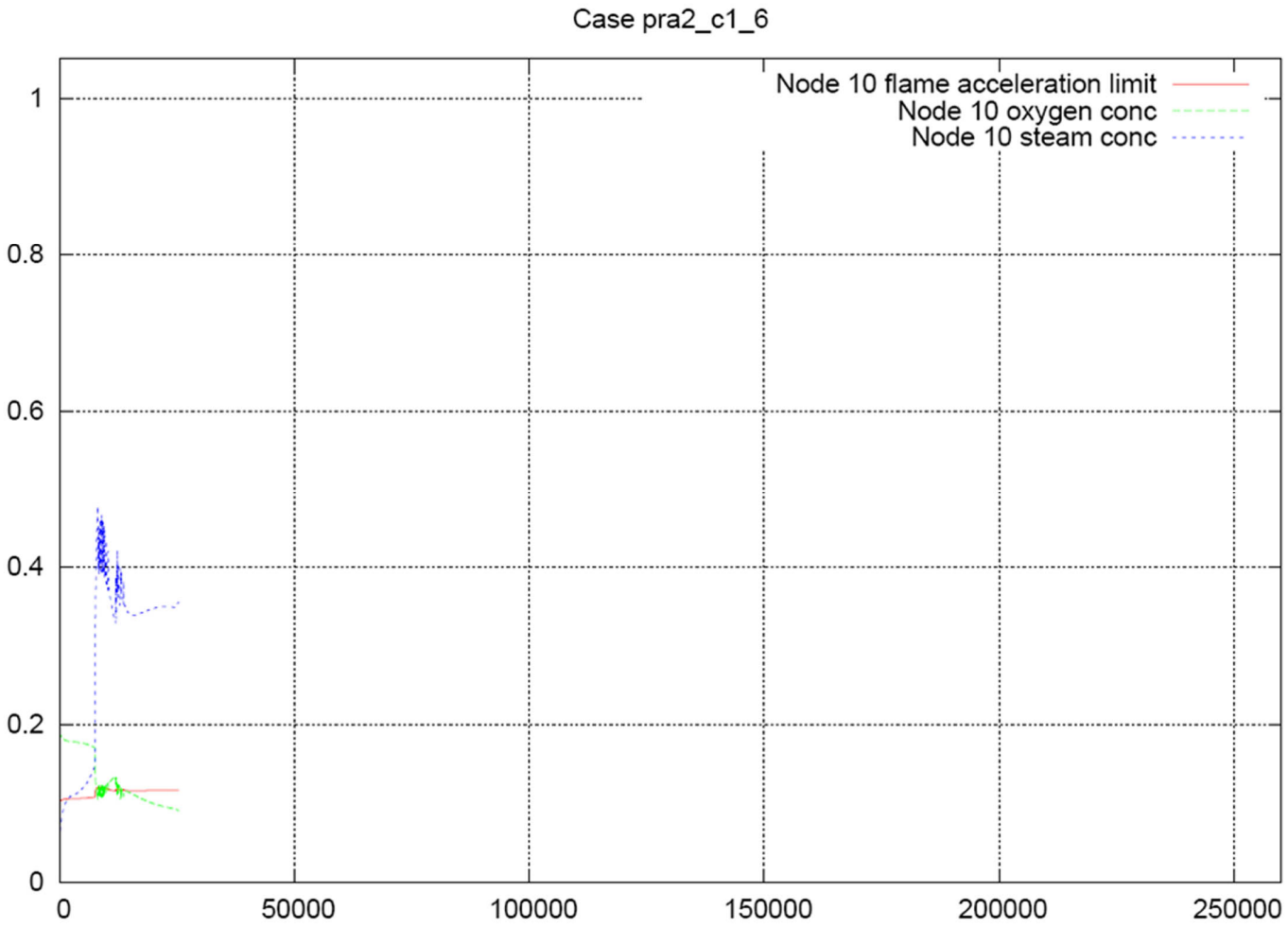

Figure A 39: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_6, containment node 10)

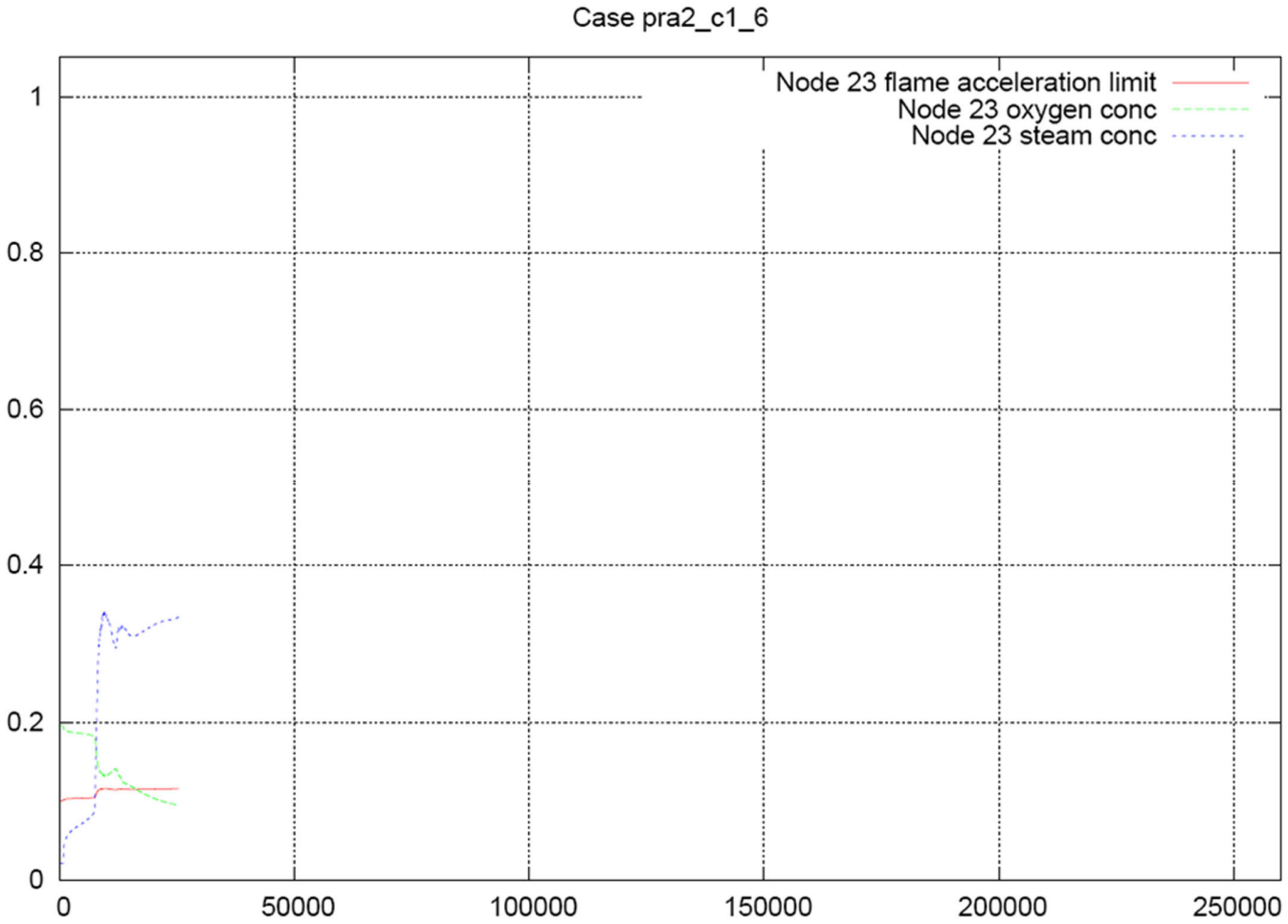

Figure A 40: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_6, containment node 23)

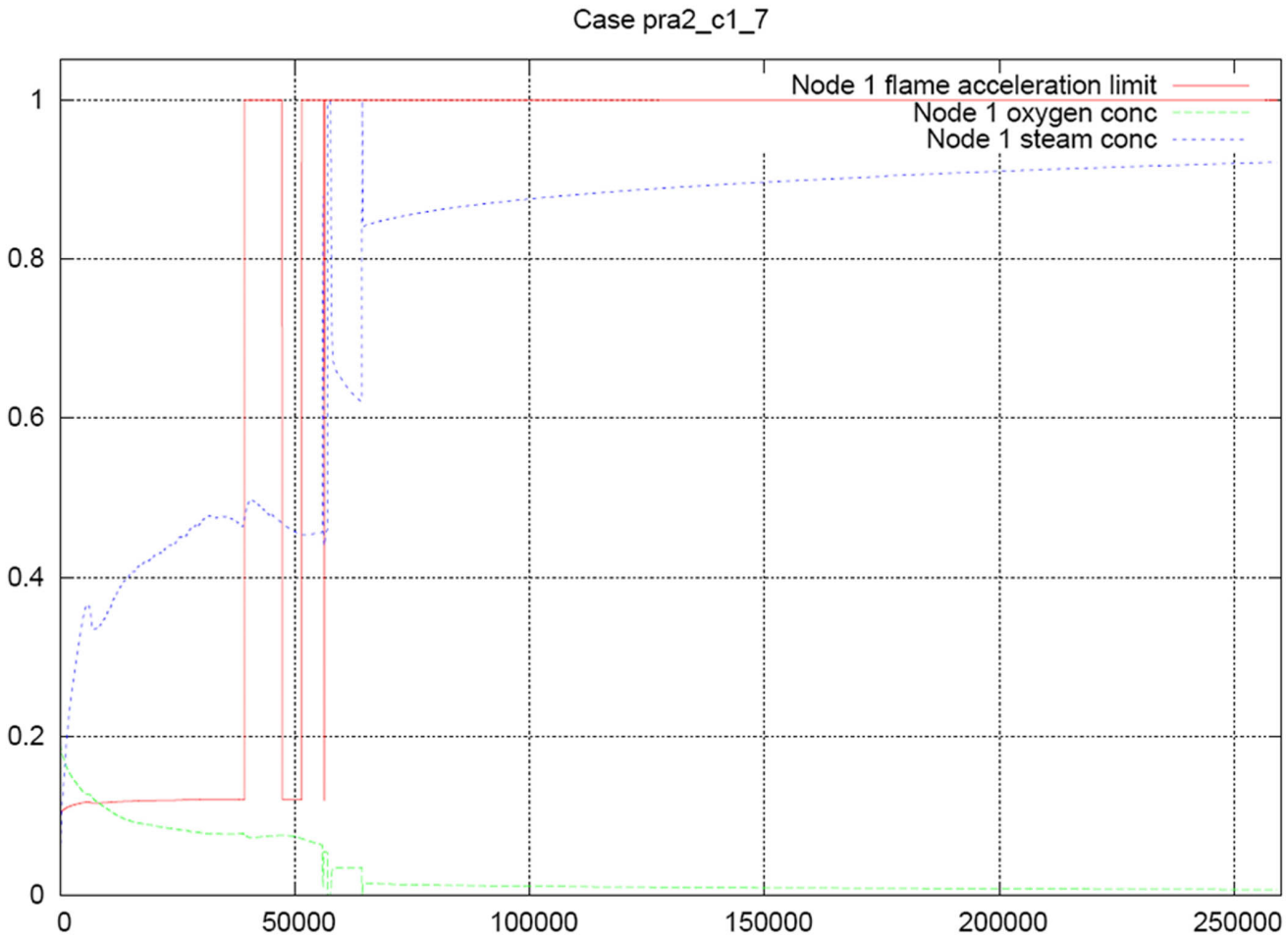

Figure A 41: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7, containment node 1)

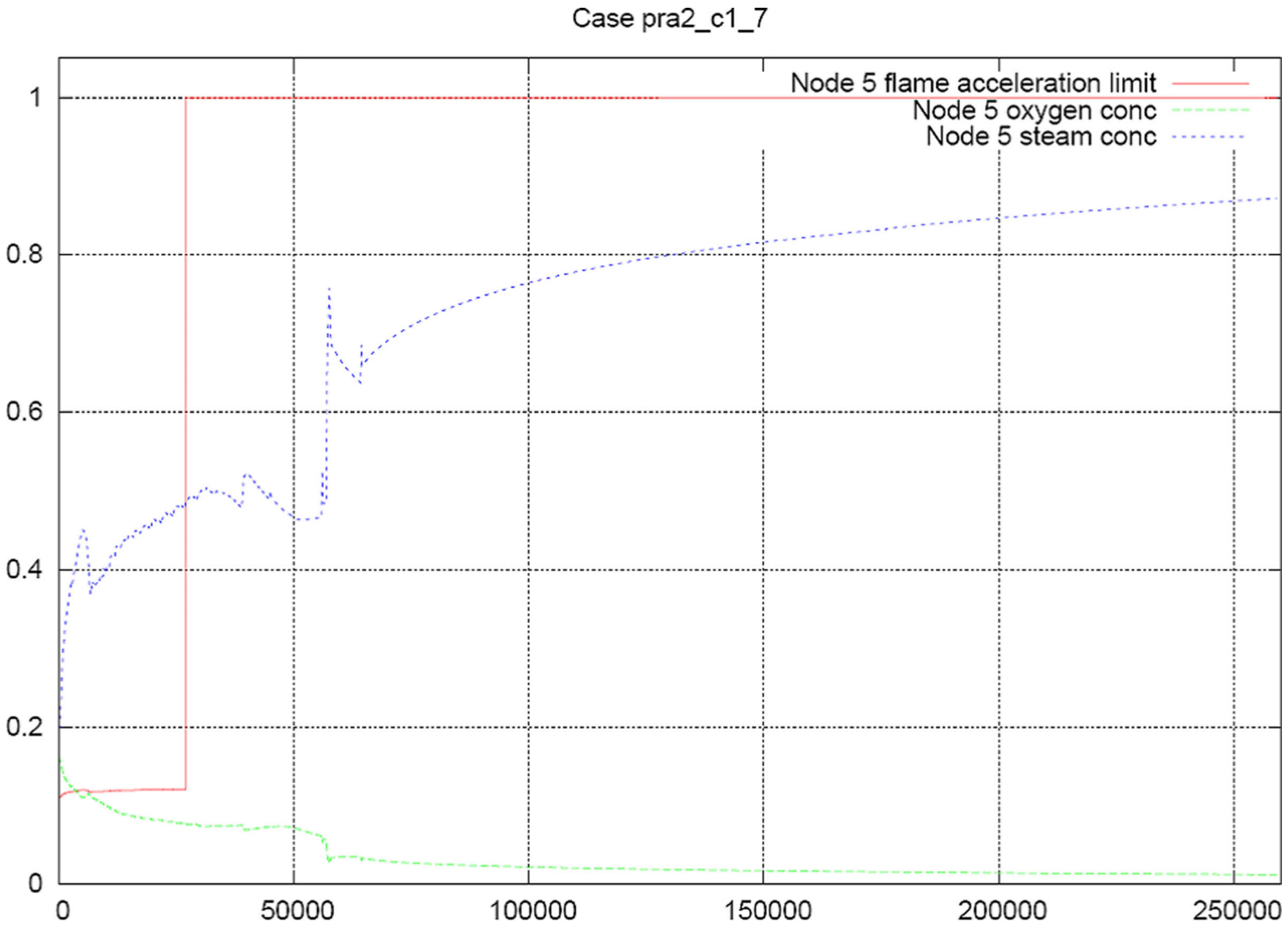

Figure A 42: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7, containment node 5)

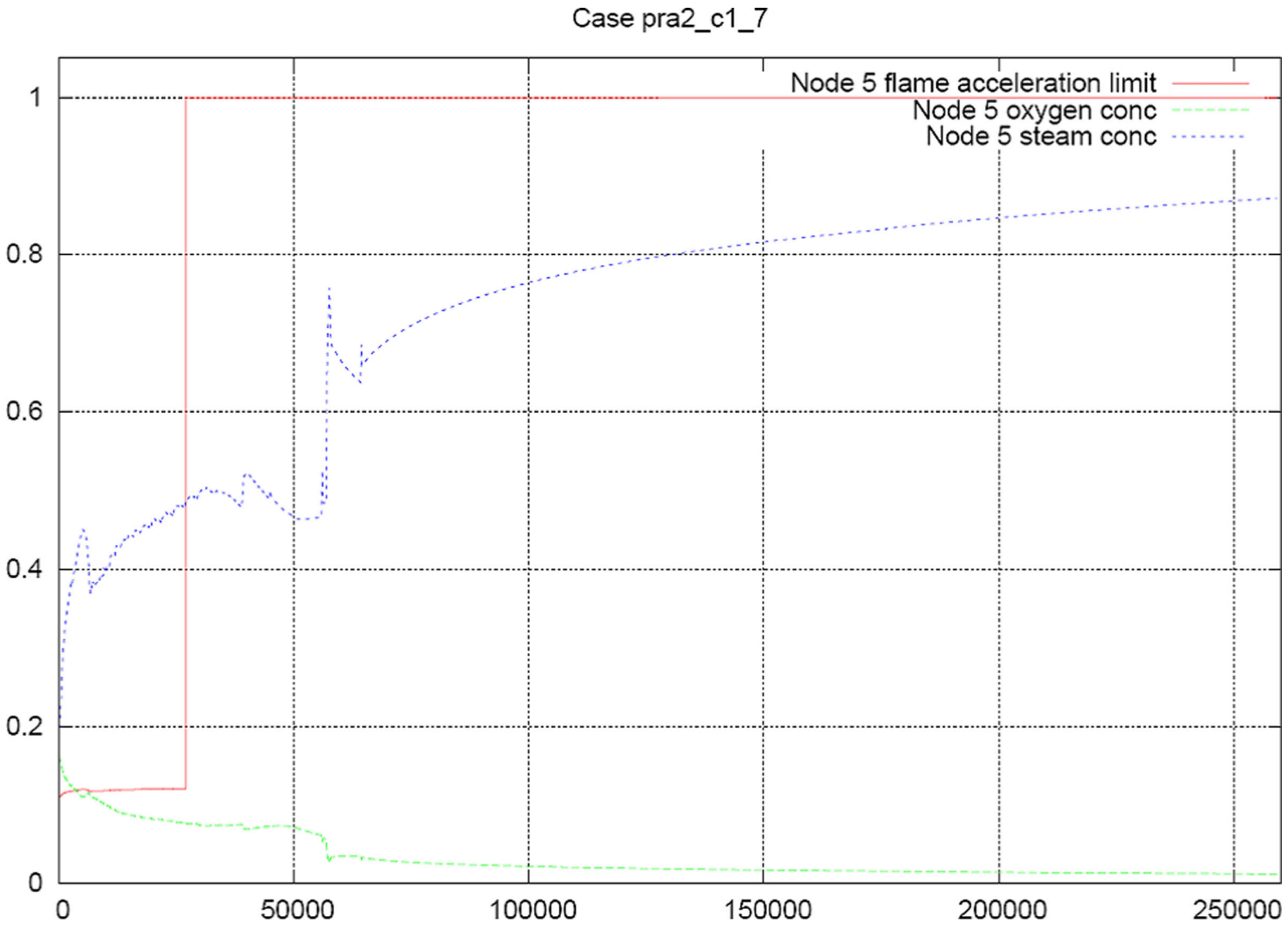

Figure A 43: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7, containment node 8)

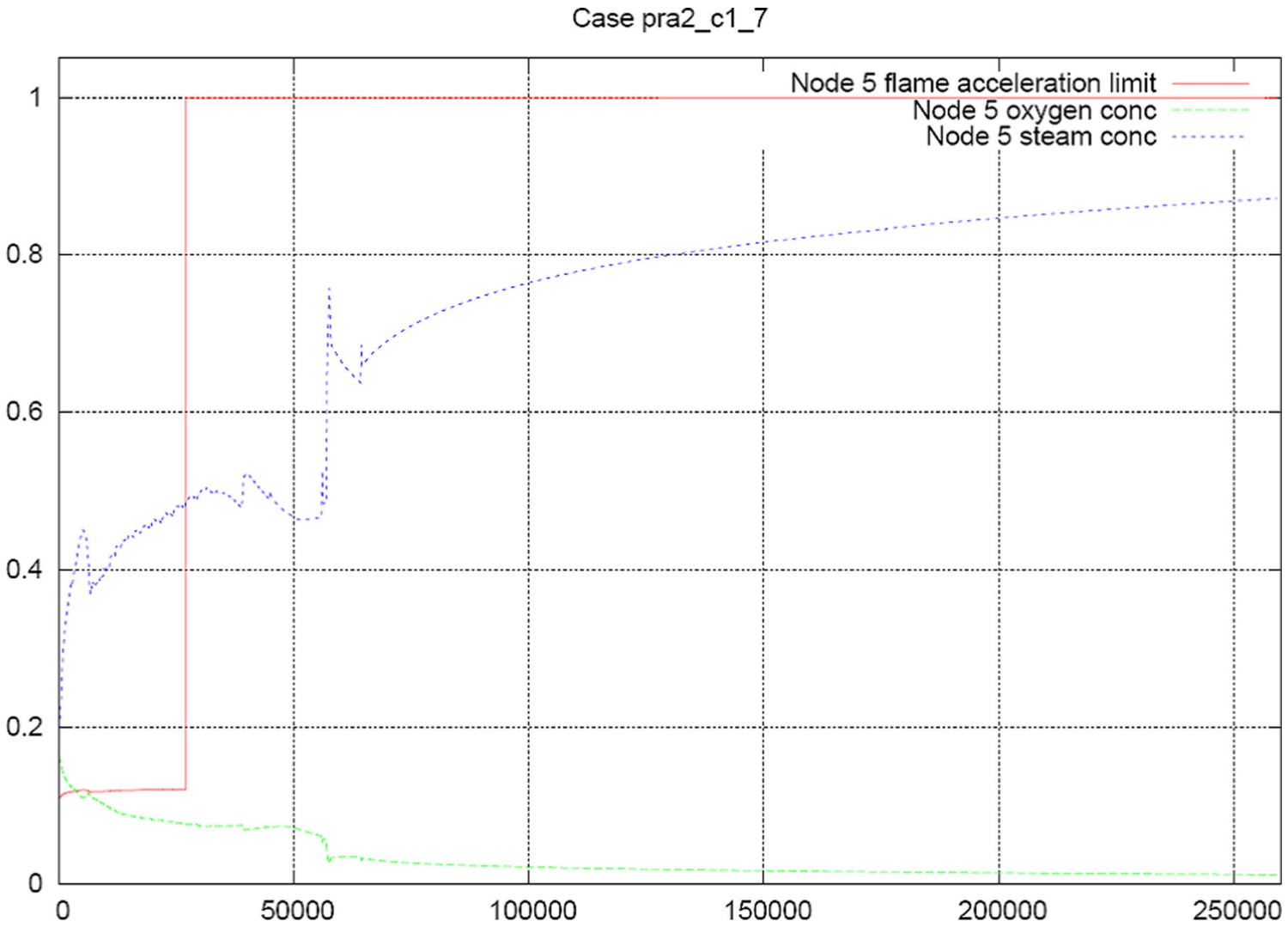

Figure A 44: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7, containment node 10)

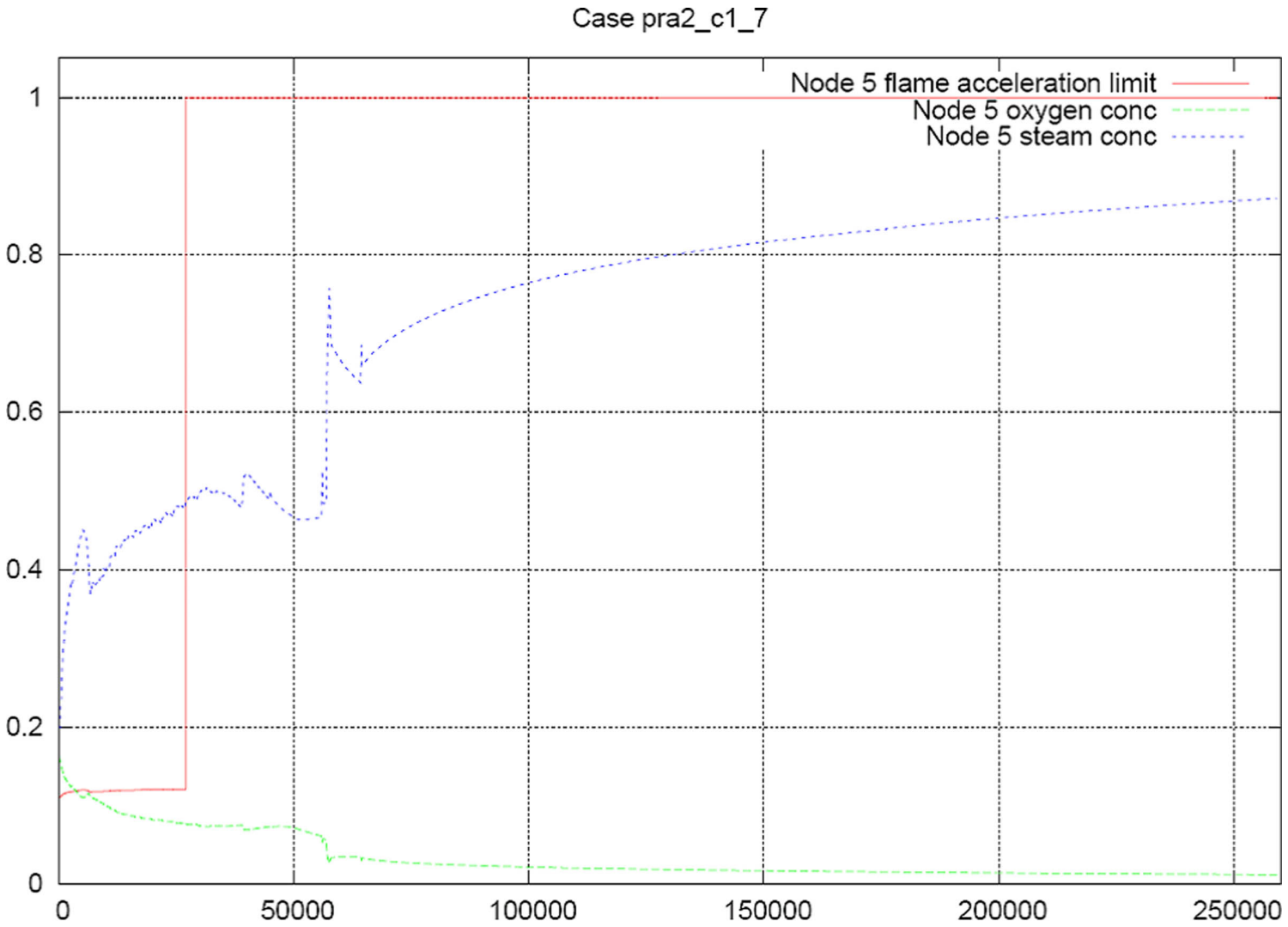

Figure A 45: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7, containment node 23)

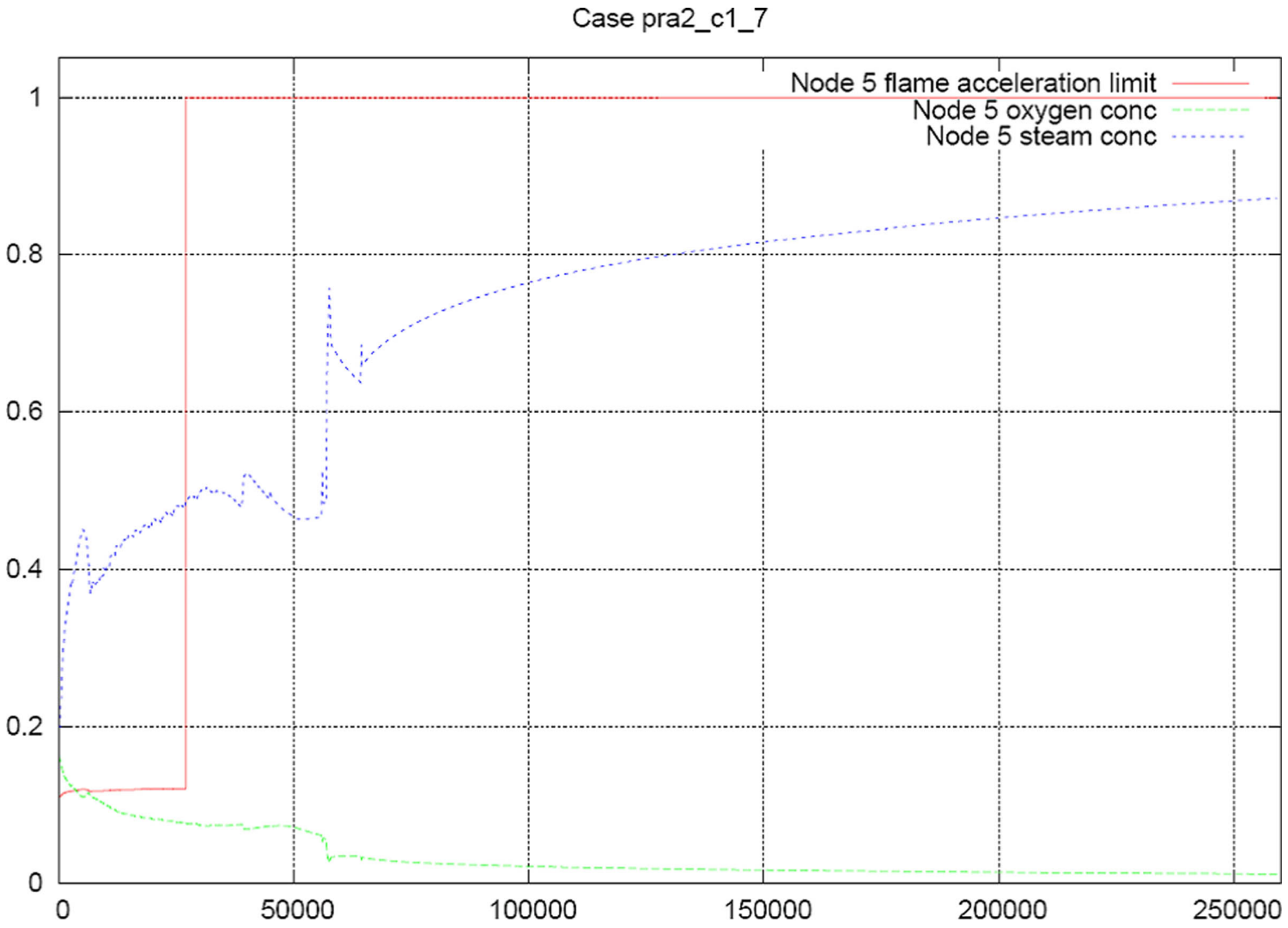

Figure A 46: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7d, containment node 1)

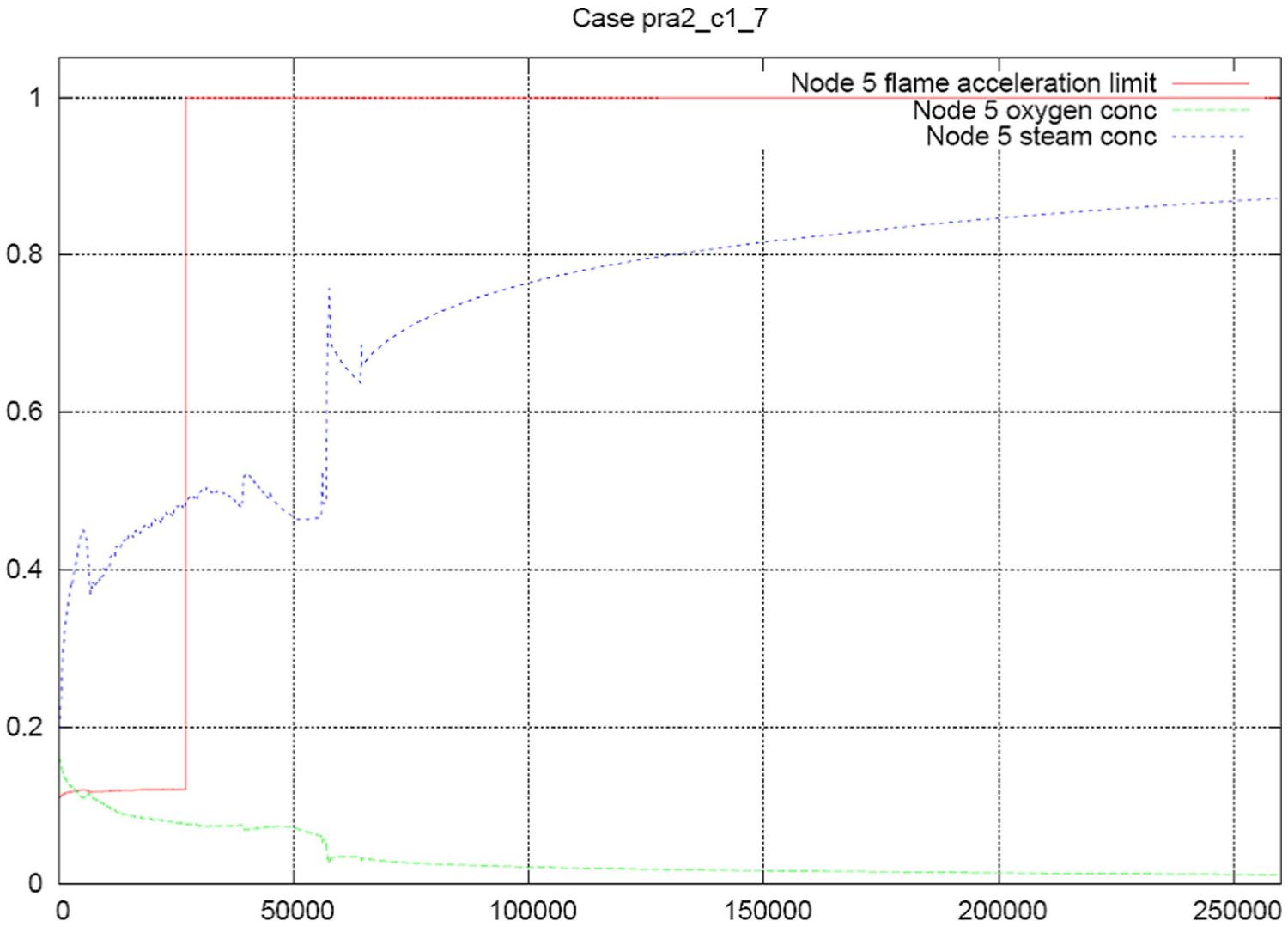

Figure A 47: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7d, containment node 5)

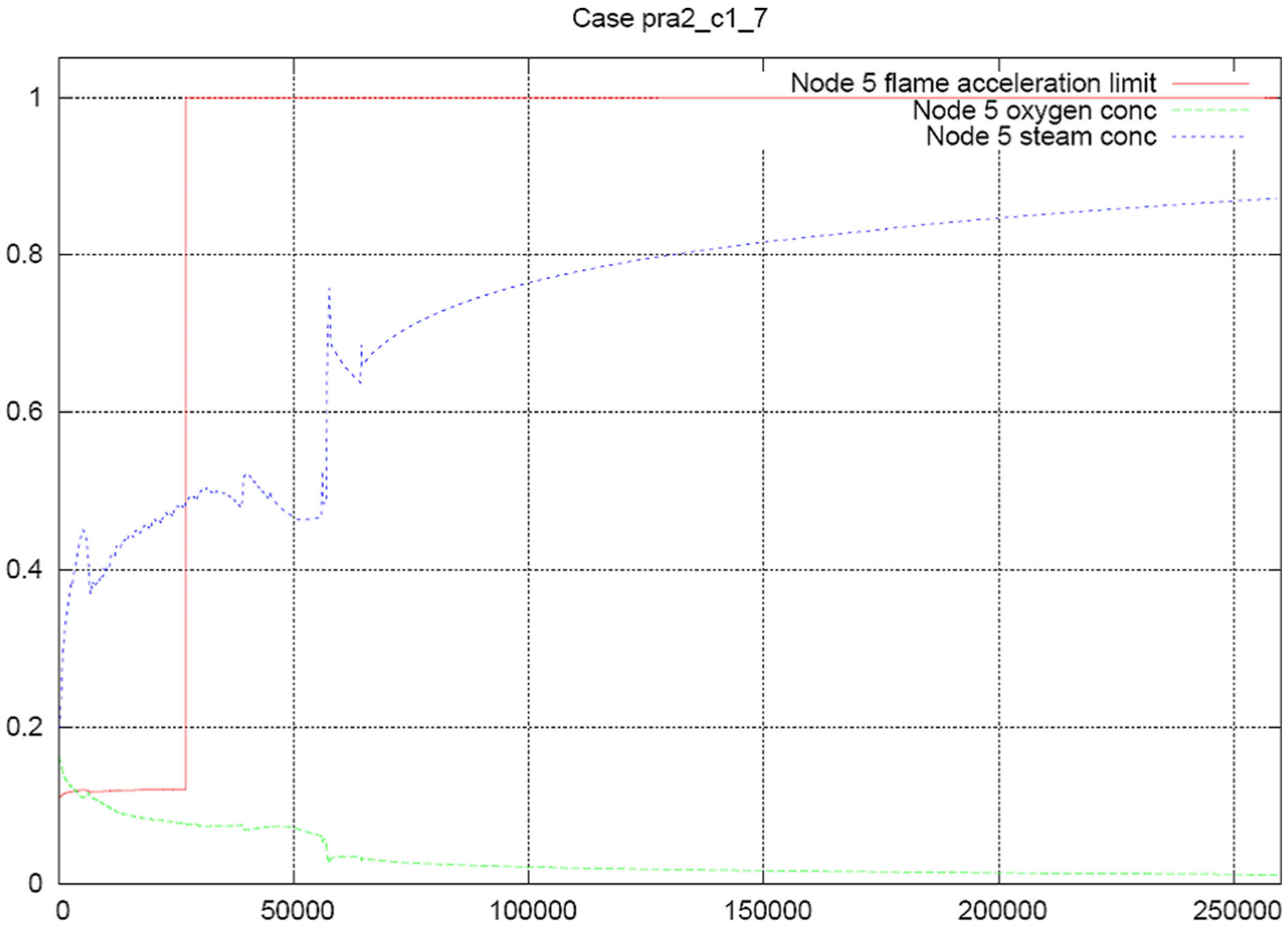

Figure A 48: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7d, containment node 10)

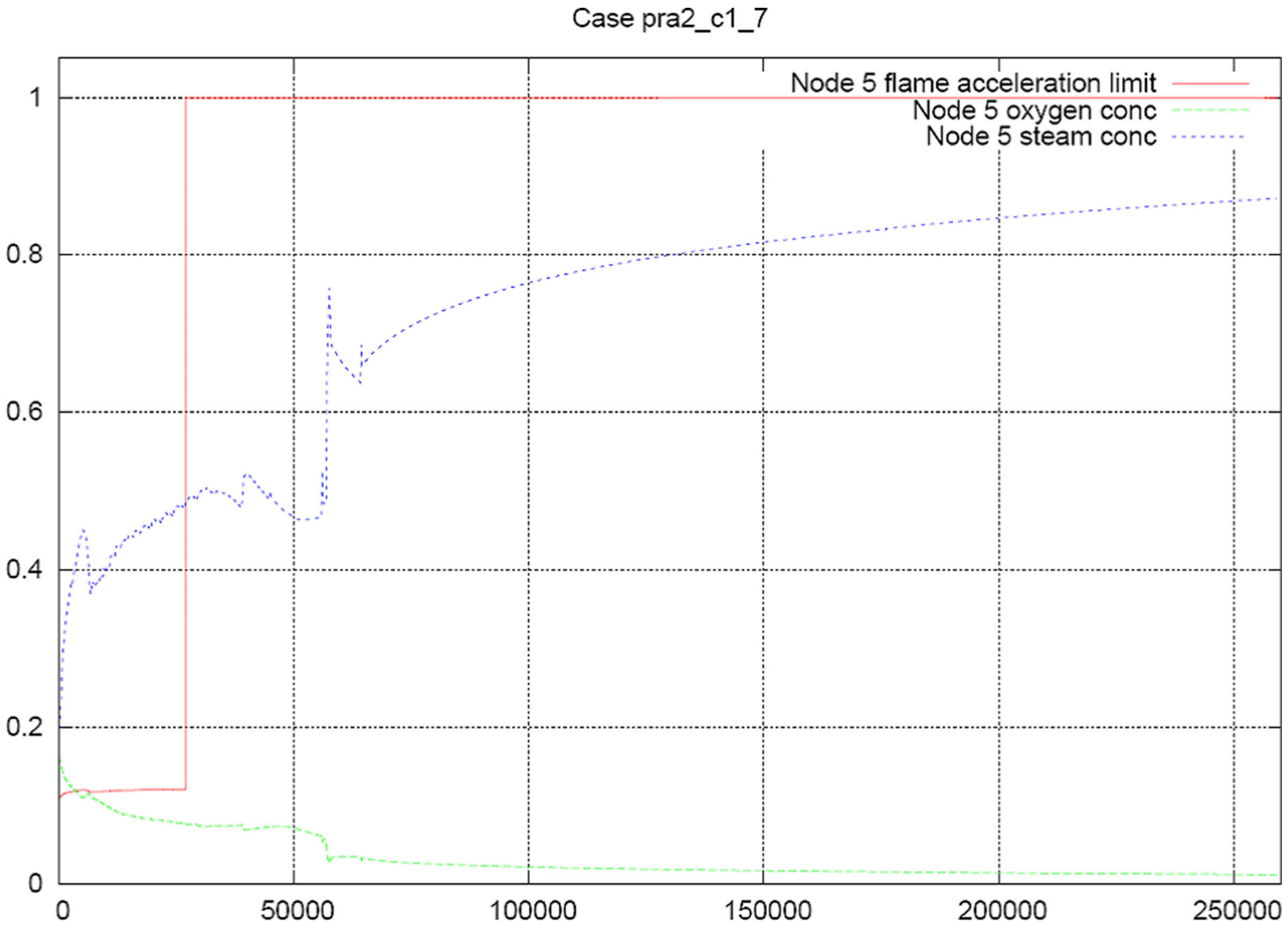

Figure A 49: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_7d, containment node 23)

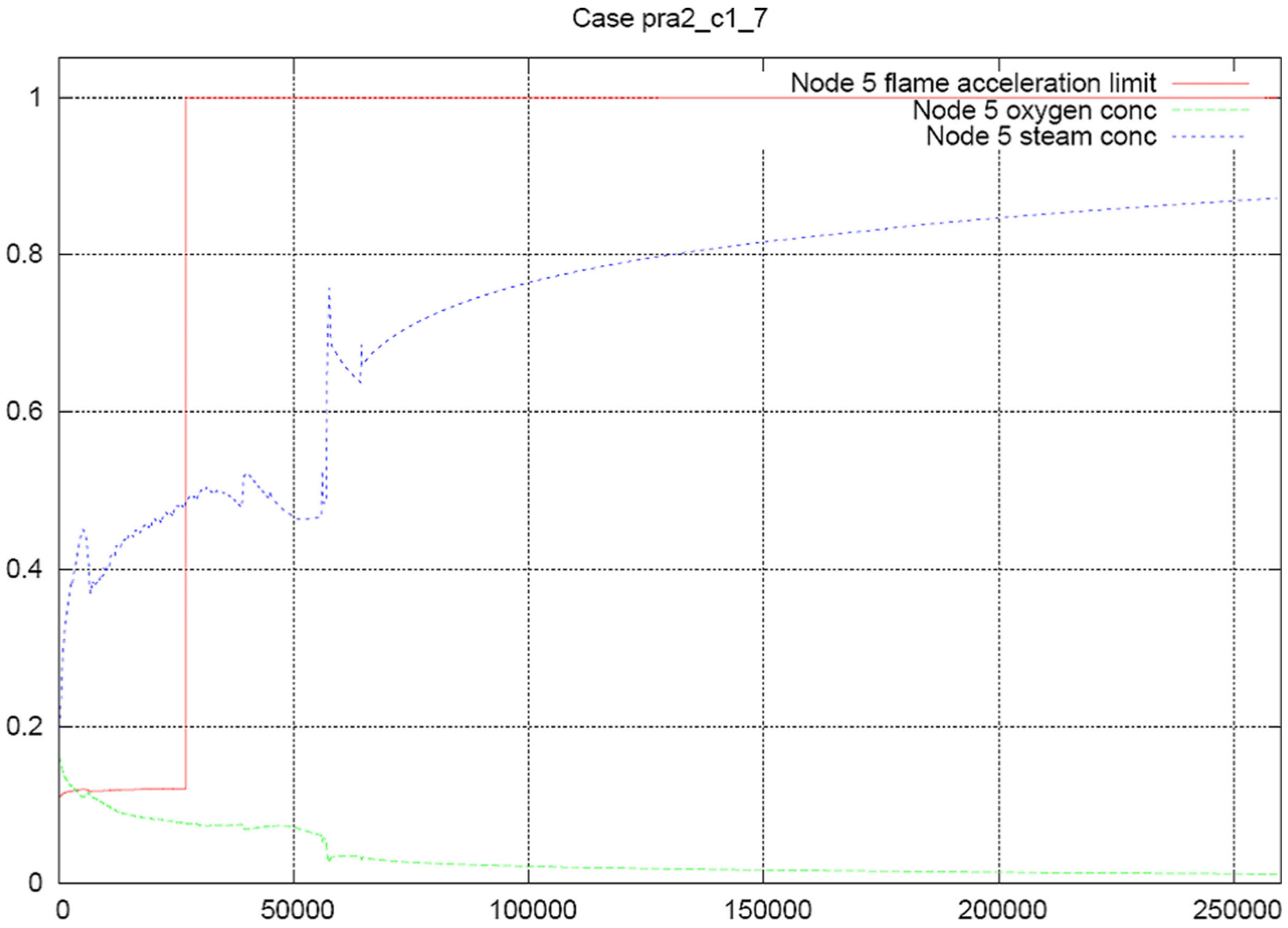

Figure A 50: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_8, containment node 1)

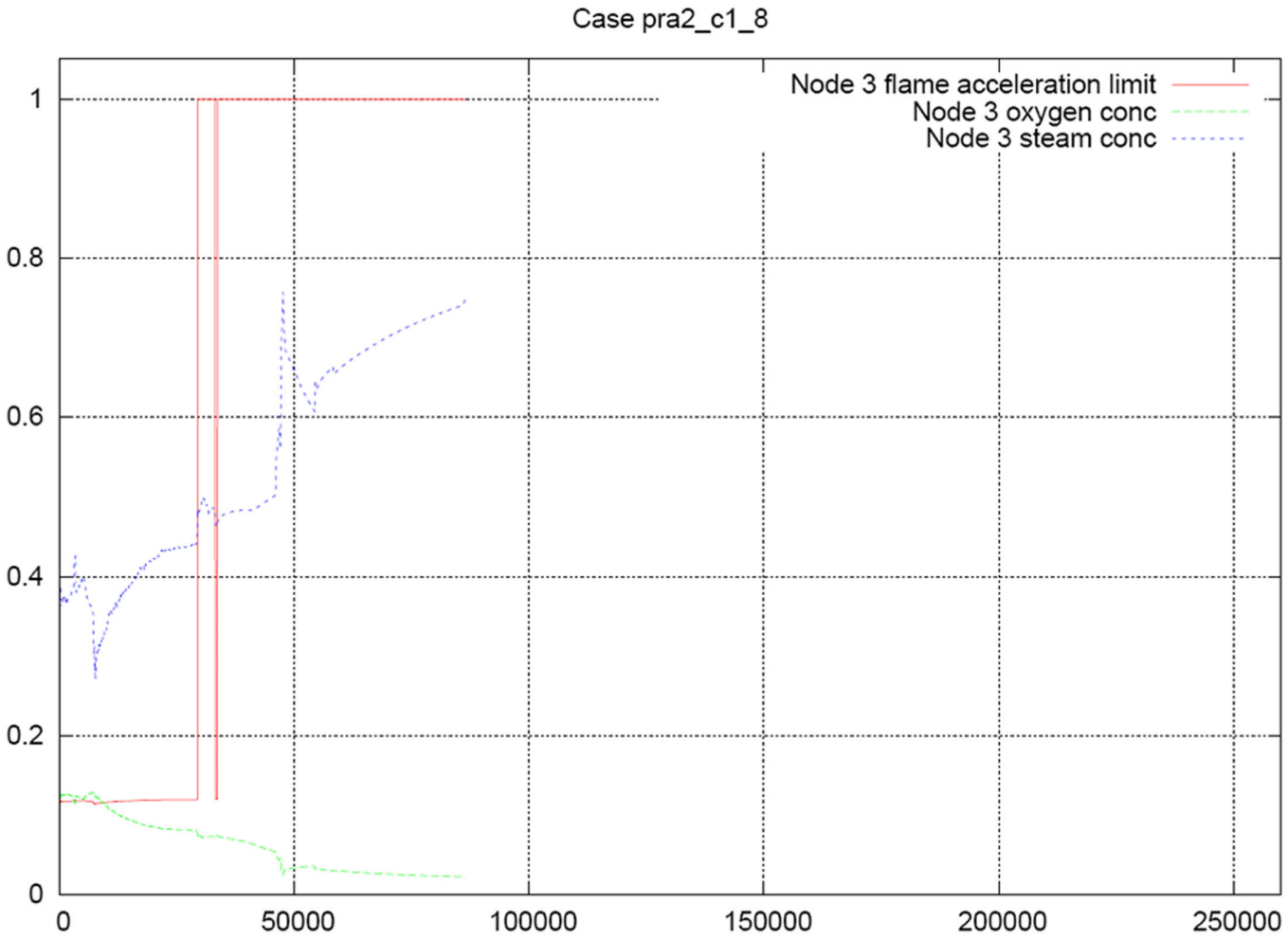

Figure A 51: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_8, containment node 3)

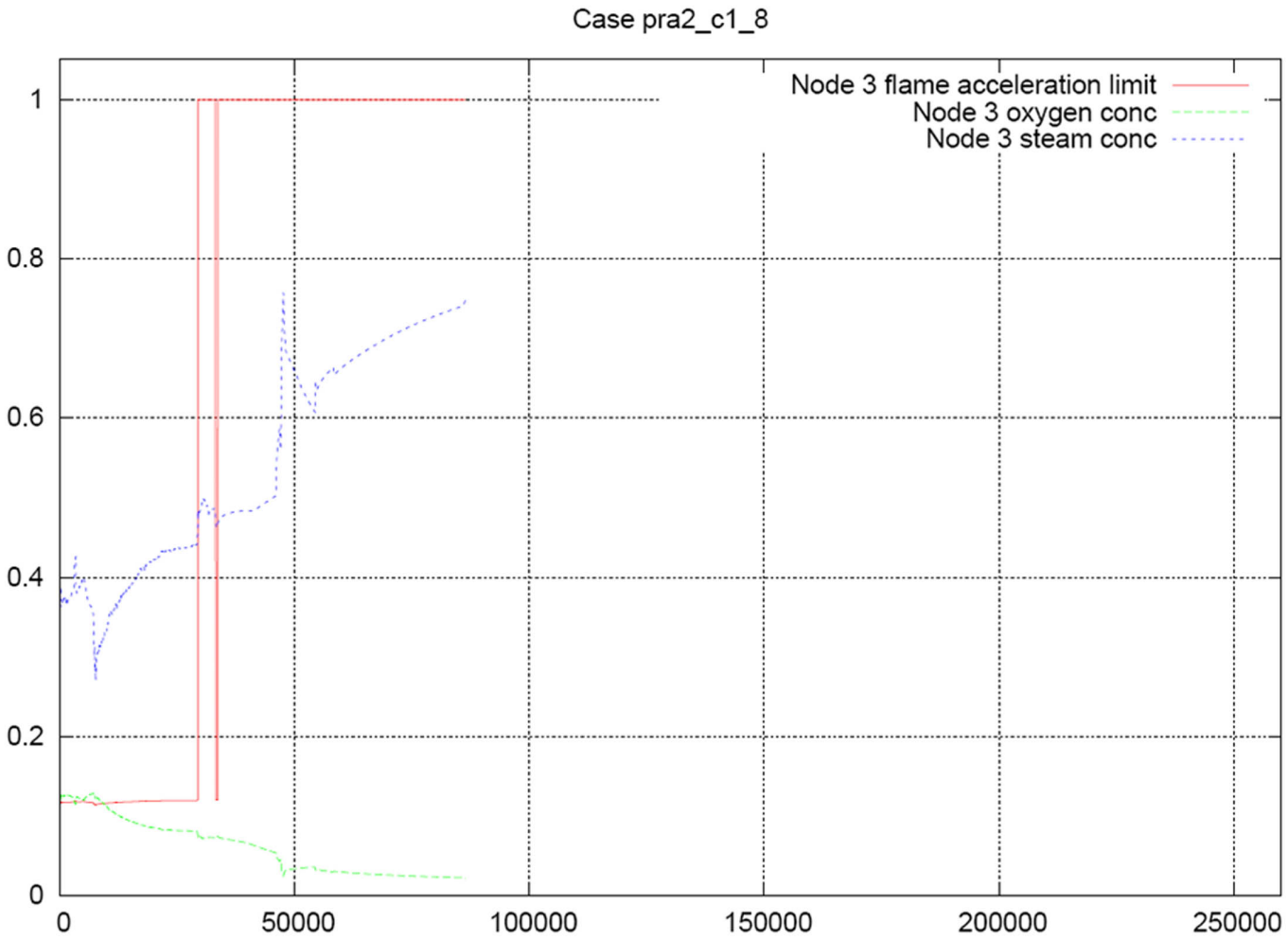

Figure A 52: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_8, containment node 5)

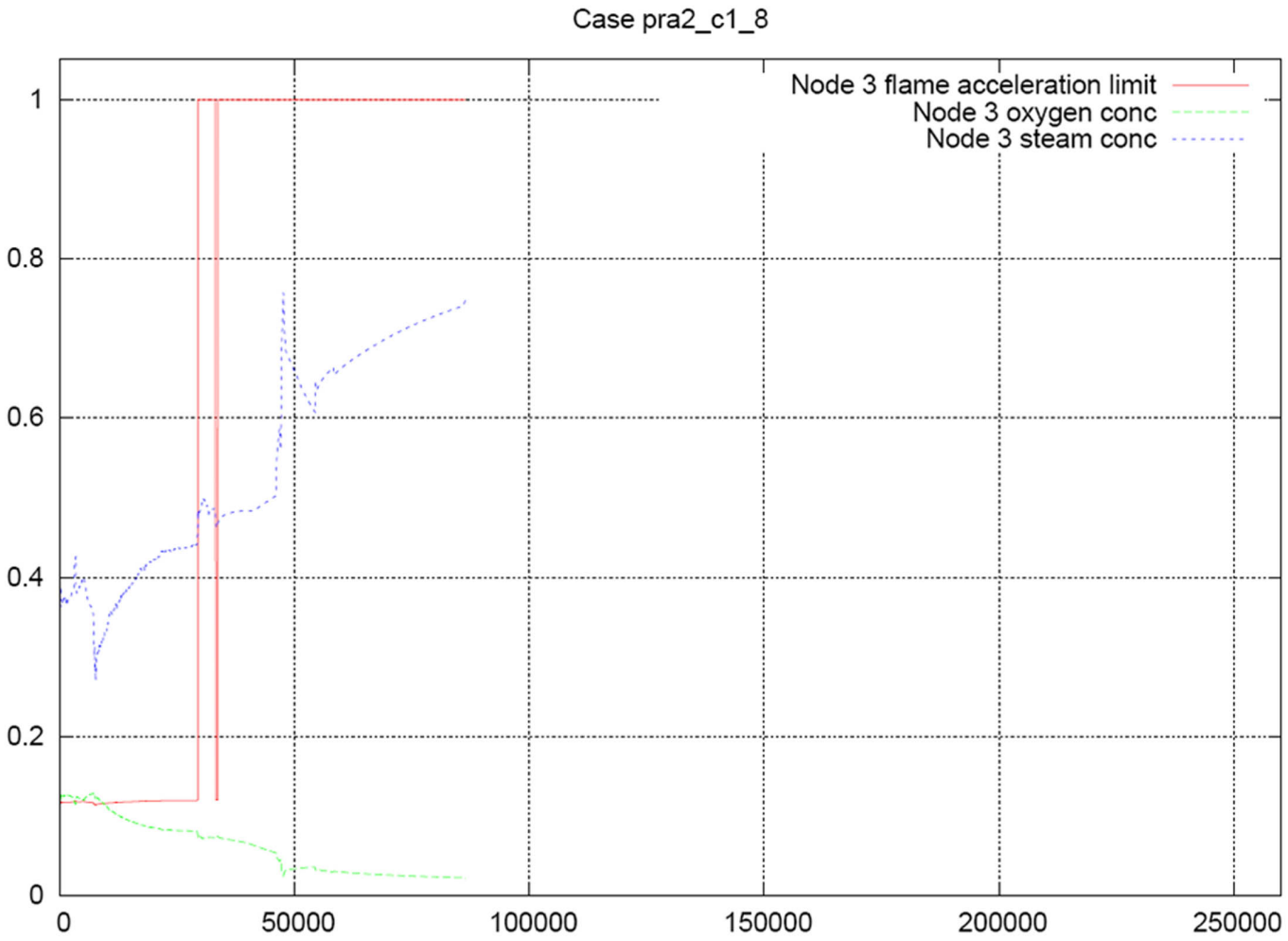

Figure A 53: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_8, containment node 10)

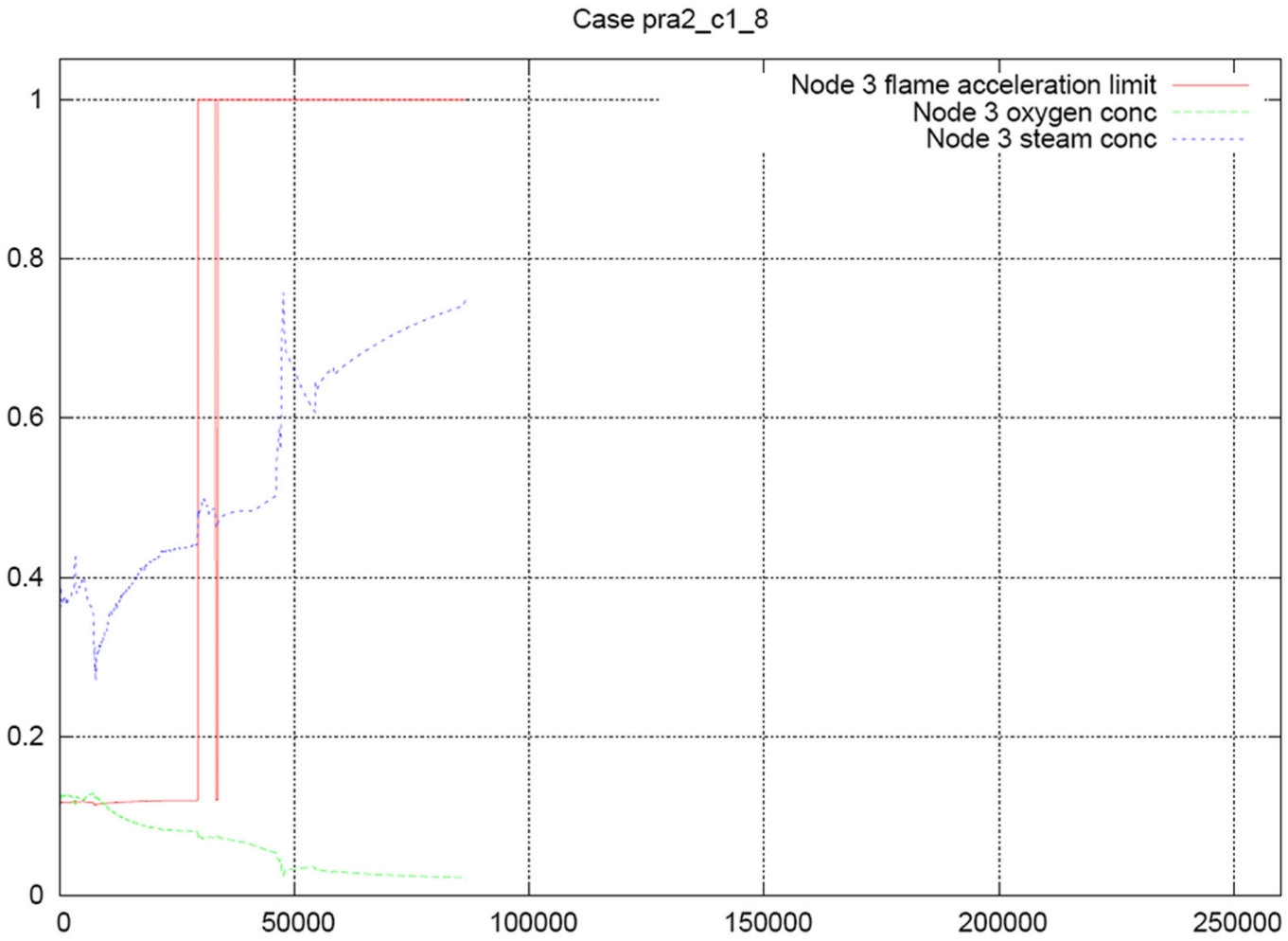

Figure A 54: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c1_8, containment node 23)

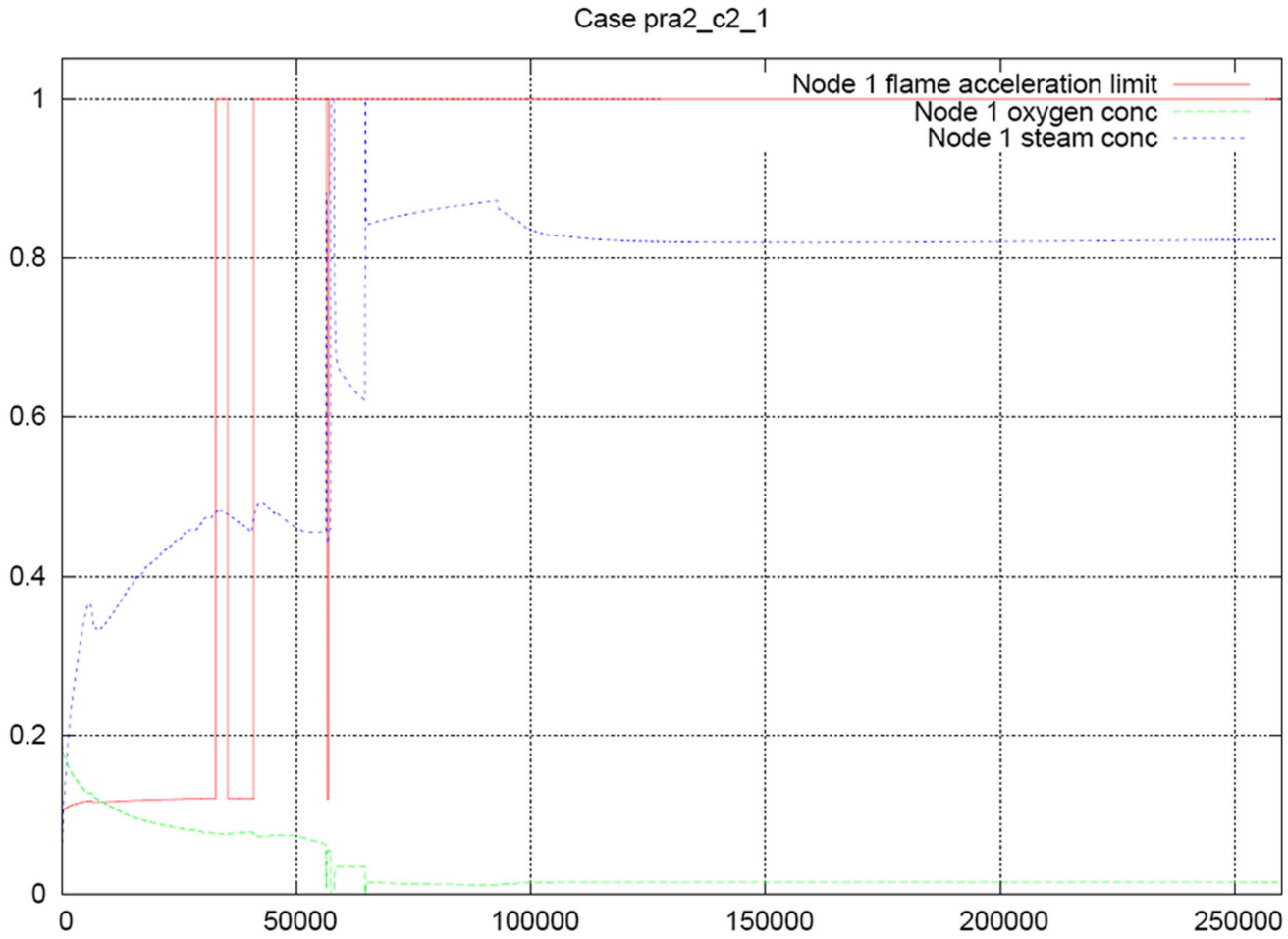

Figure A 55: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1, containment node 1)

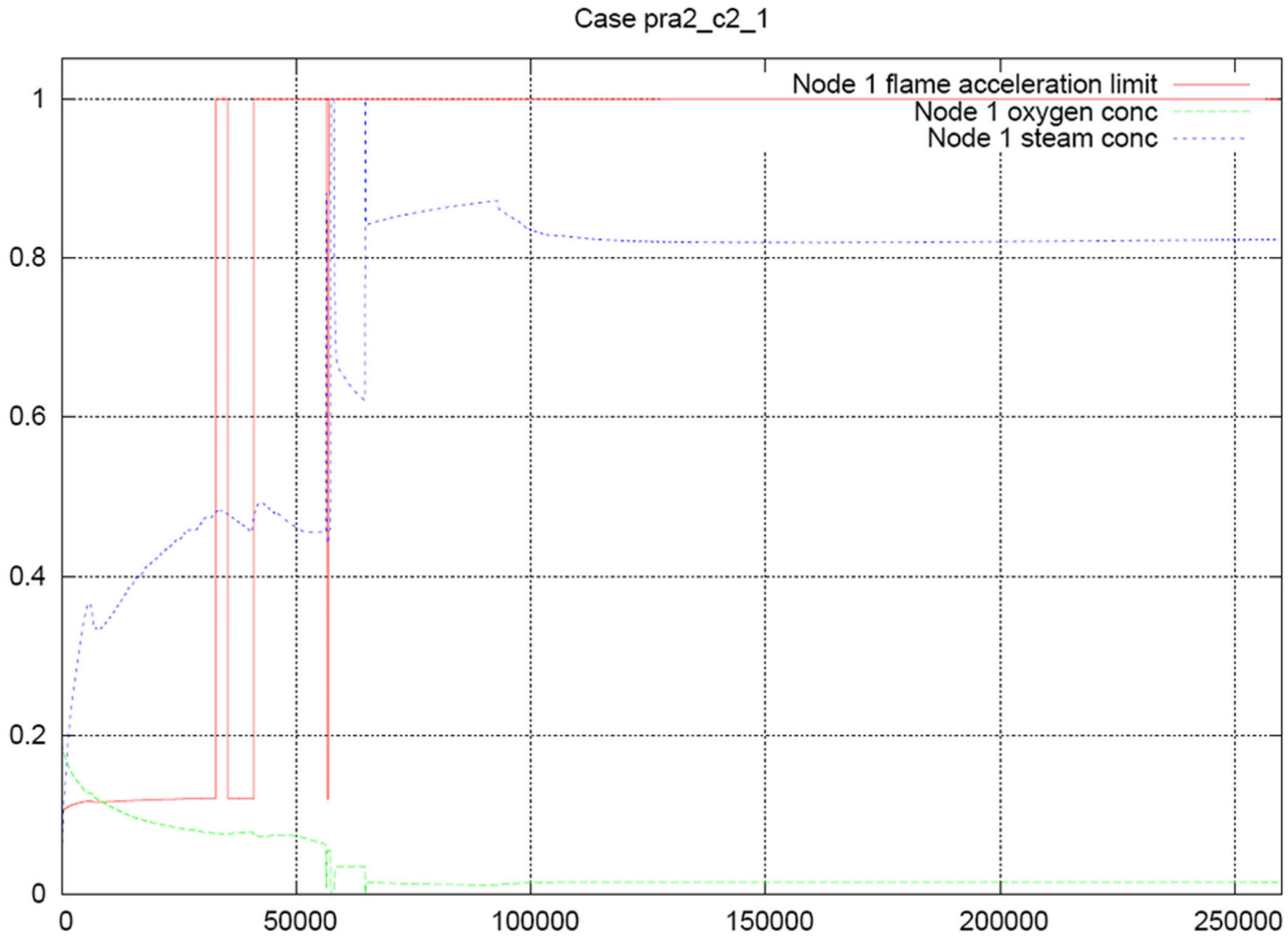

Figure A 56: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1, containment node 5)

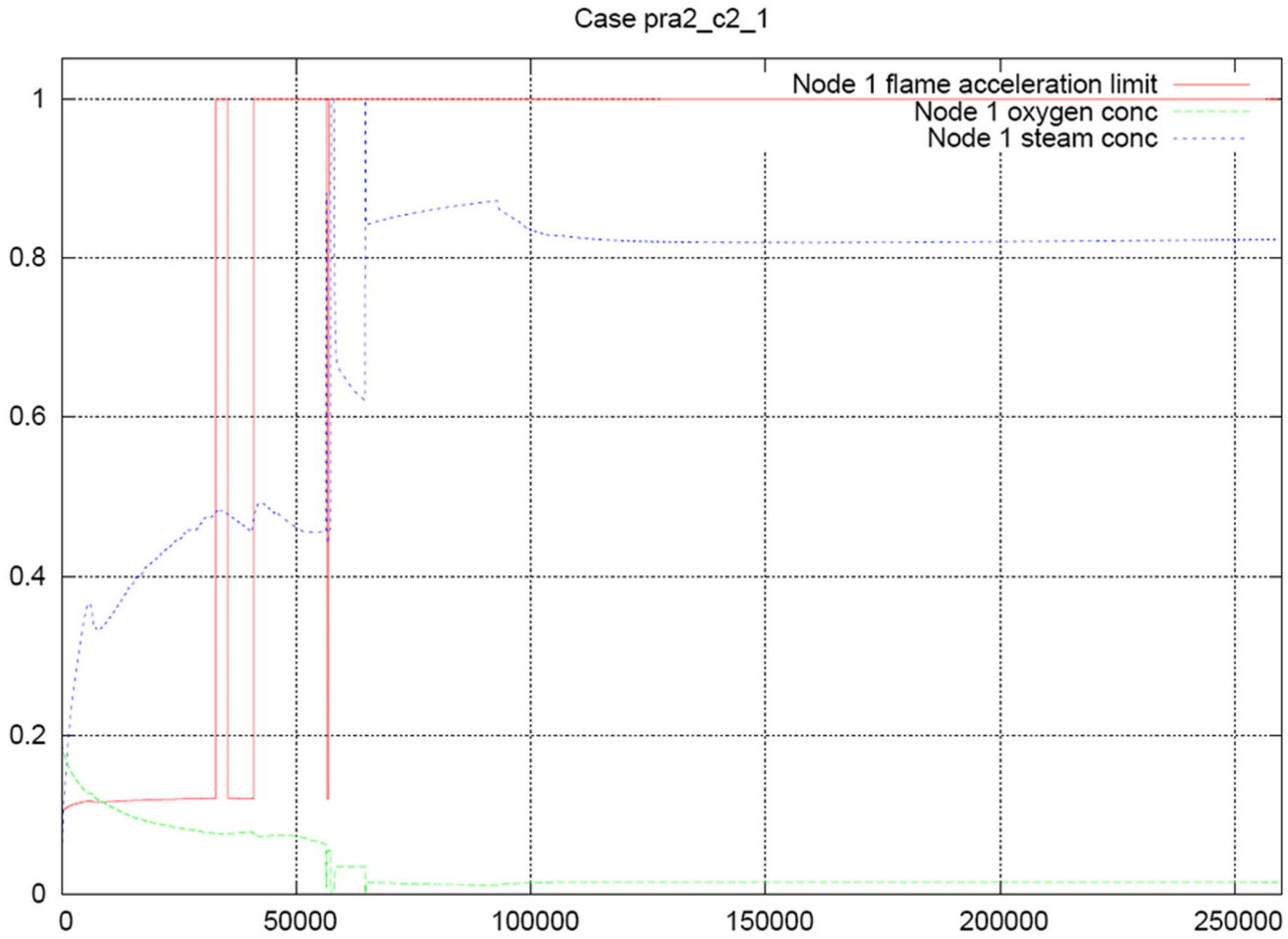

Figure A 57: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1, containment node 8)

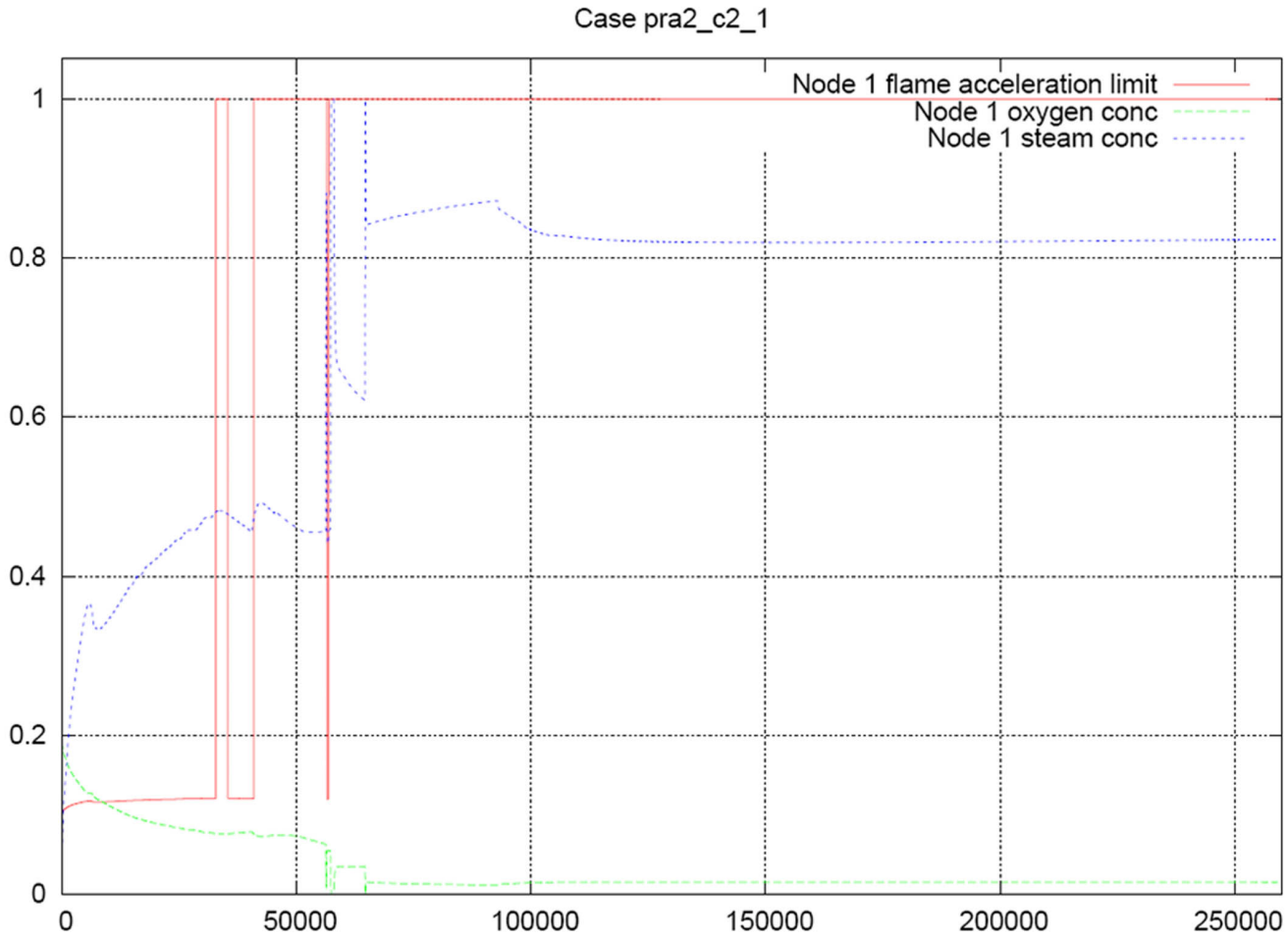

Figure A 58: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1, containment node 10)

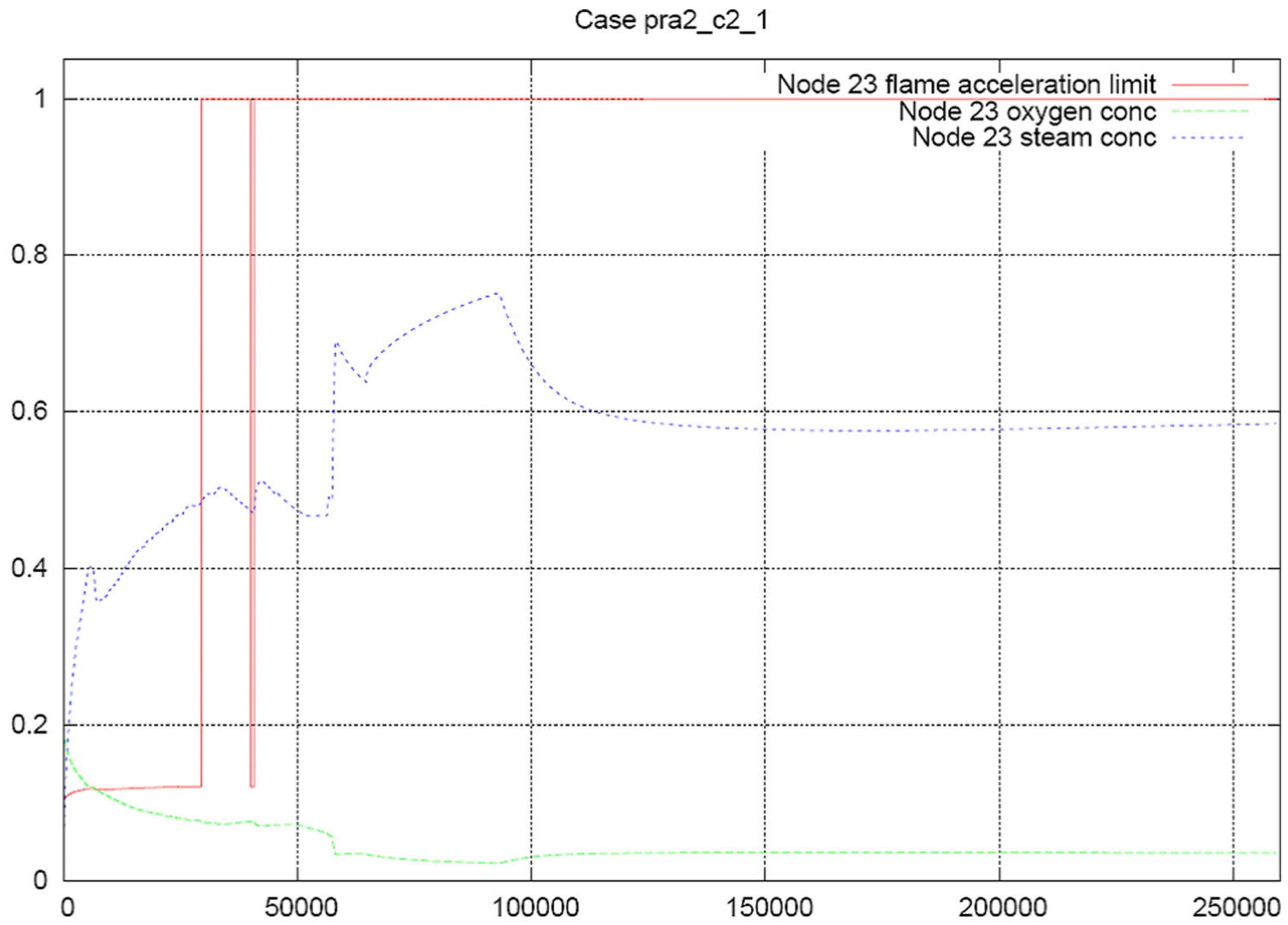

Figure A 59: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1, containment node 23)

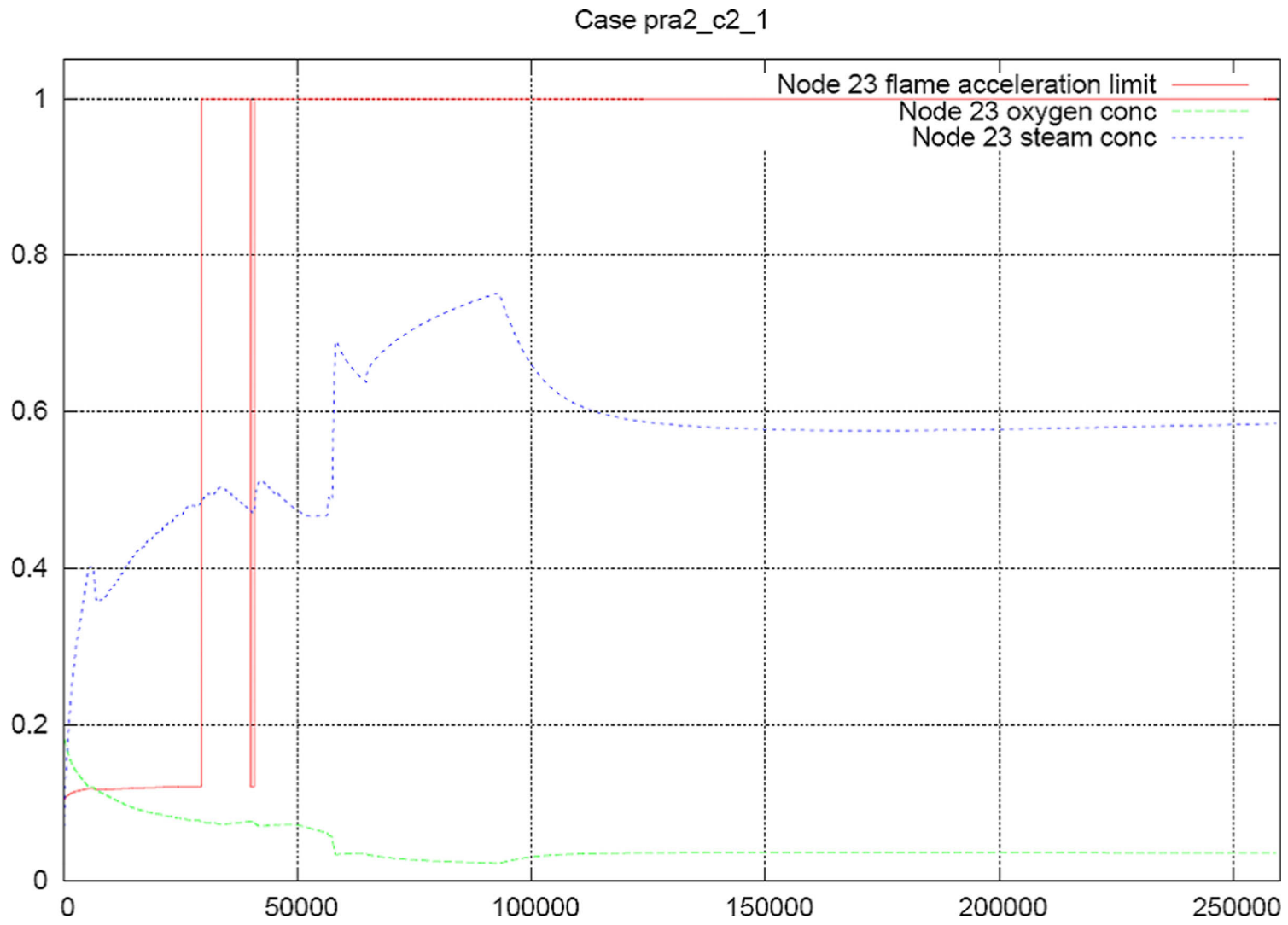

Figure A 60: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1a, containment node 1)

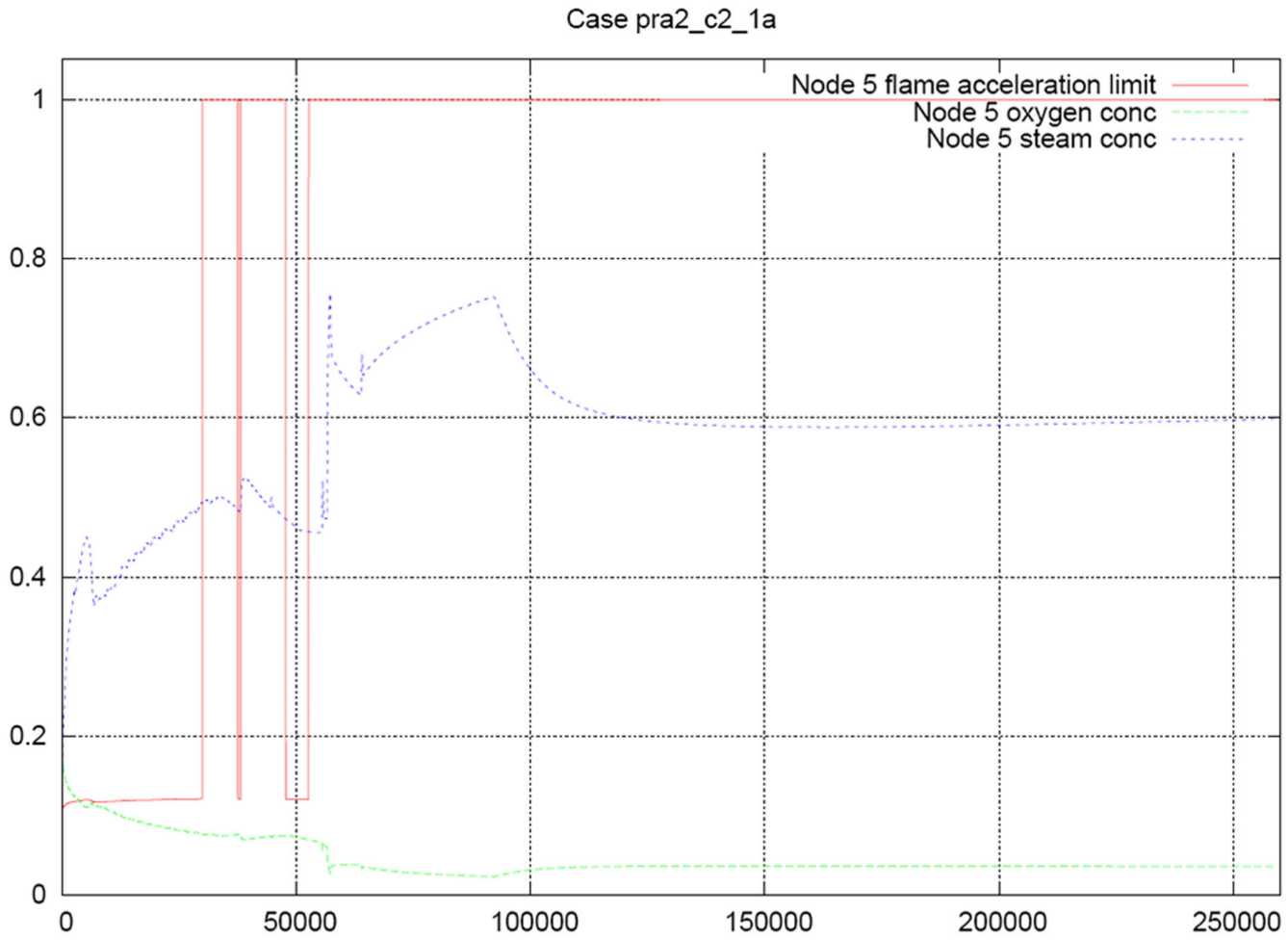

Figure A 61: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1a, containment node 5)

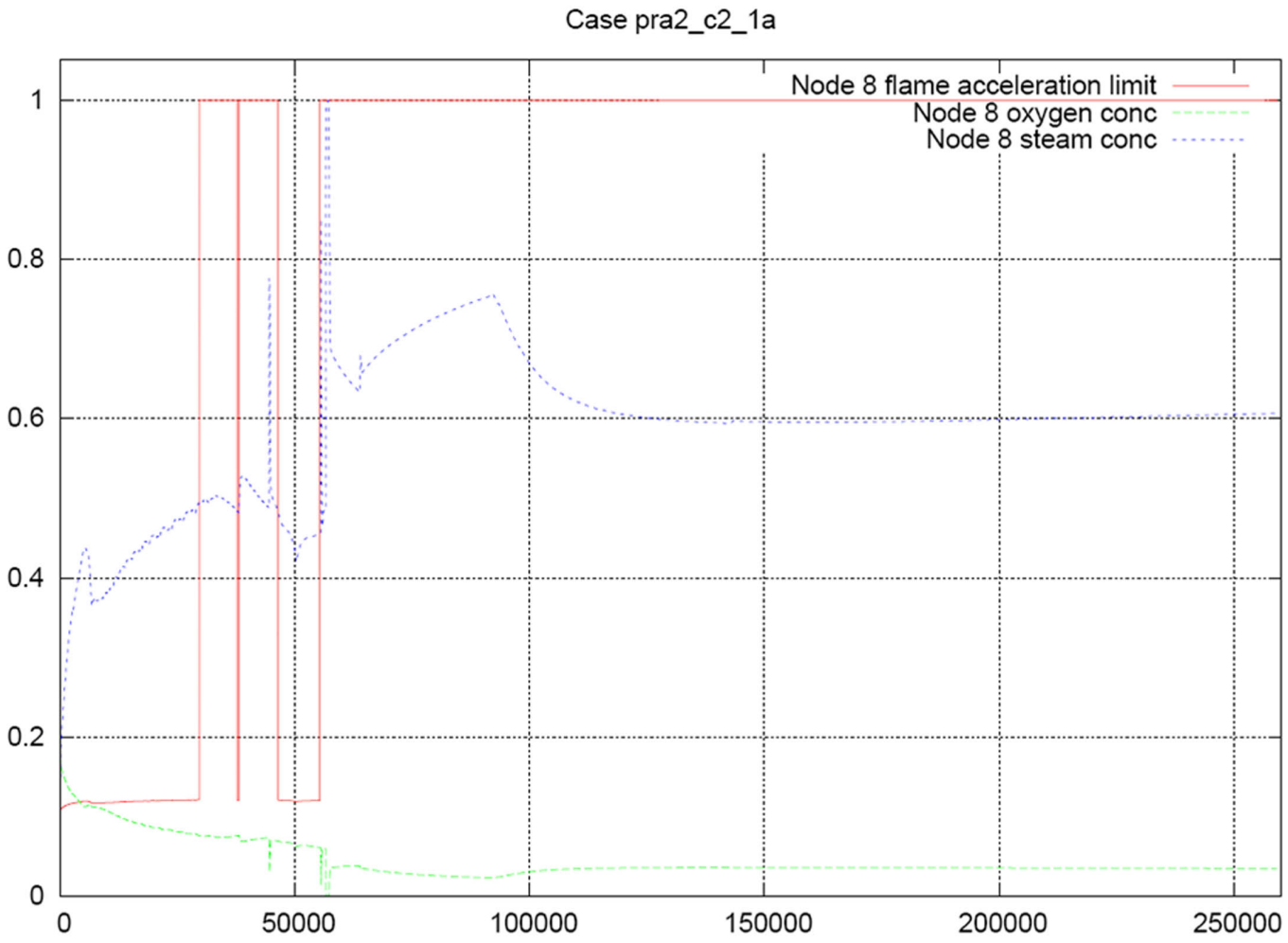

Figure A 62: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1a, containment node 8)

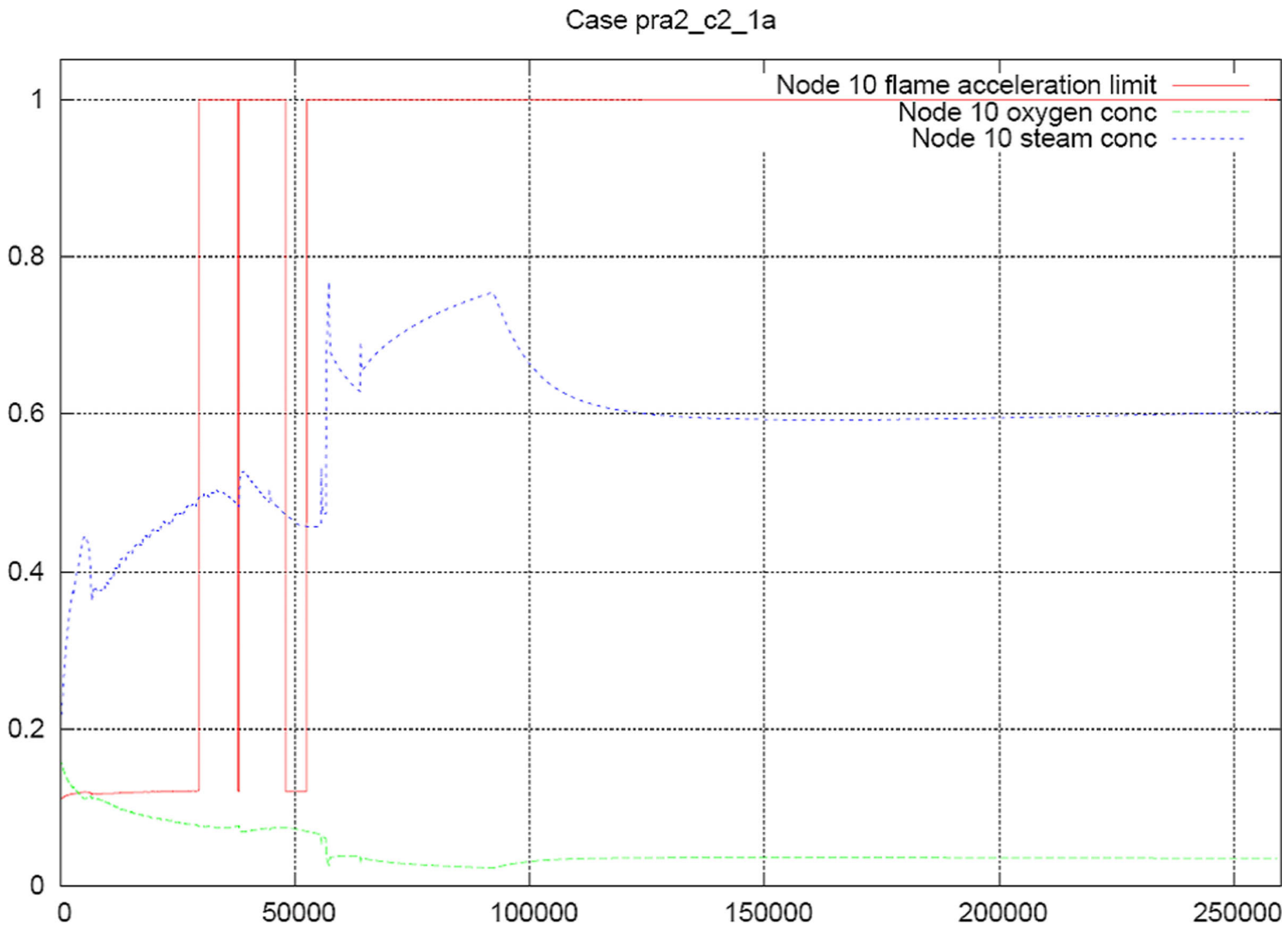

Figure A 63: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1a, containment node 10)

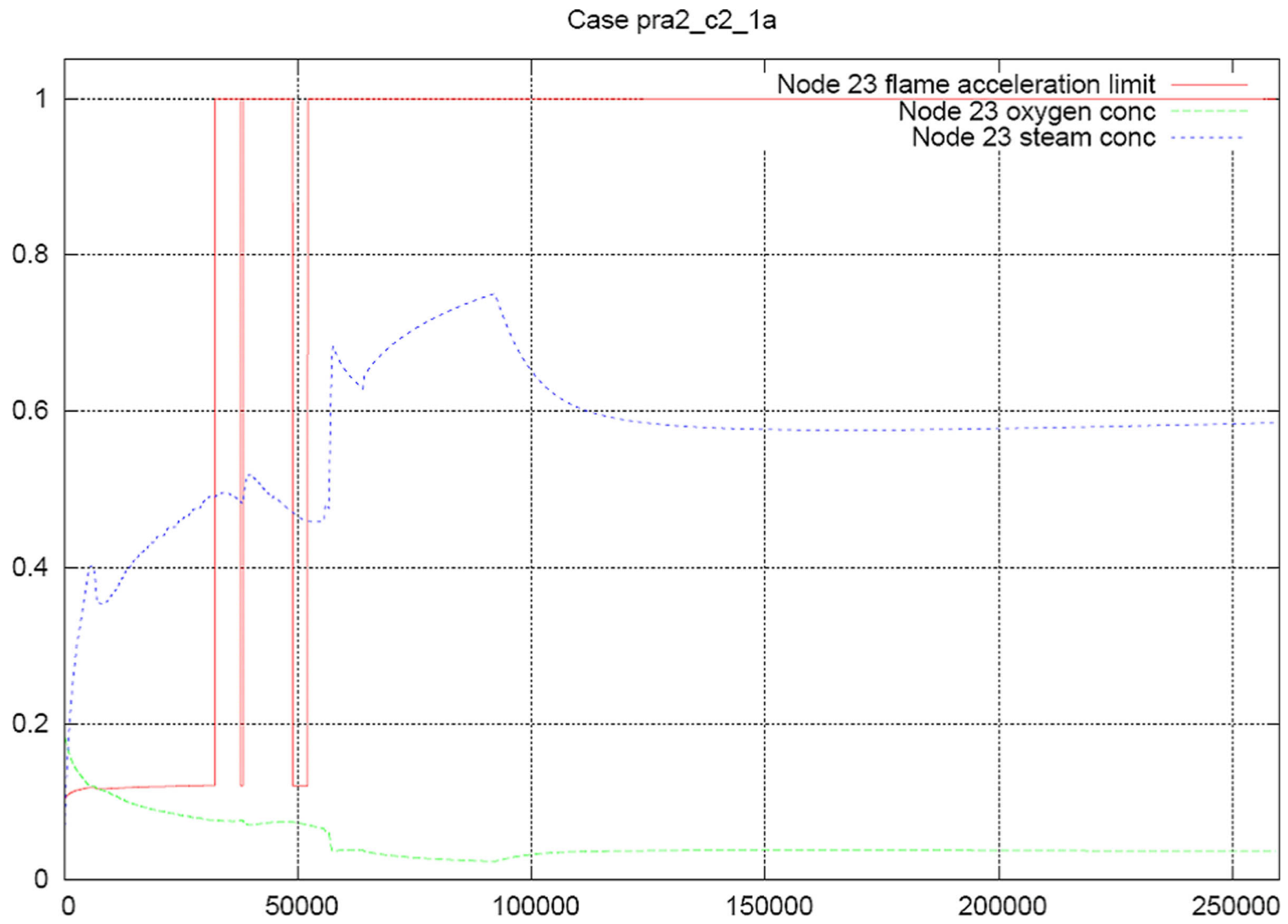

Figure A 64: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_1a, containment node 23)

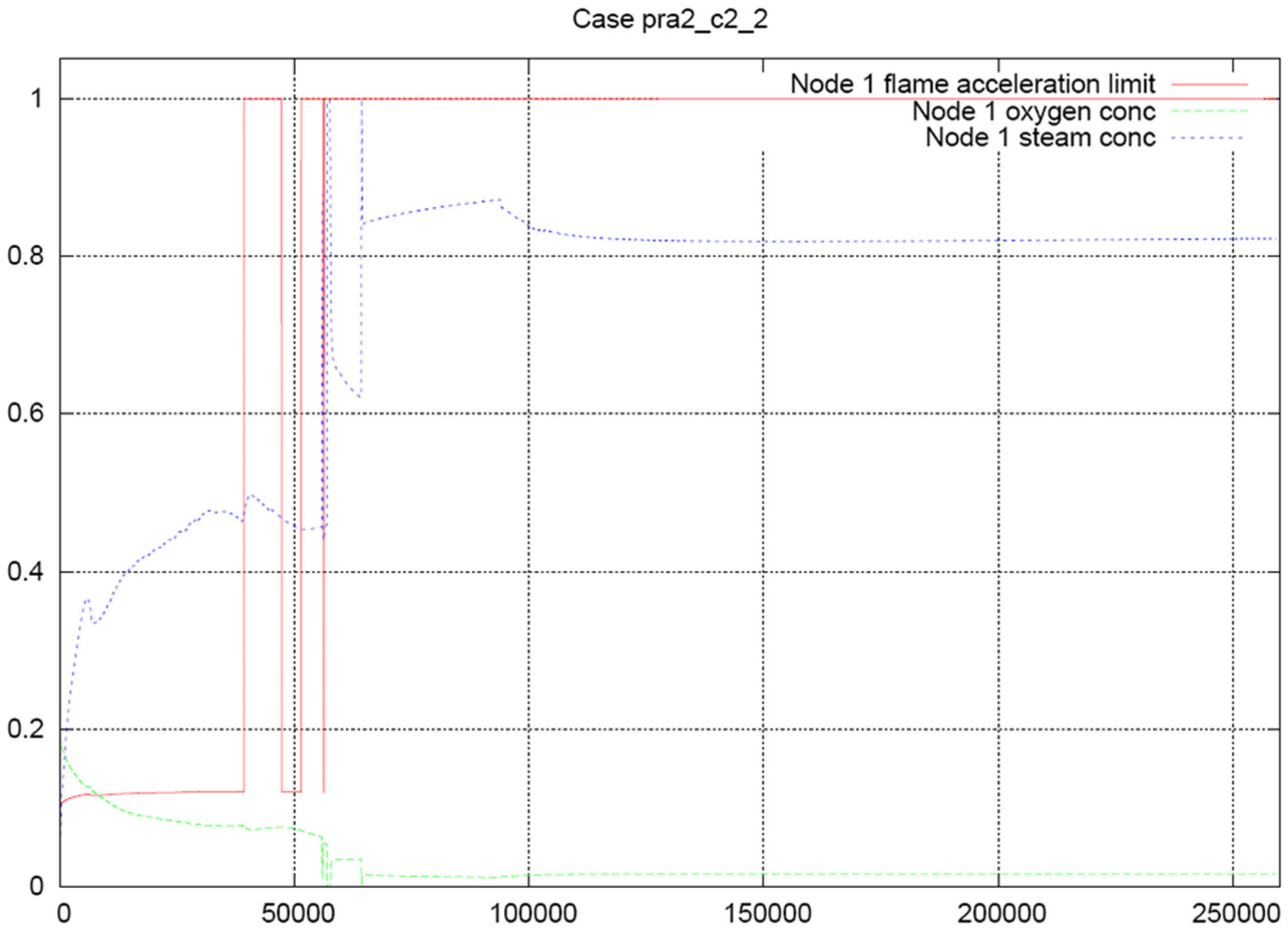

Figure A 65: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_2, containment node 1)

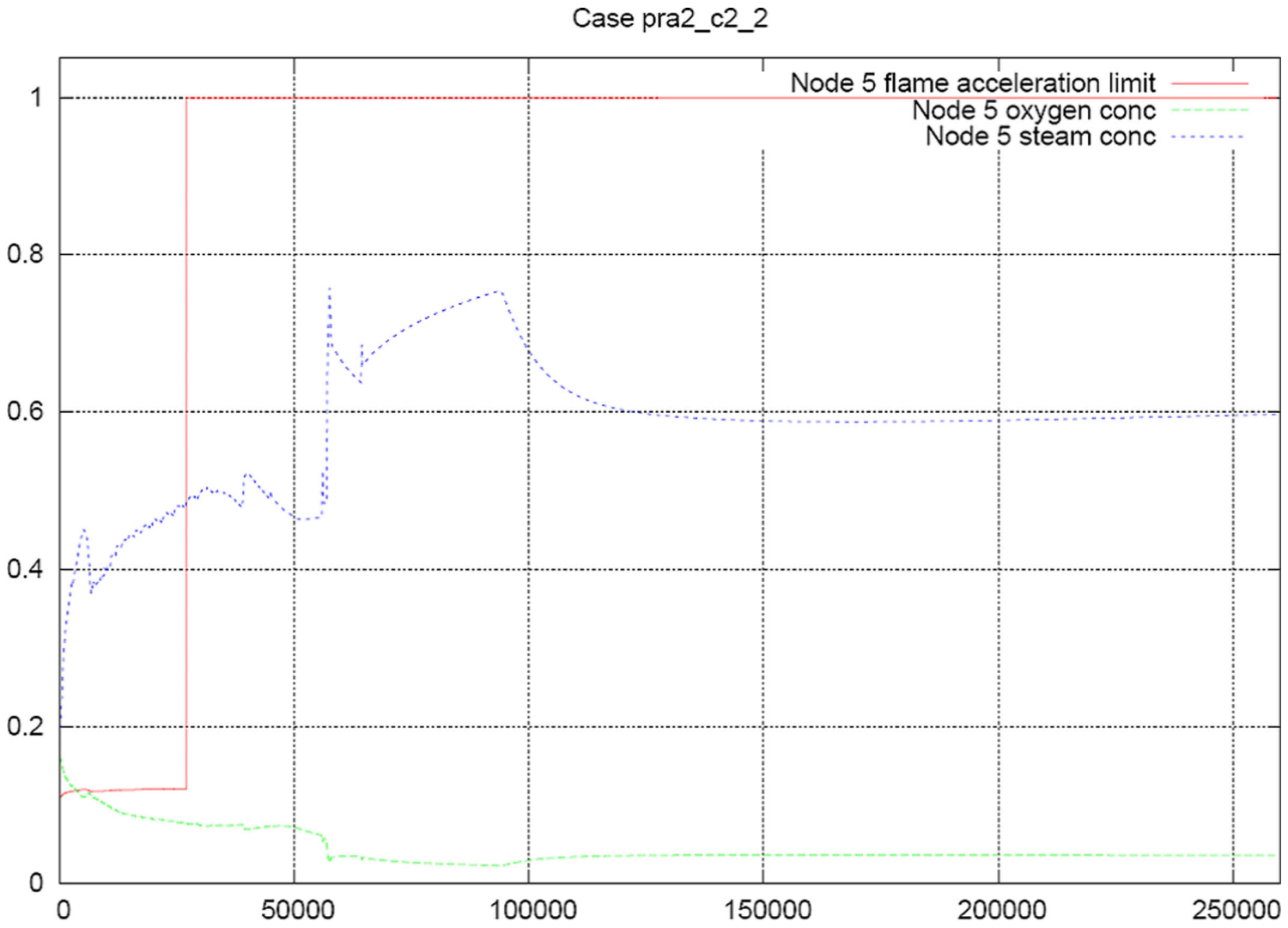

Figure A 66: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_2, containment node 5)

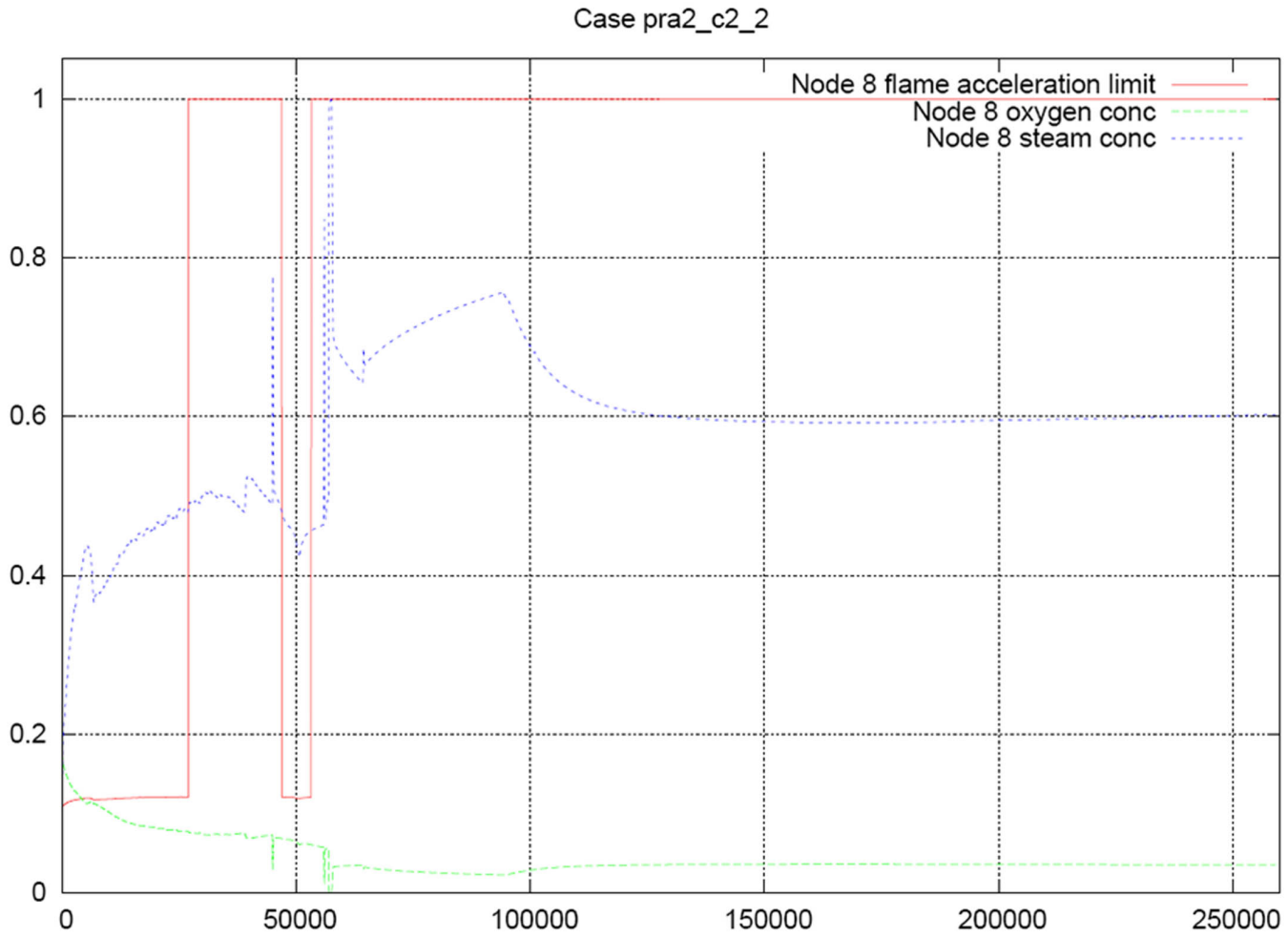

Figure A 67: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_2, containment node 8)

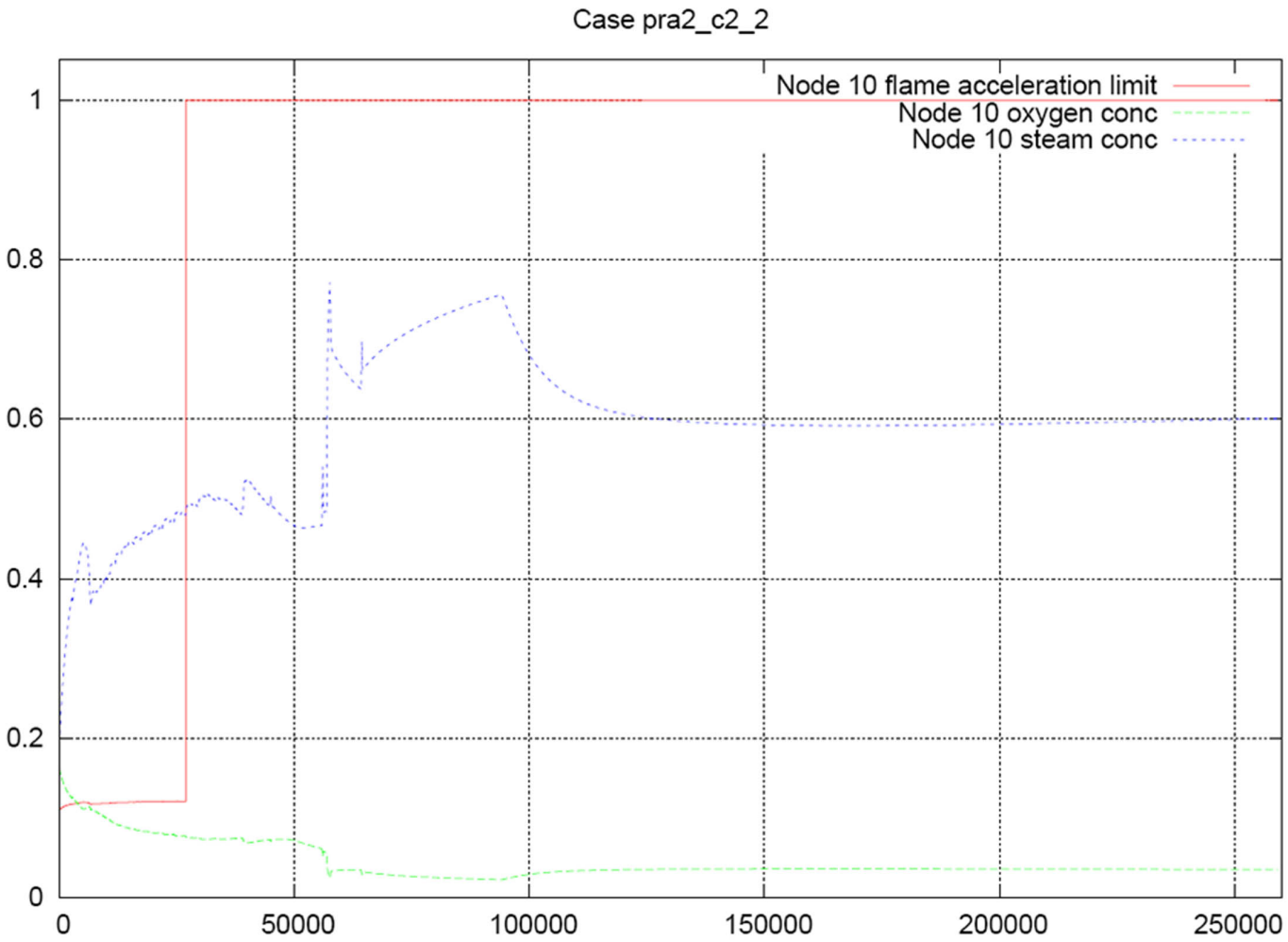

Figure A 68: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_2, containment node 10)

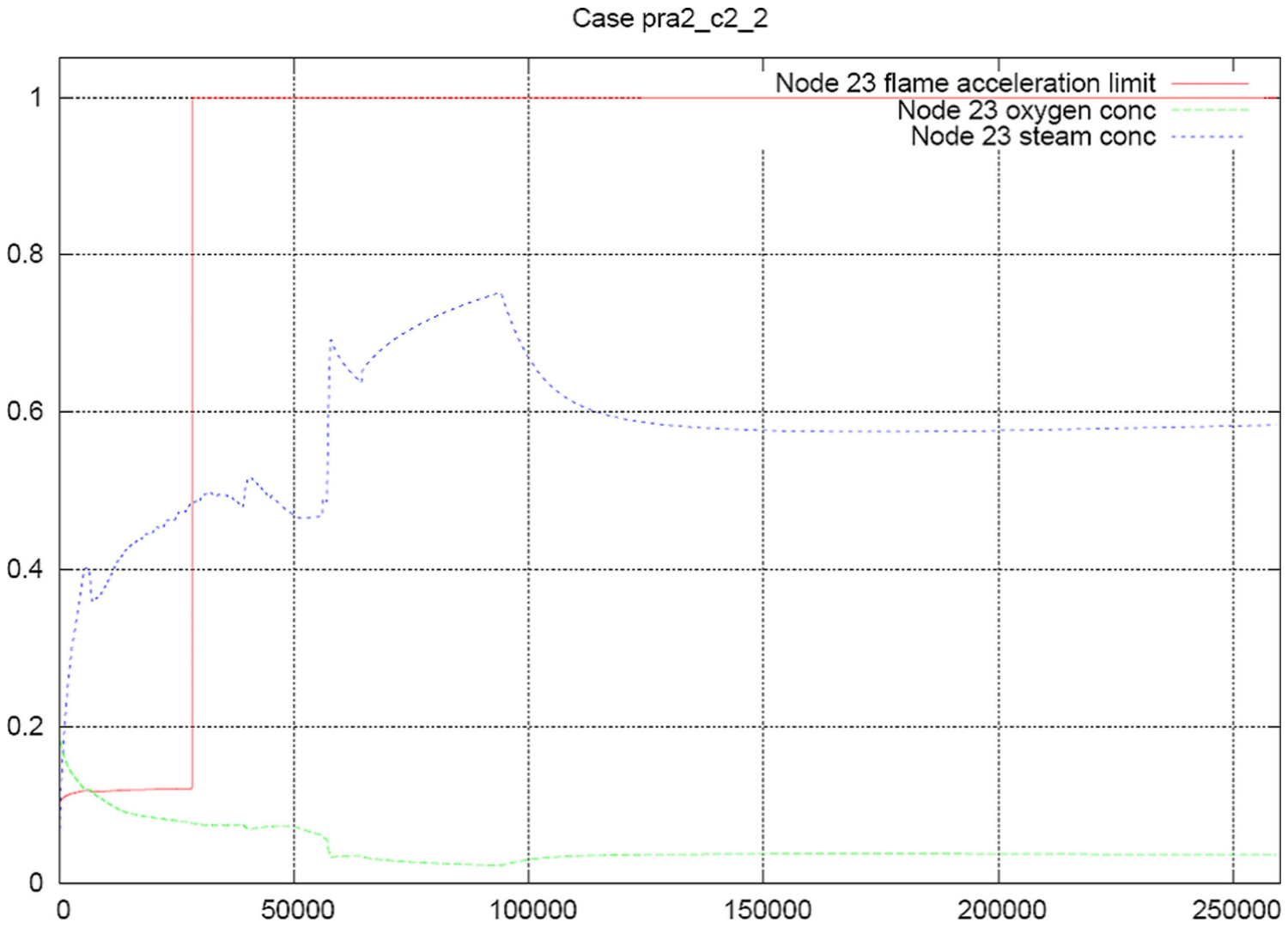

Figure A 69: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_2, containment node 23)

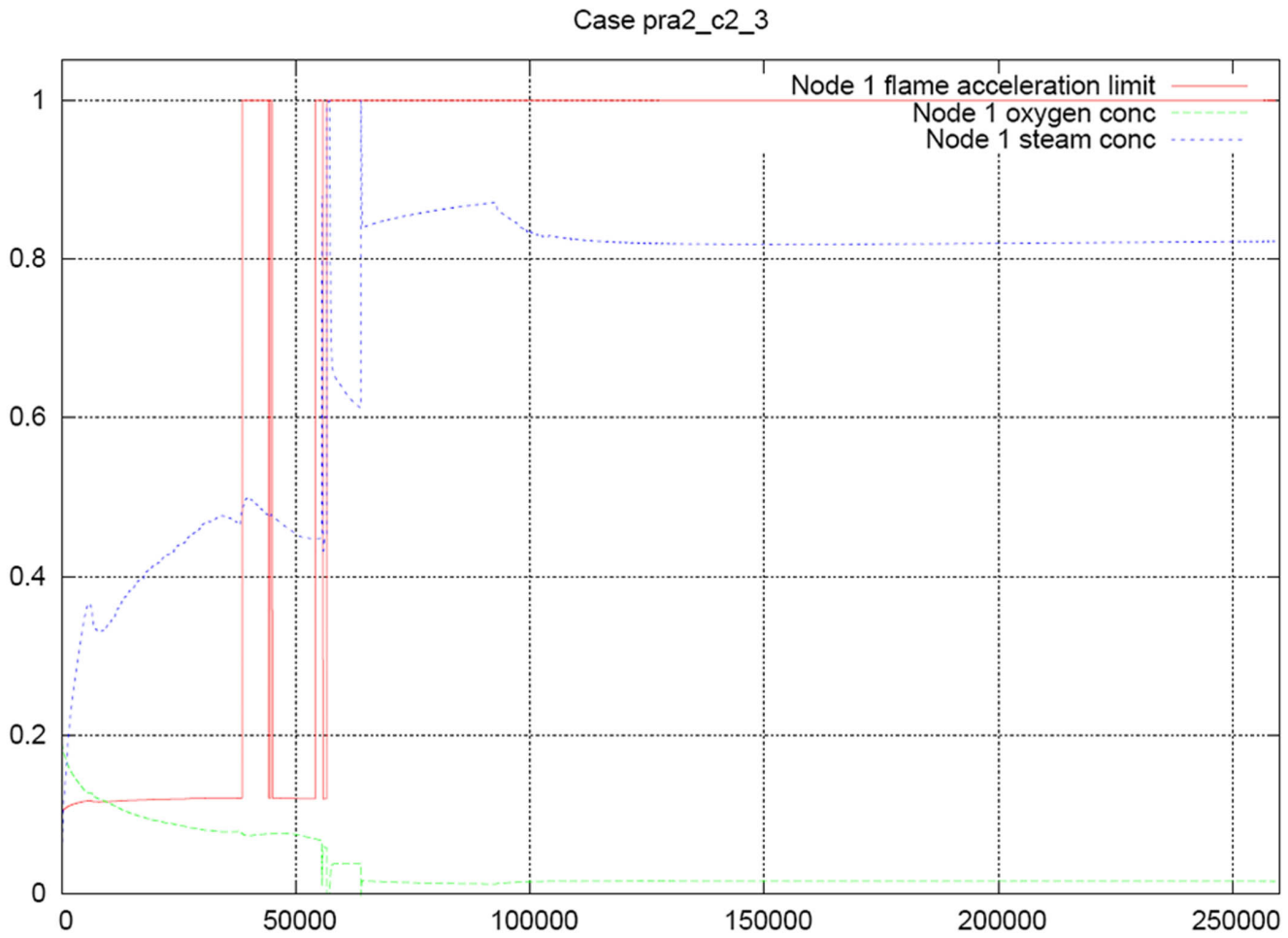

Figure A 70: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_3, containment node 1)

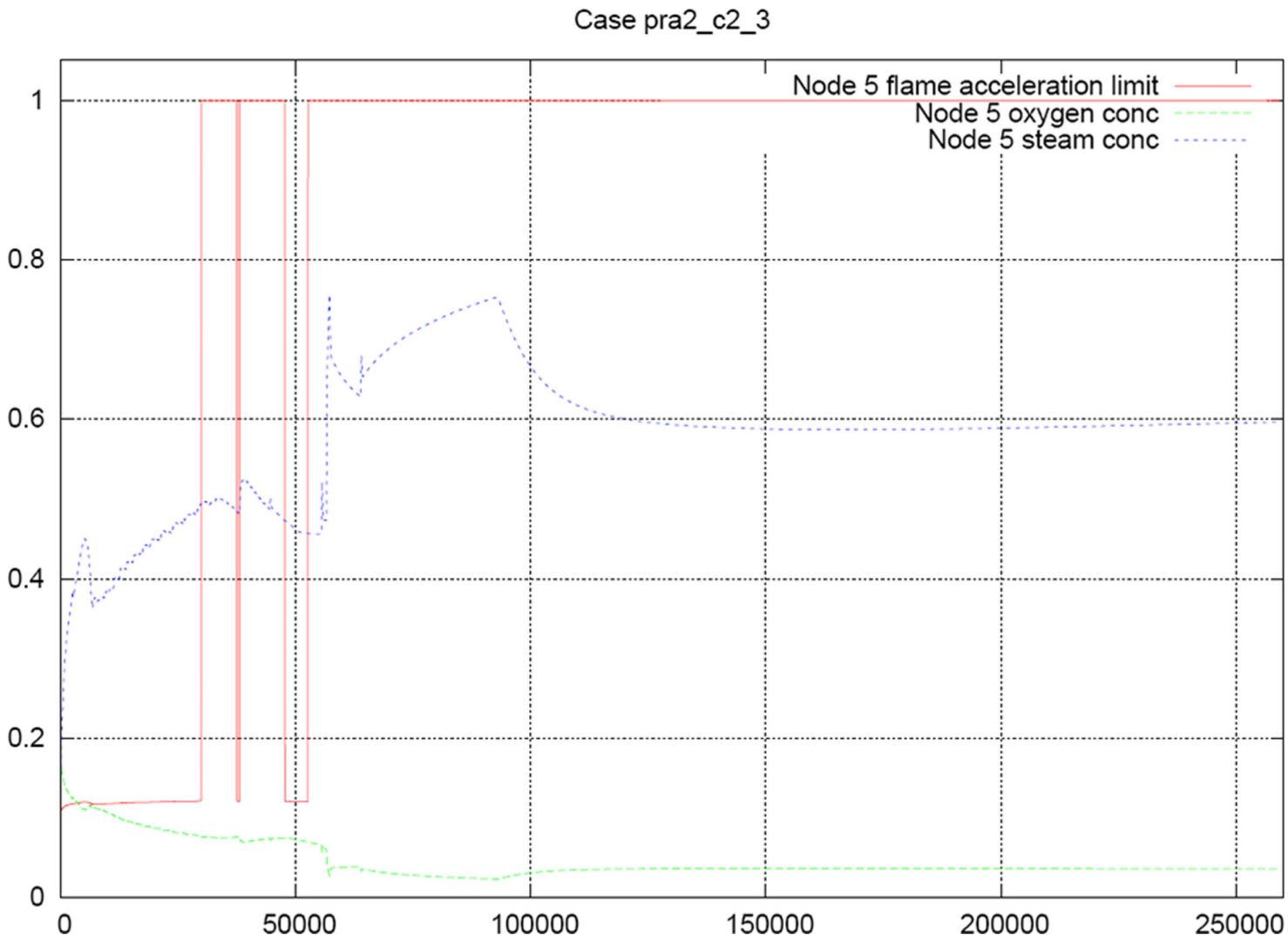

Figure A 71: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_3, containment node 5)

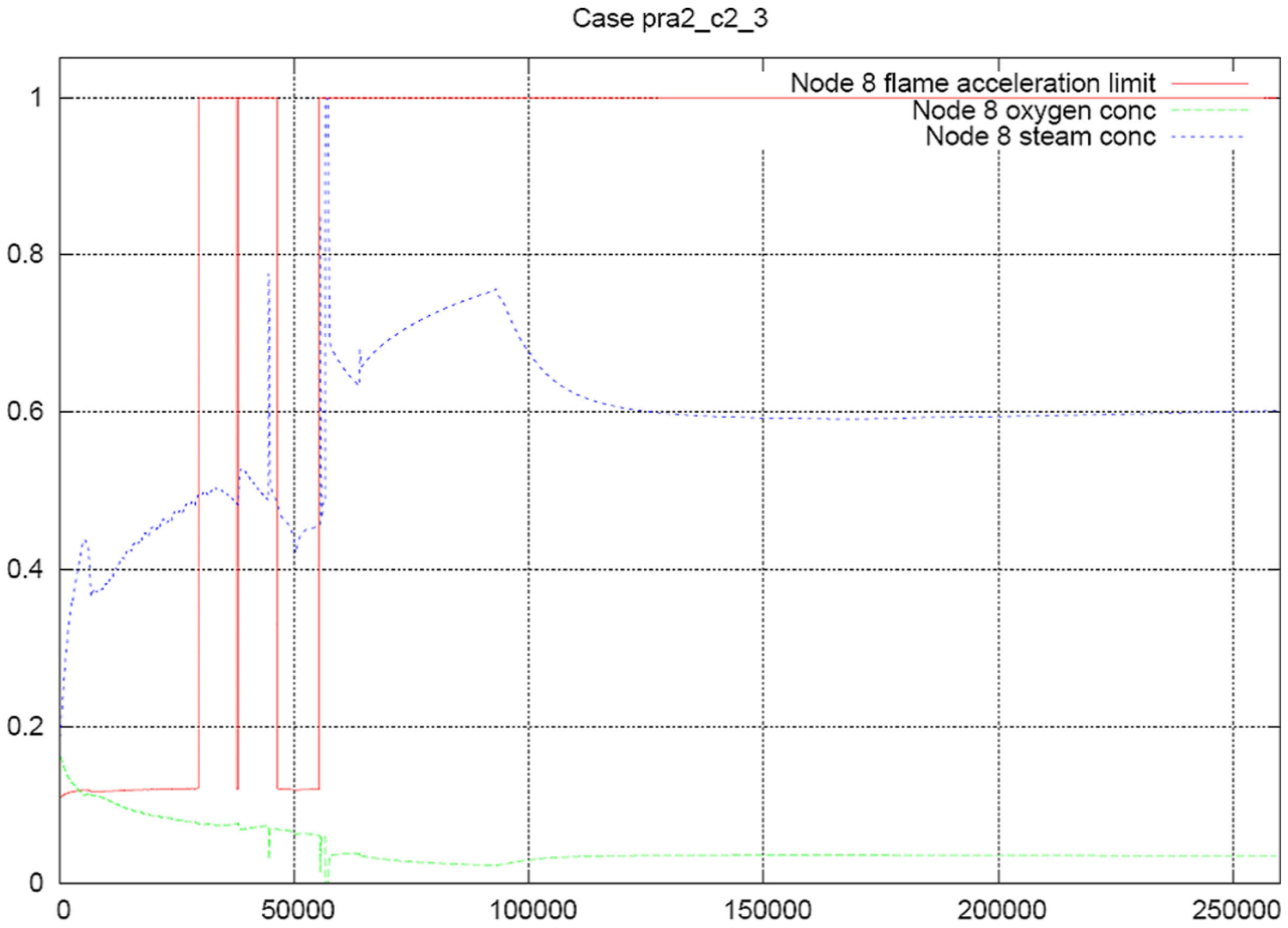

Figure A 72: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_3, containment node 8)

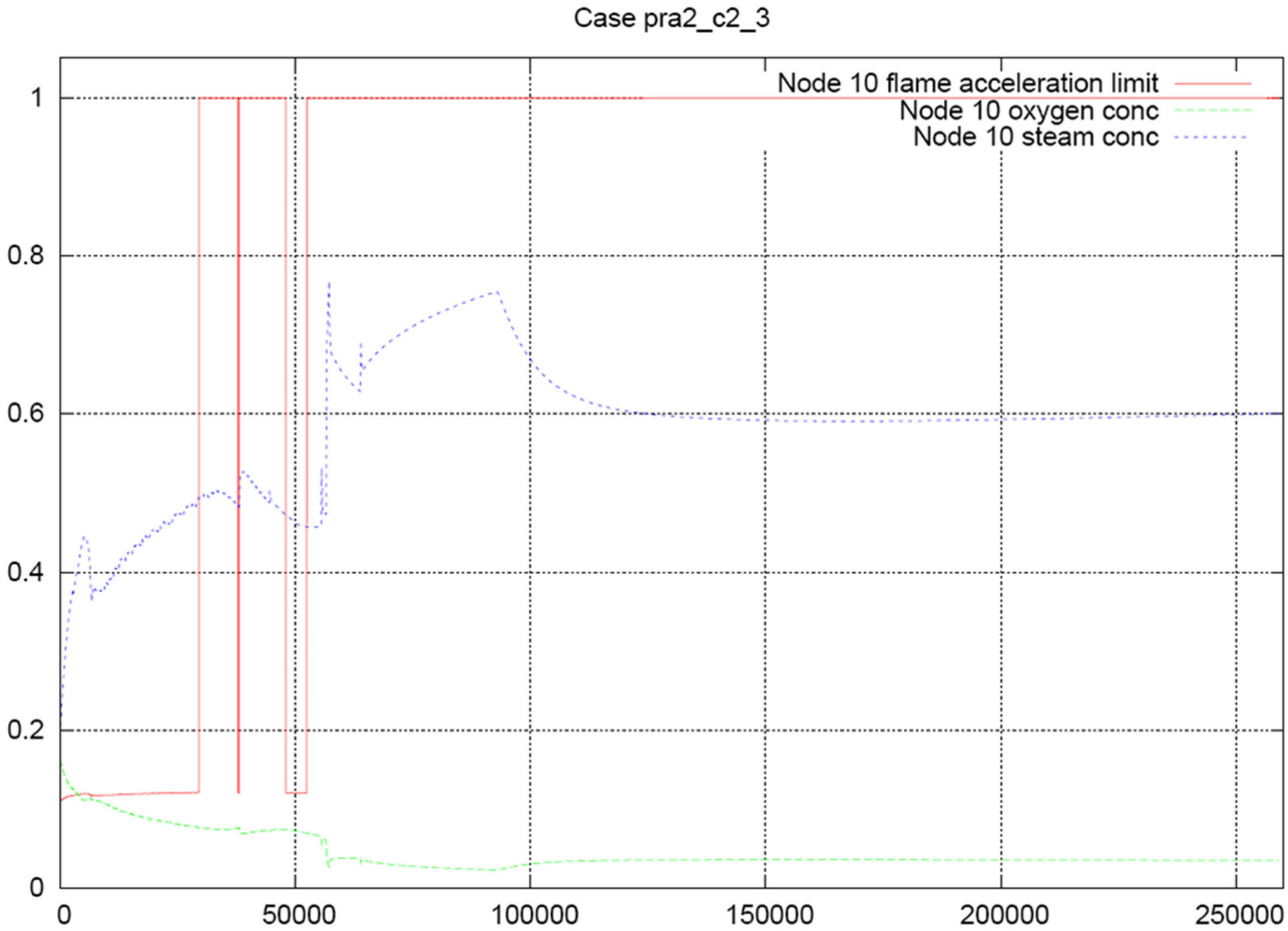

Figure A 73: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_3, containment node 10)

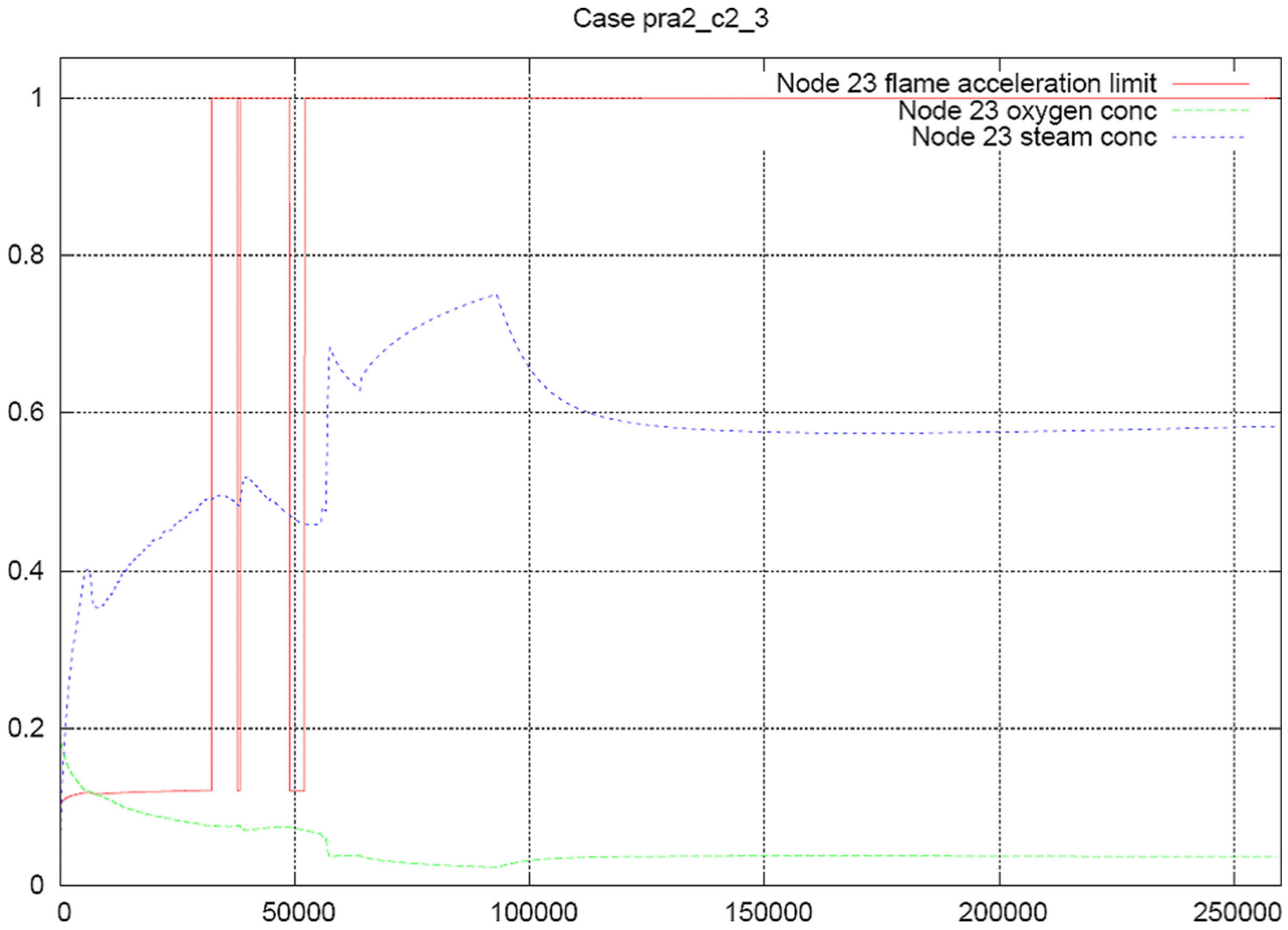

Figure A 74: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_3, containment node 23)

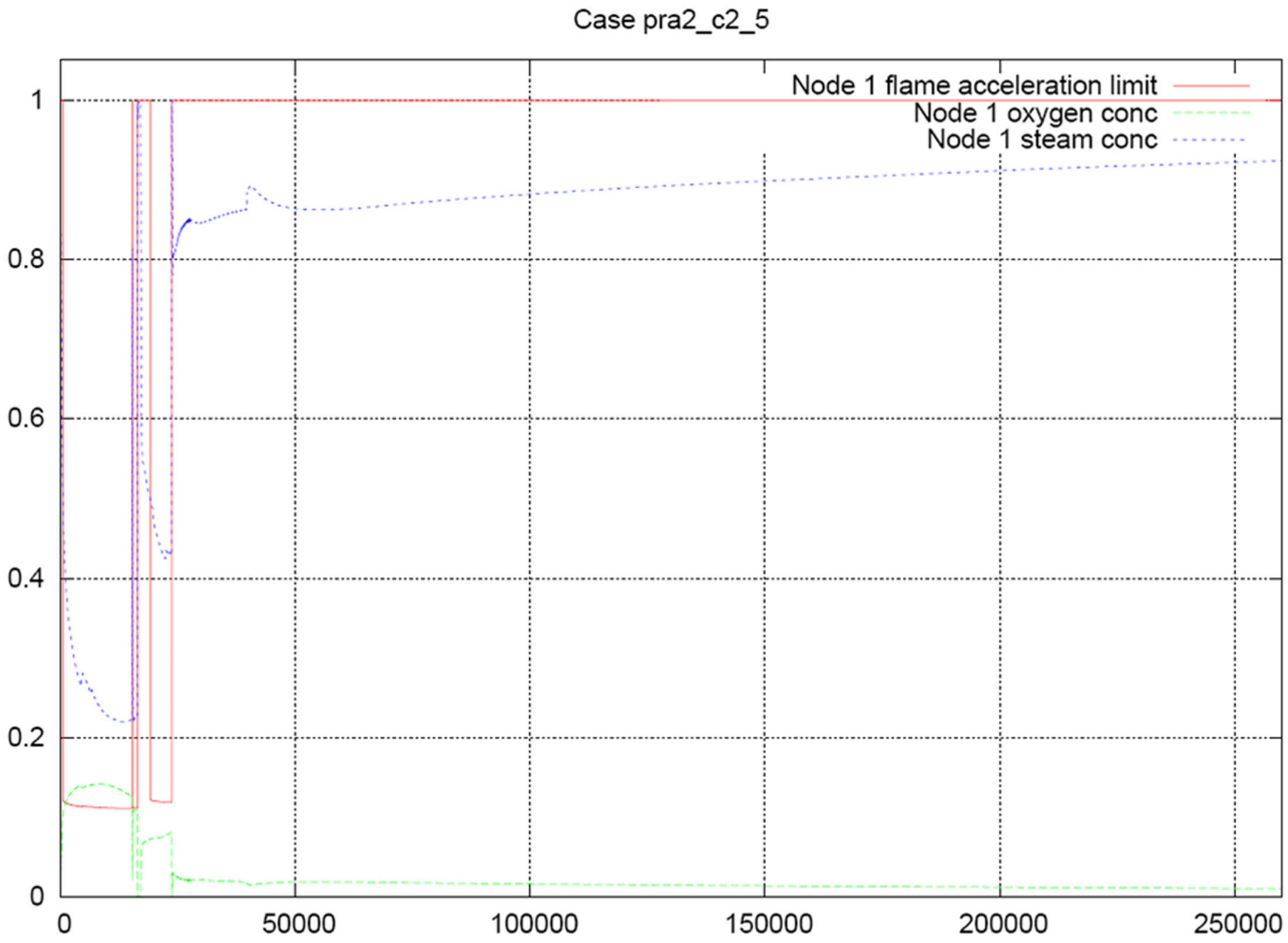

Figure A 75: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_5, containment node 1)

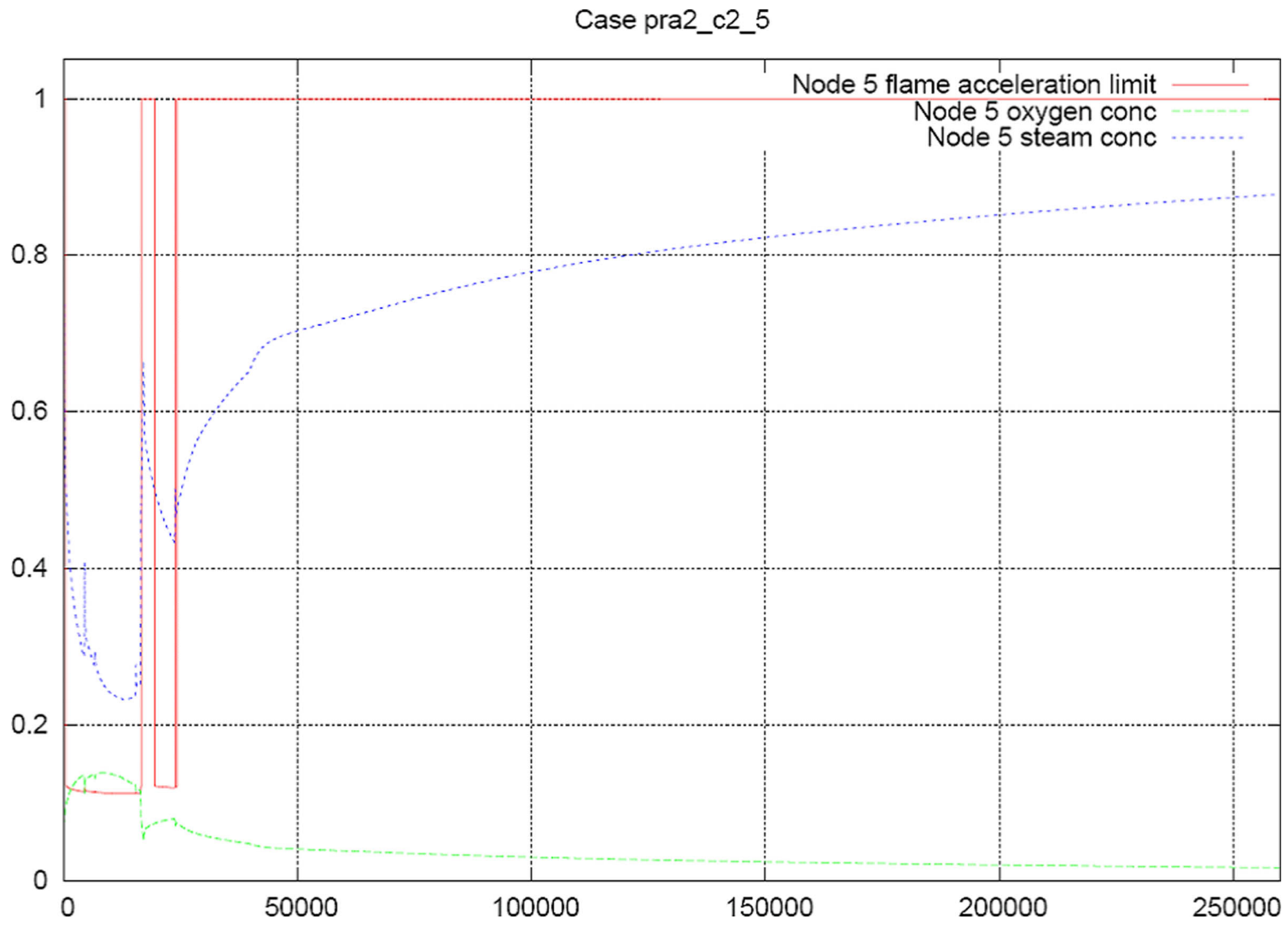

Figure A 76: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_5, containment node 5)

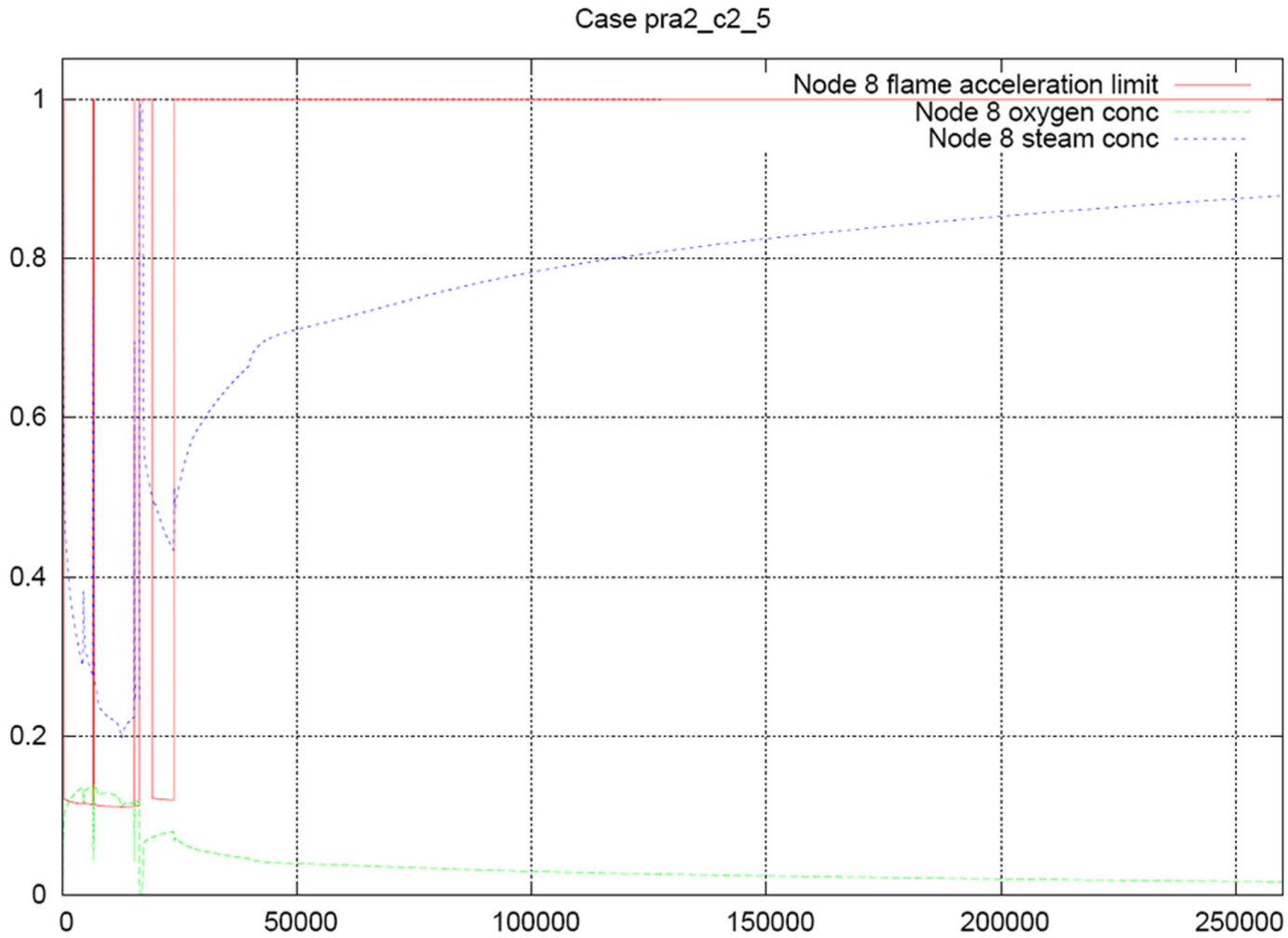

Figure A 77: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_5, containment node 8)

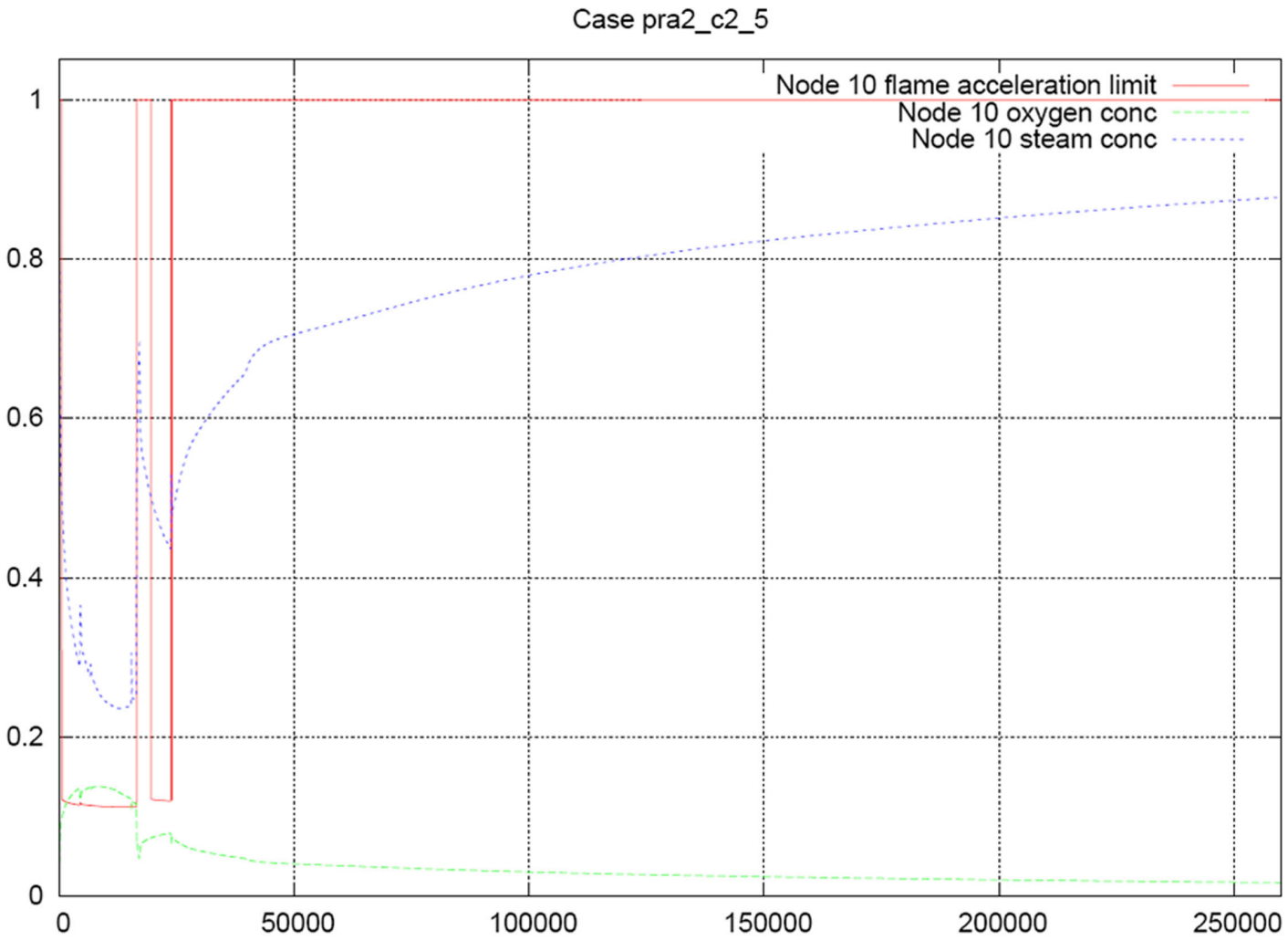

Figure A 78: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c2_5, containment node 10)

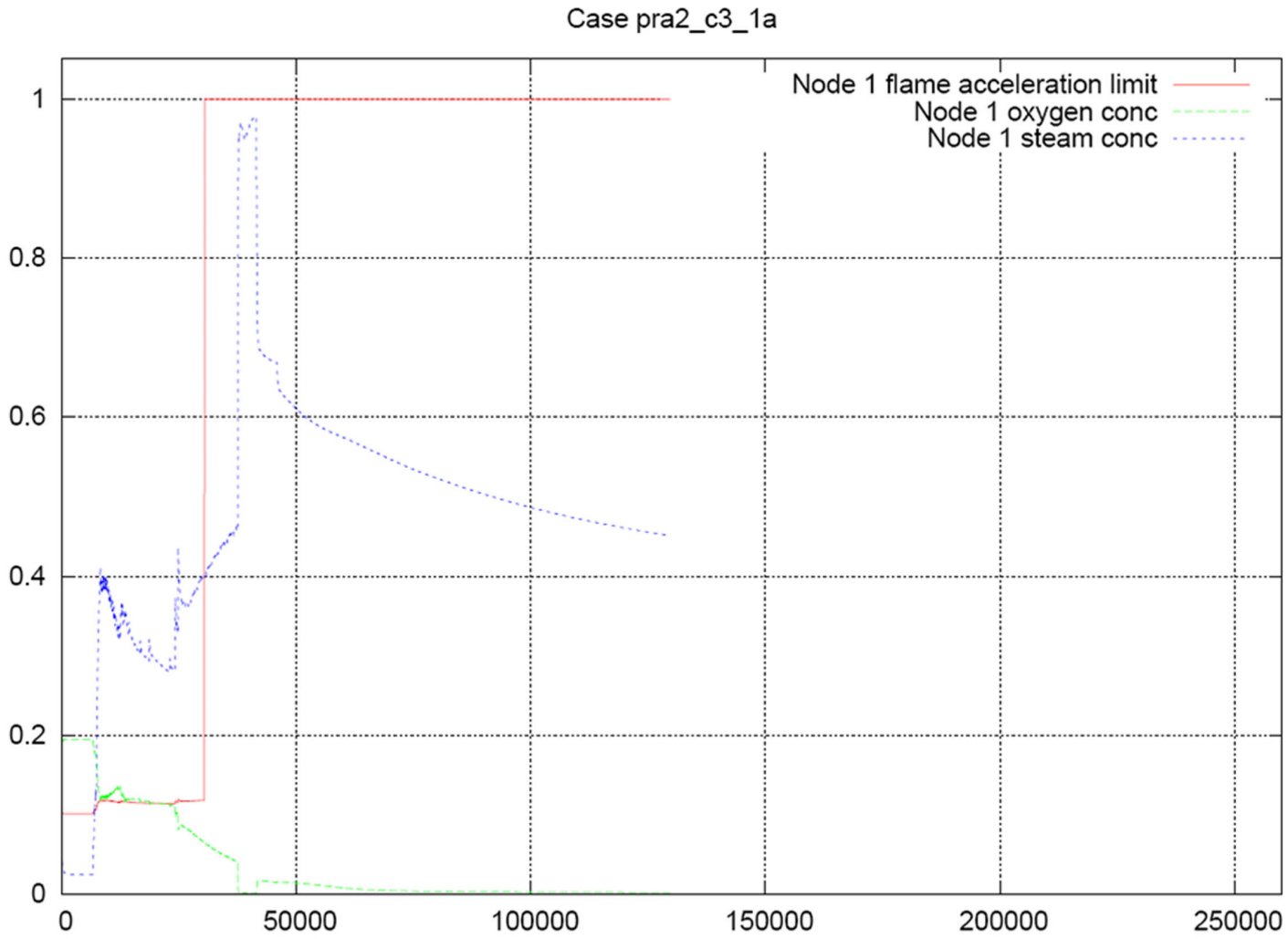

Figure A 79: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c3_1a, containment node 1)

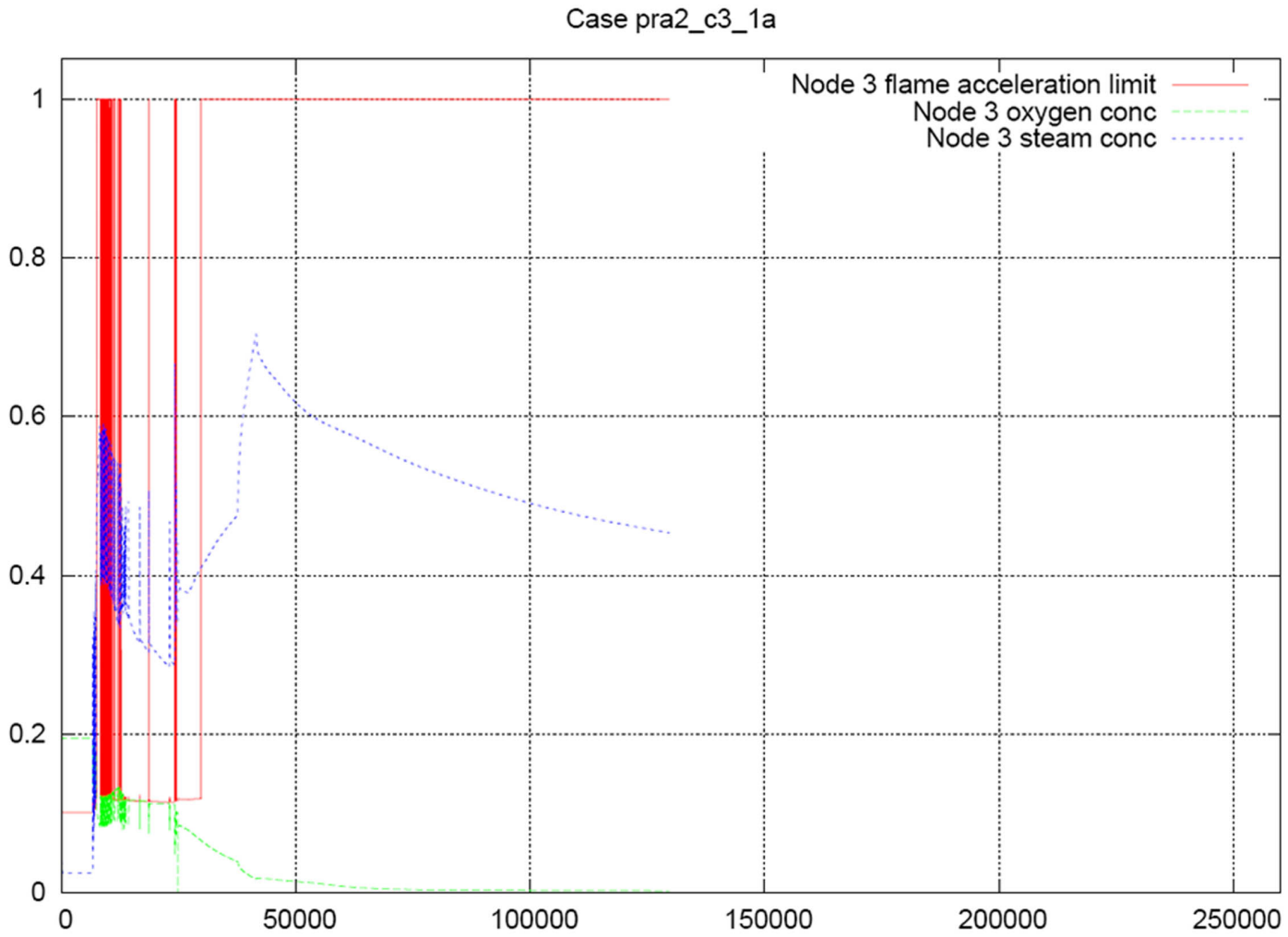

Figure A 80: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c3_1a, containment node 3)

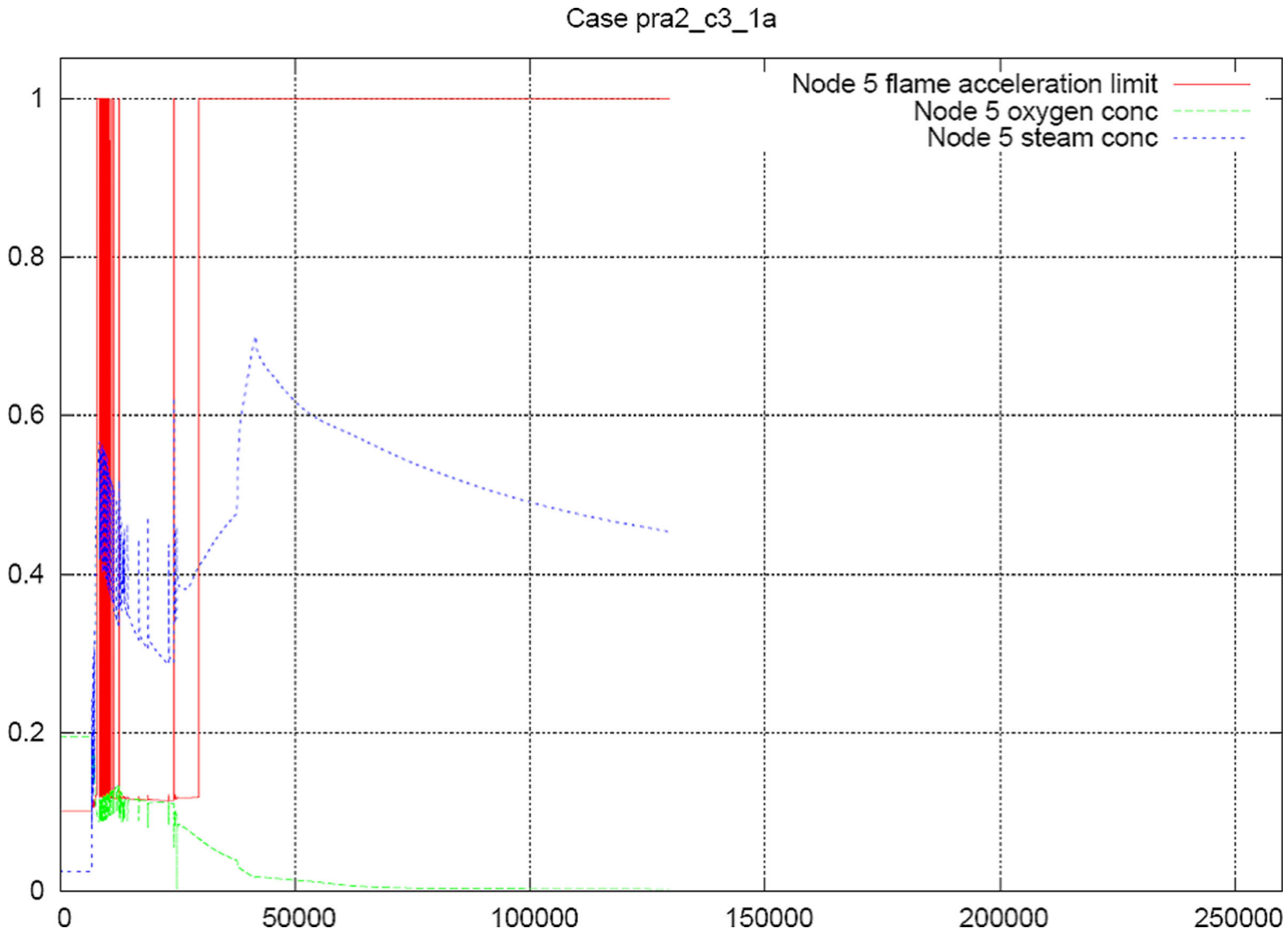

Figure A 81: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c3_1a, containment node 5)

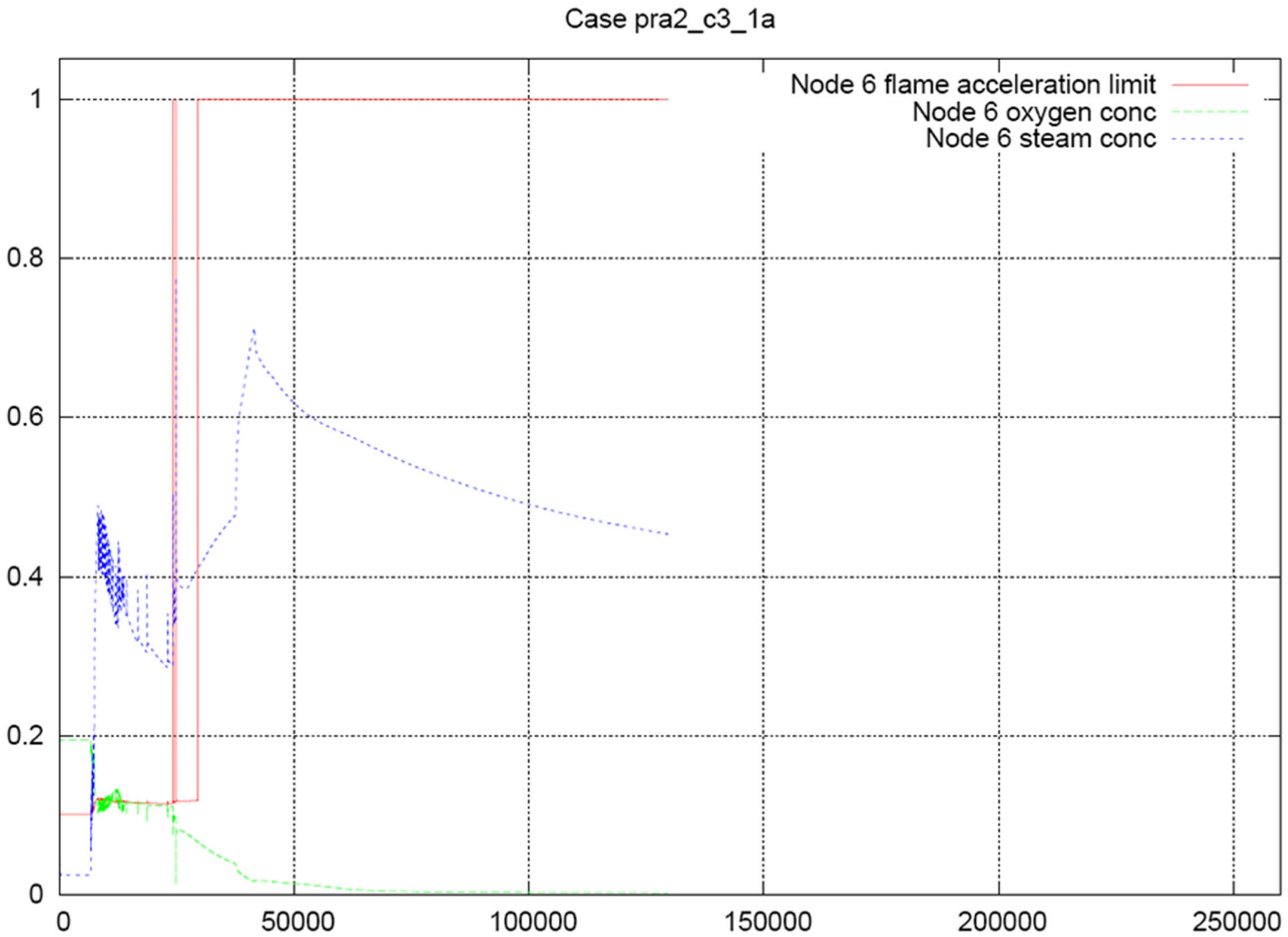

Figure A 82: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c3_1a, containment node 6)

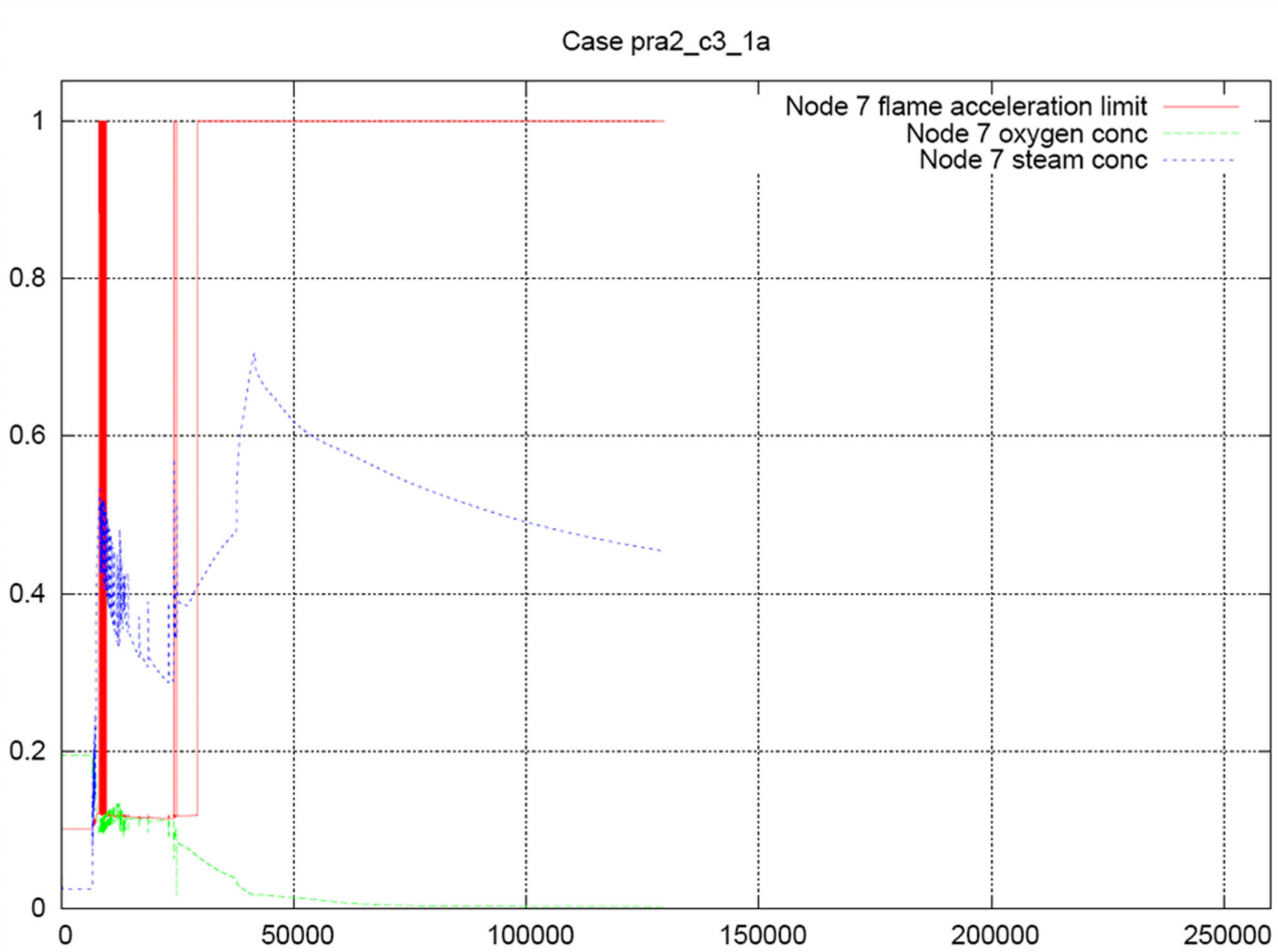

Figure A 83: Oxygen and steam concentrations (dimensionless) versus time (seconds) cross-plotted with calculated hydrogen concentration limit for flame acceleration (case c3_1a, containment node 7)