



CENTRAL EAST STABILITY LIMIT ANALYSIS FOR OUTAGE CONDITIONS (CE-23) APPENDICES

A Report by the
New York Independent System Operator

April 2023

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Appendix A: Princetown – New Scotland (55) 345 kV Outage

ANGLE AND VOLTAGE RESPONSES

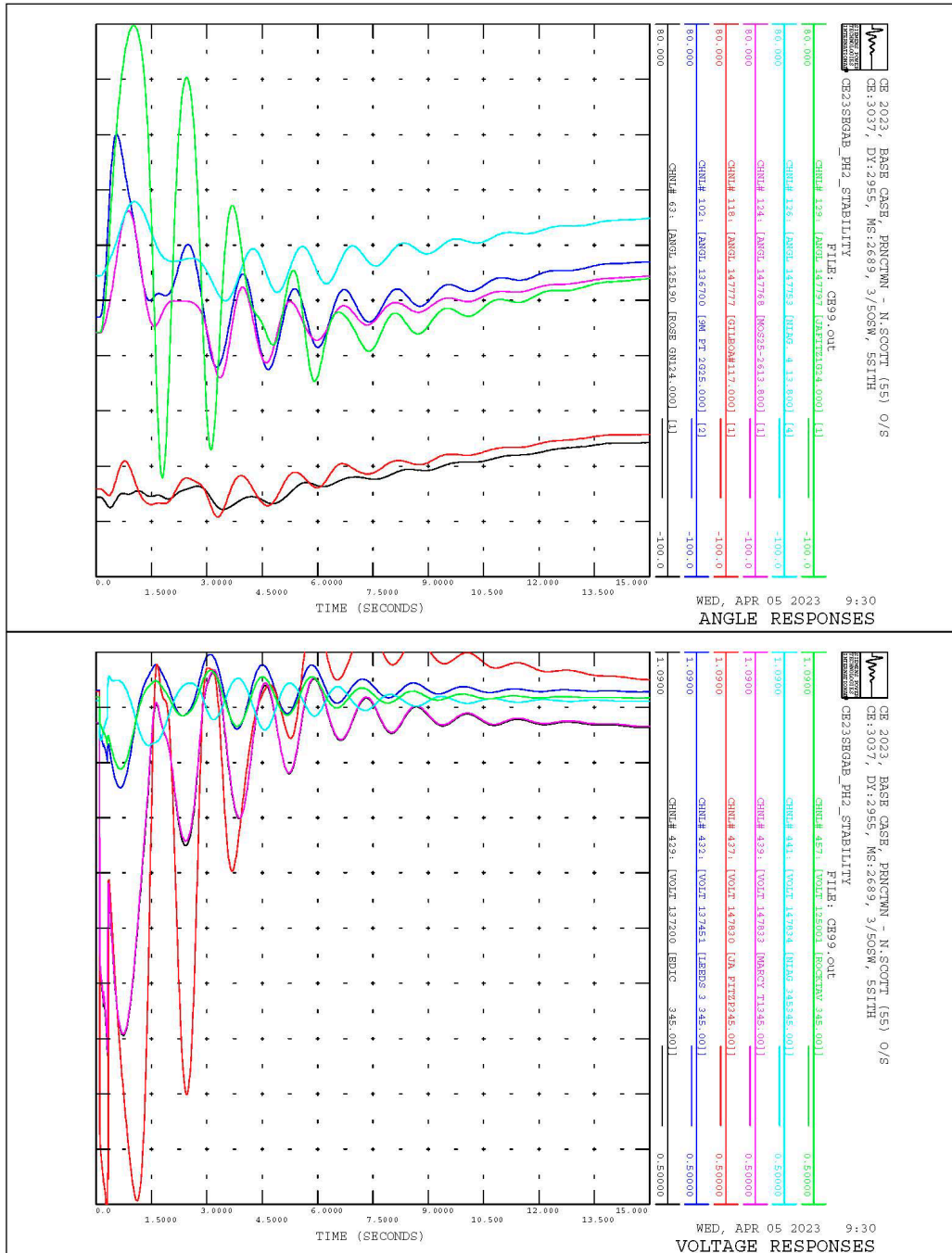


Figure 1: Case 3 Oswego, 5 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

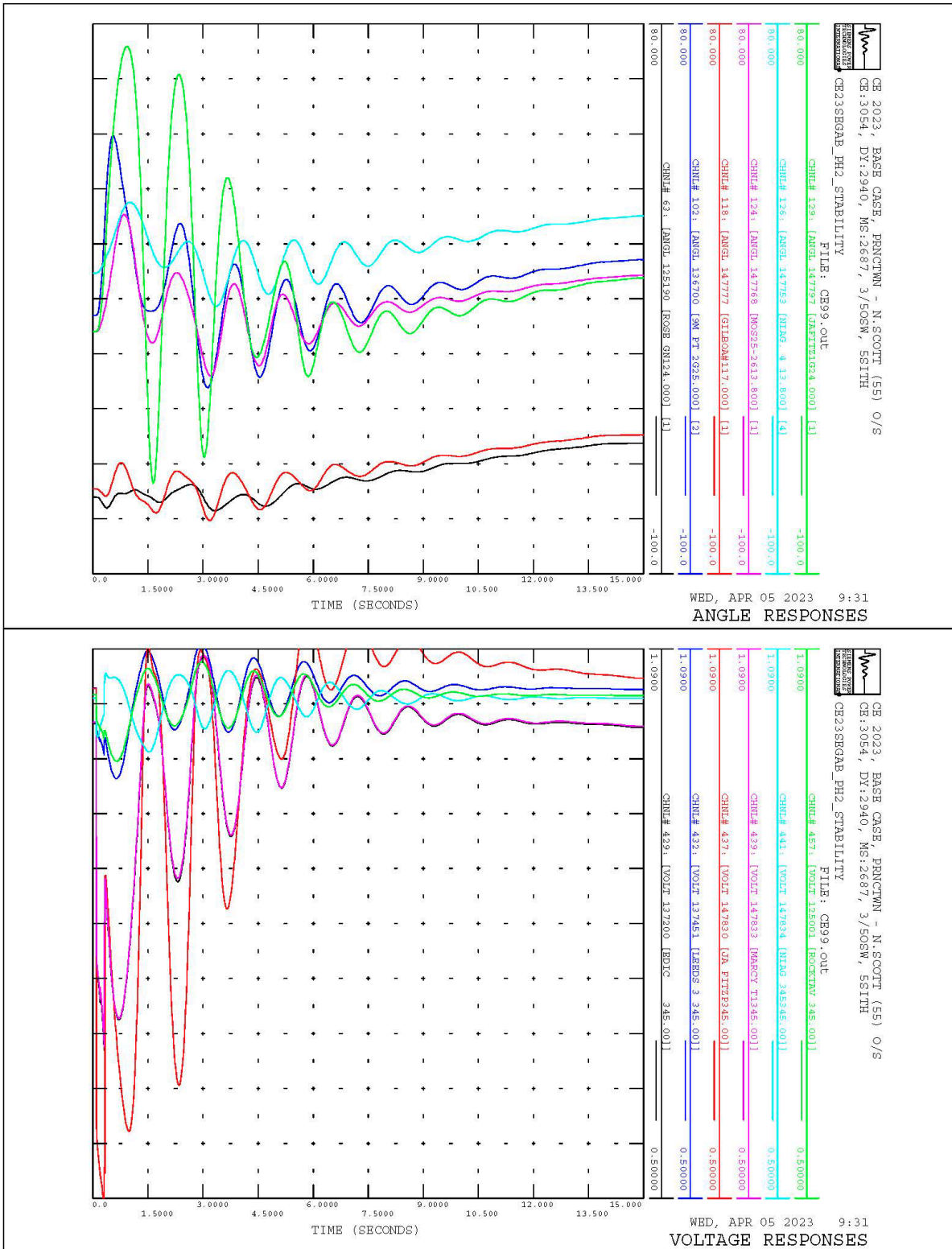


Figure 2: Case 3 Oswego, 5 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

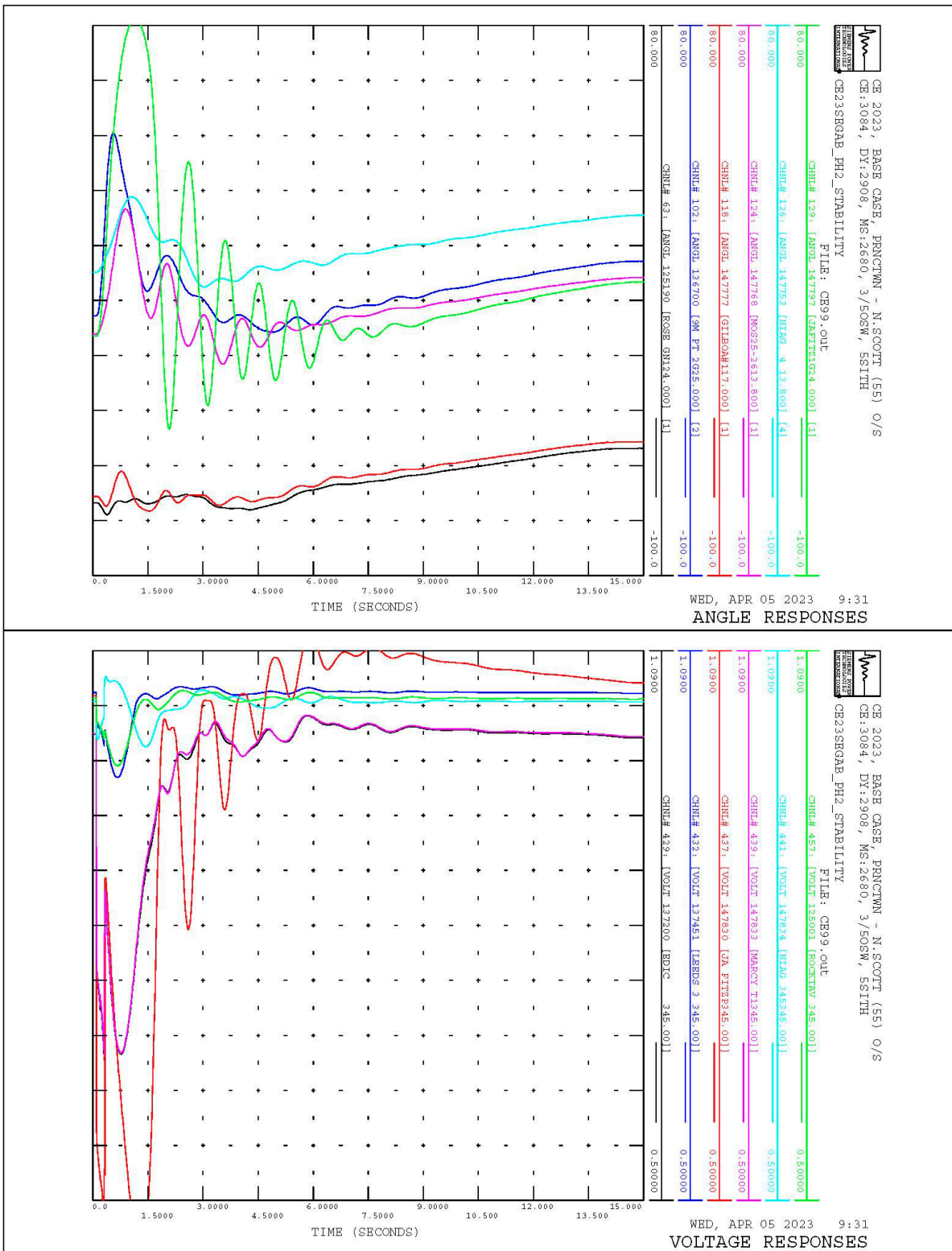


Figure 3: Case 3 Oswego, 5 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

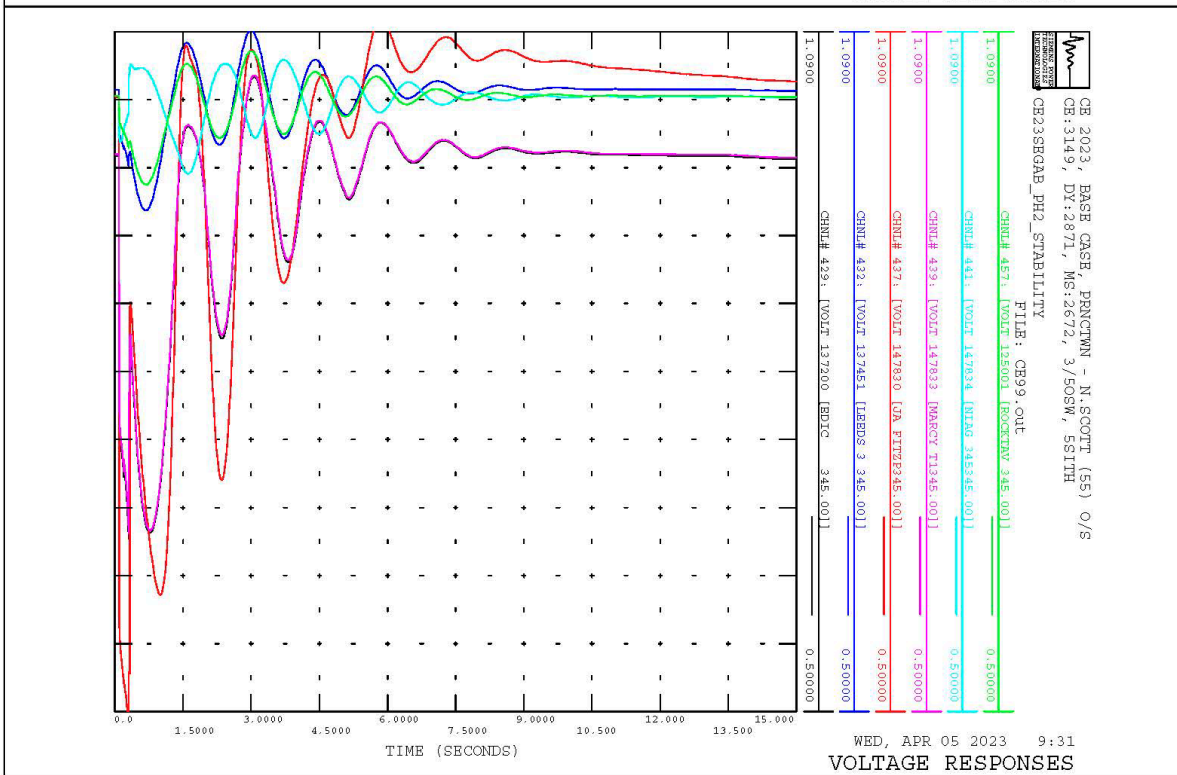
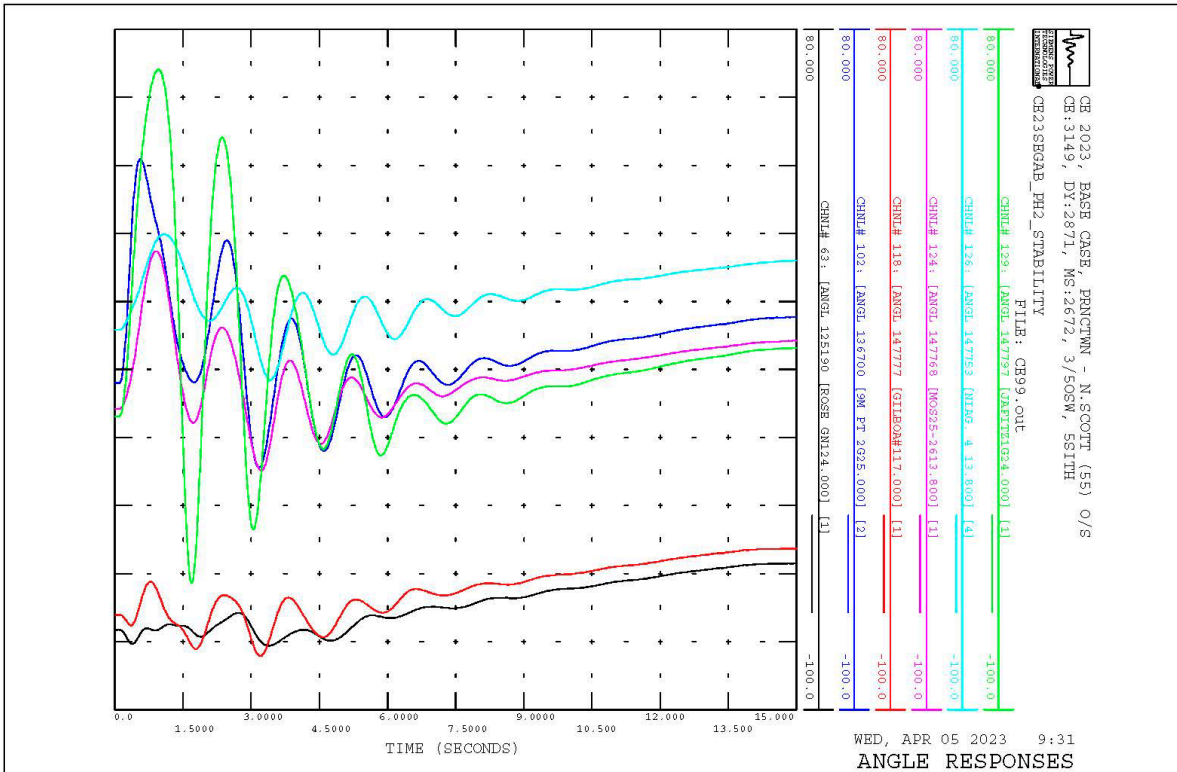


Figure 4: Case 3 Oswego, 5 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

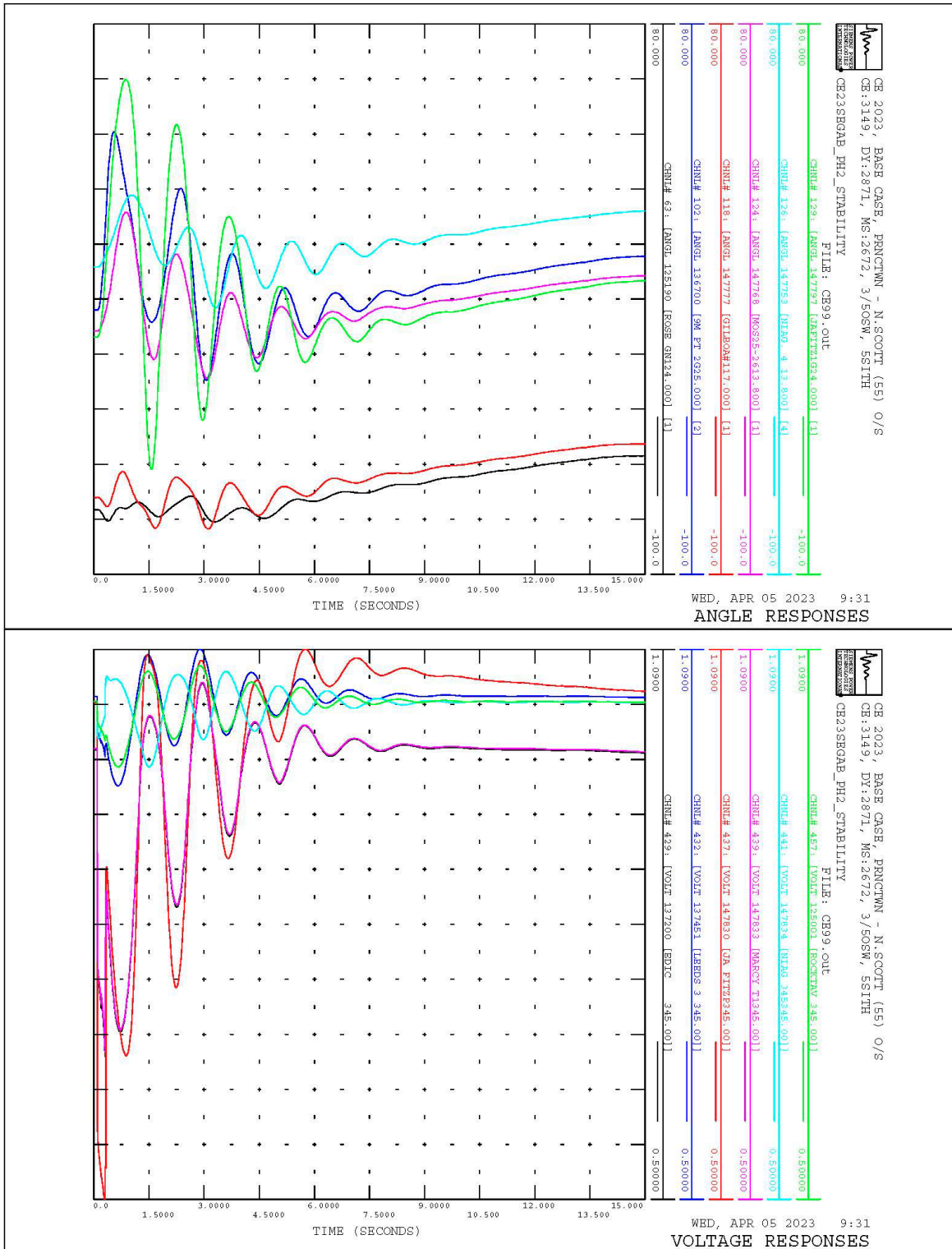


Figure 5: Case 3 Oswego, 5 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

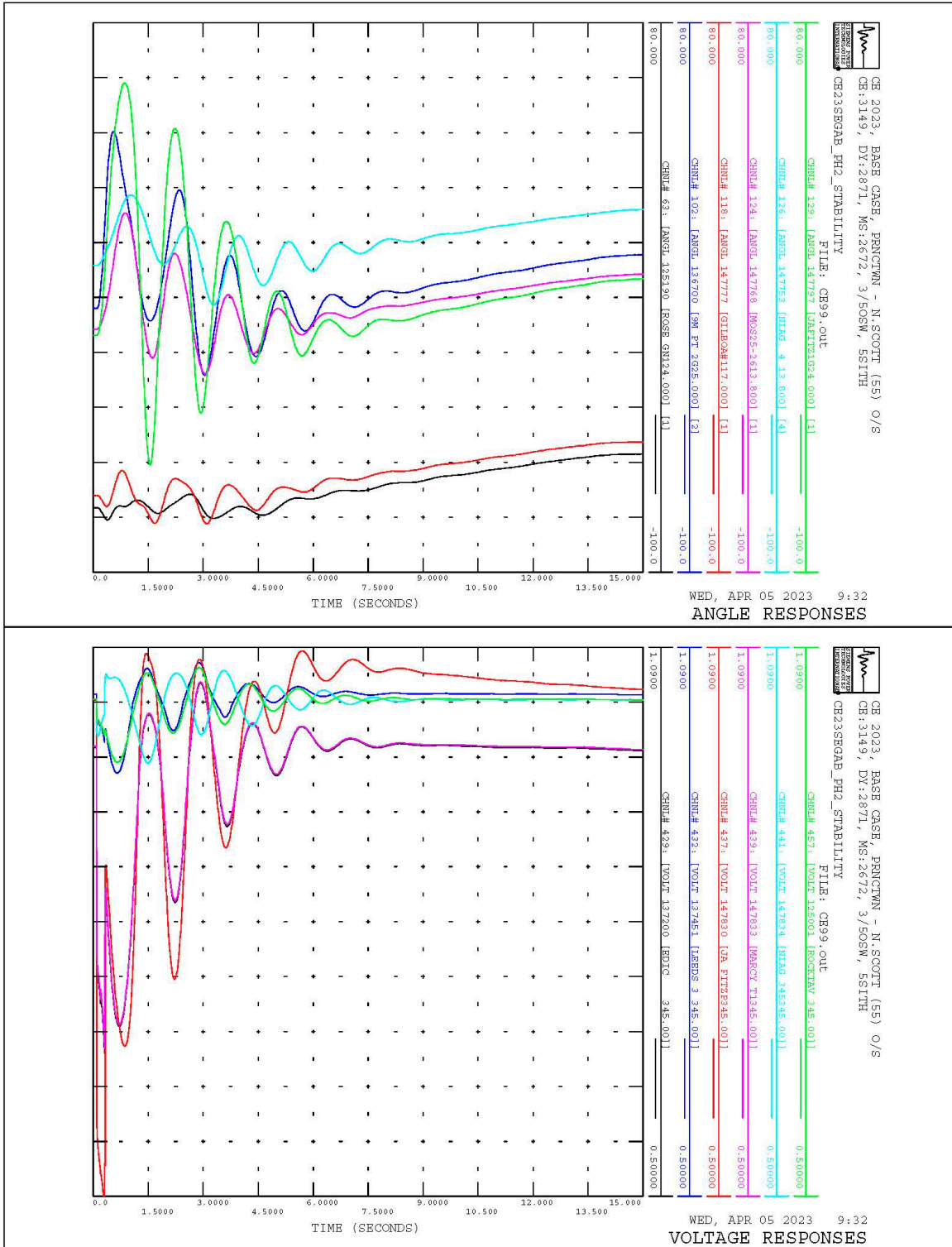


Figure 6: Case 3 Oswego, 5 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

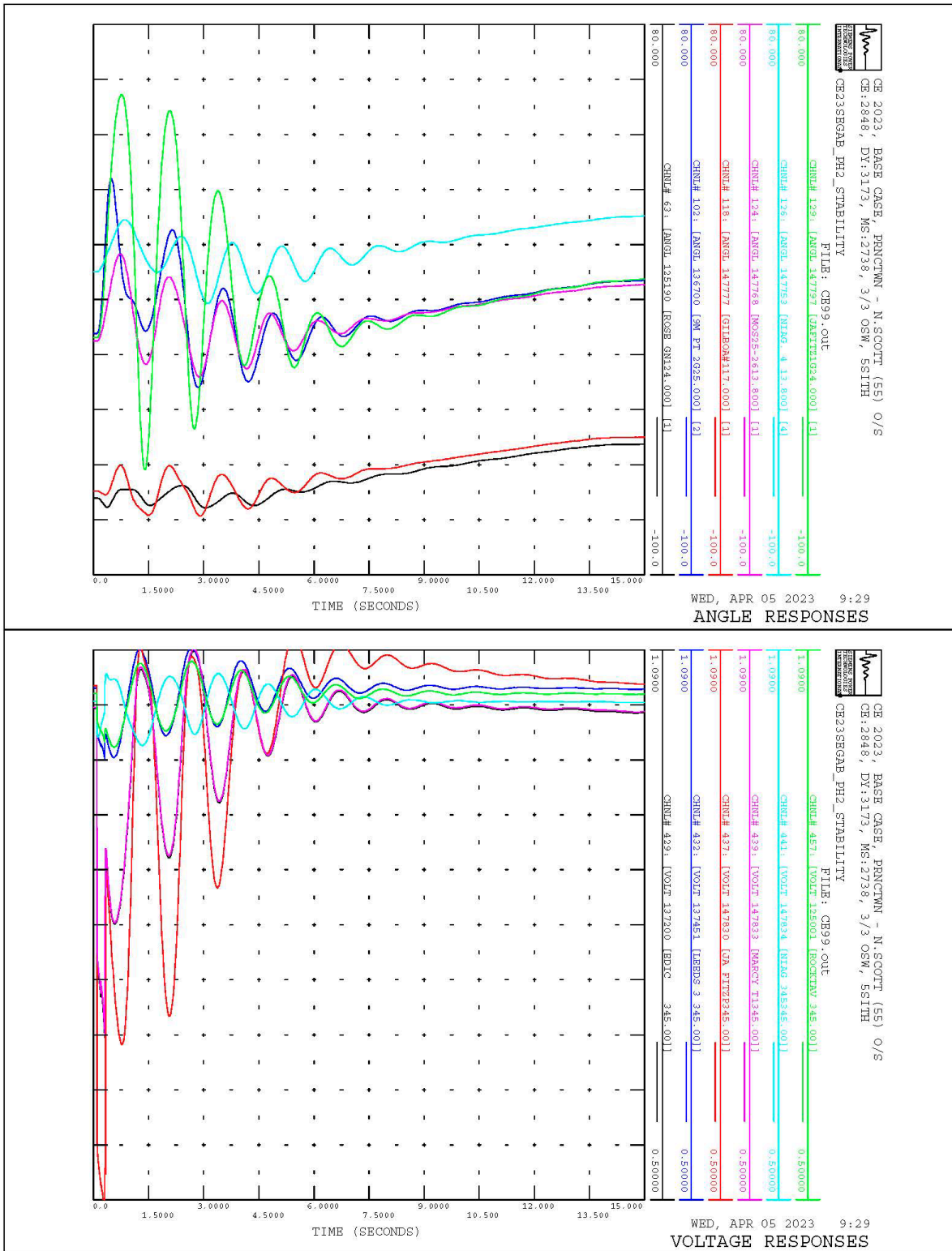


Figure 7: Case 3 Oswego, 3 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

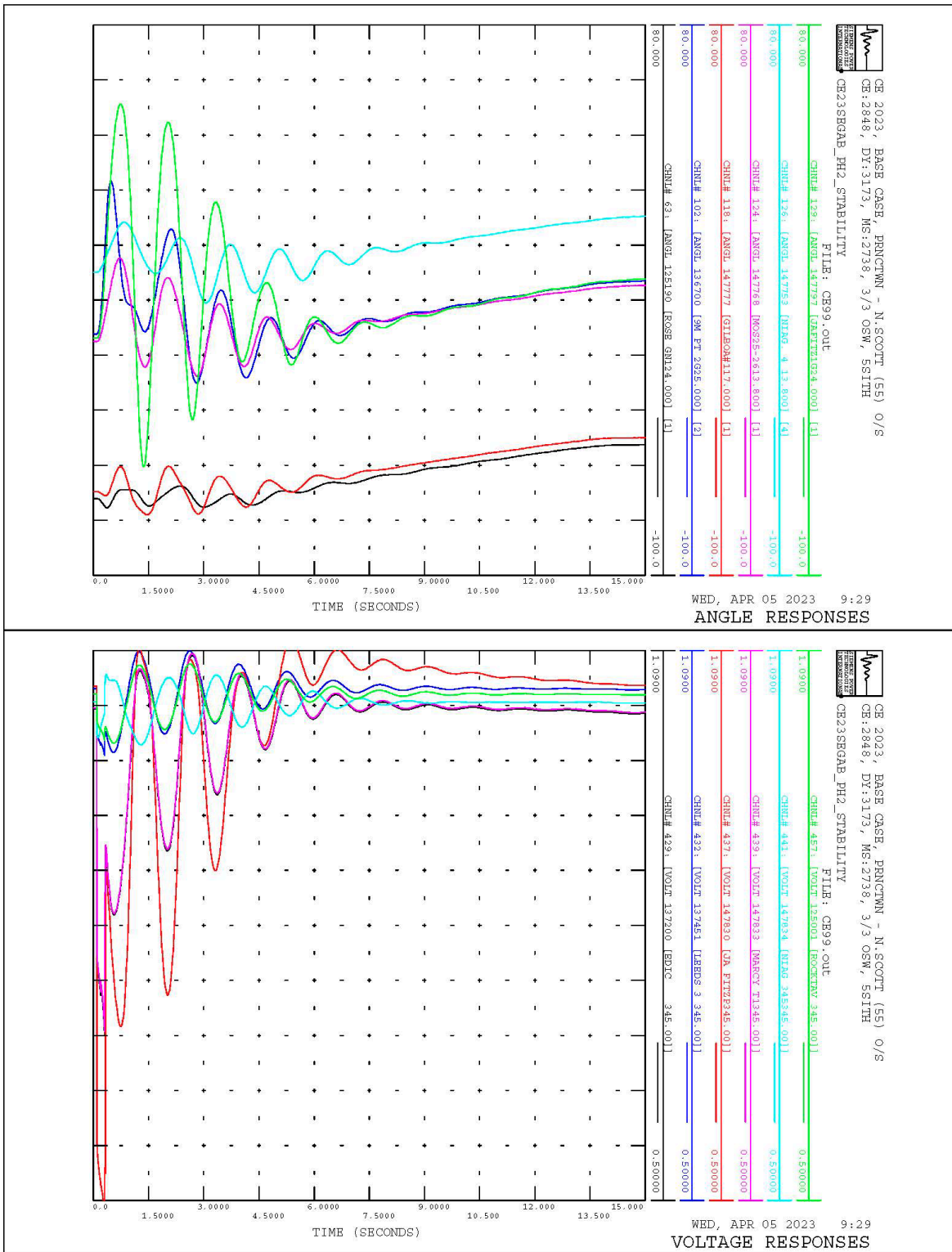


Figure 8: Case 3 Oswego, 3 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

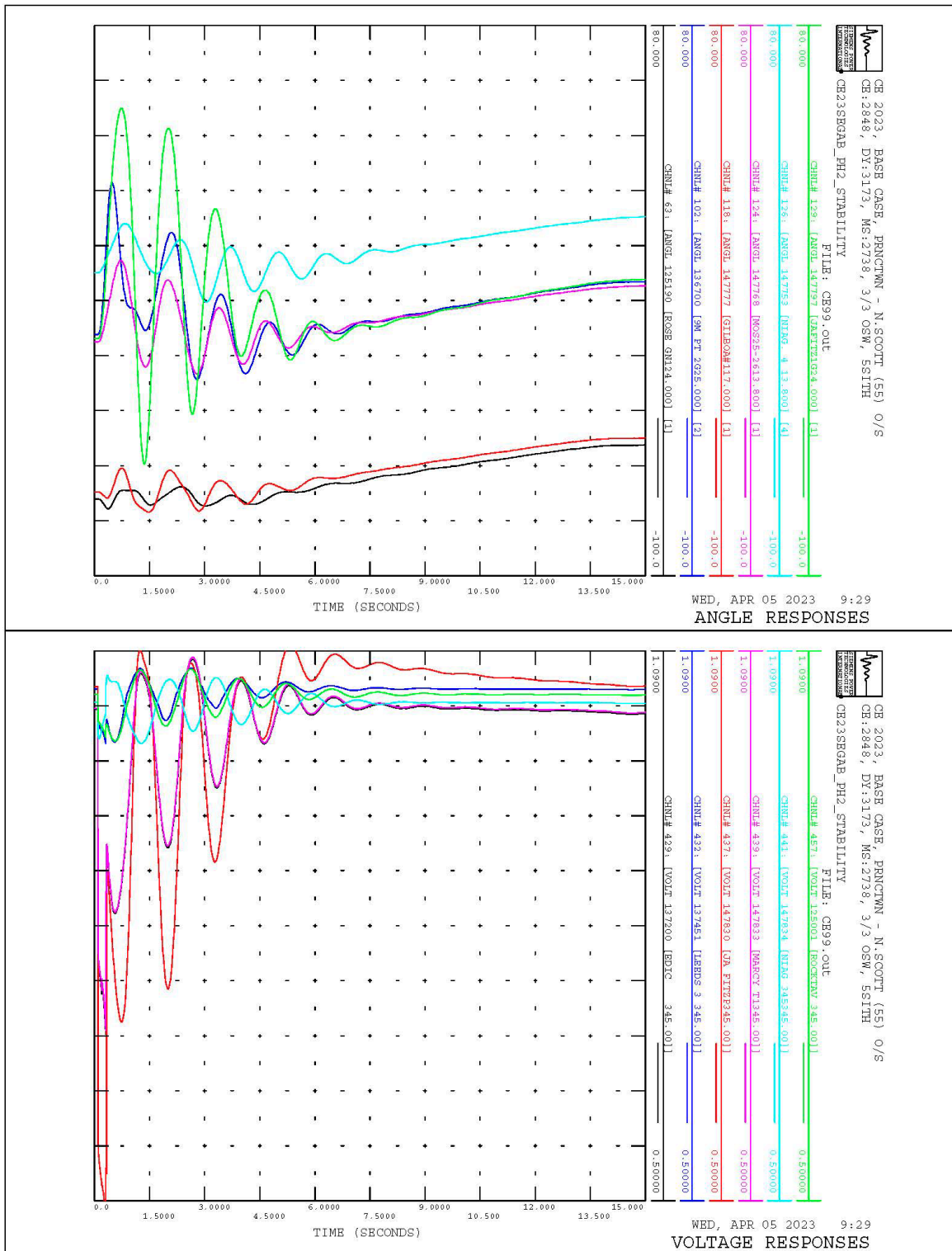


Figure 9: Case 3 Oswego, 3 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

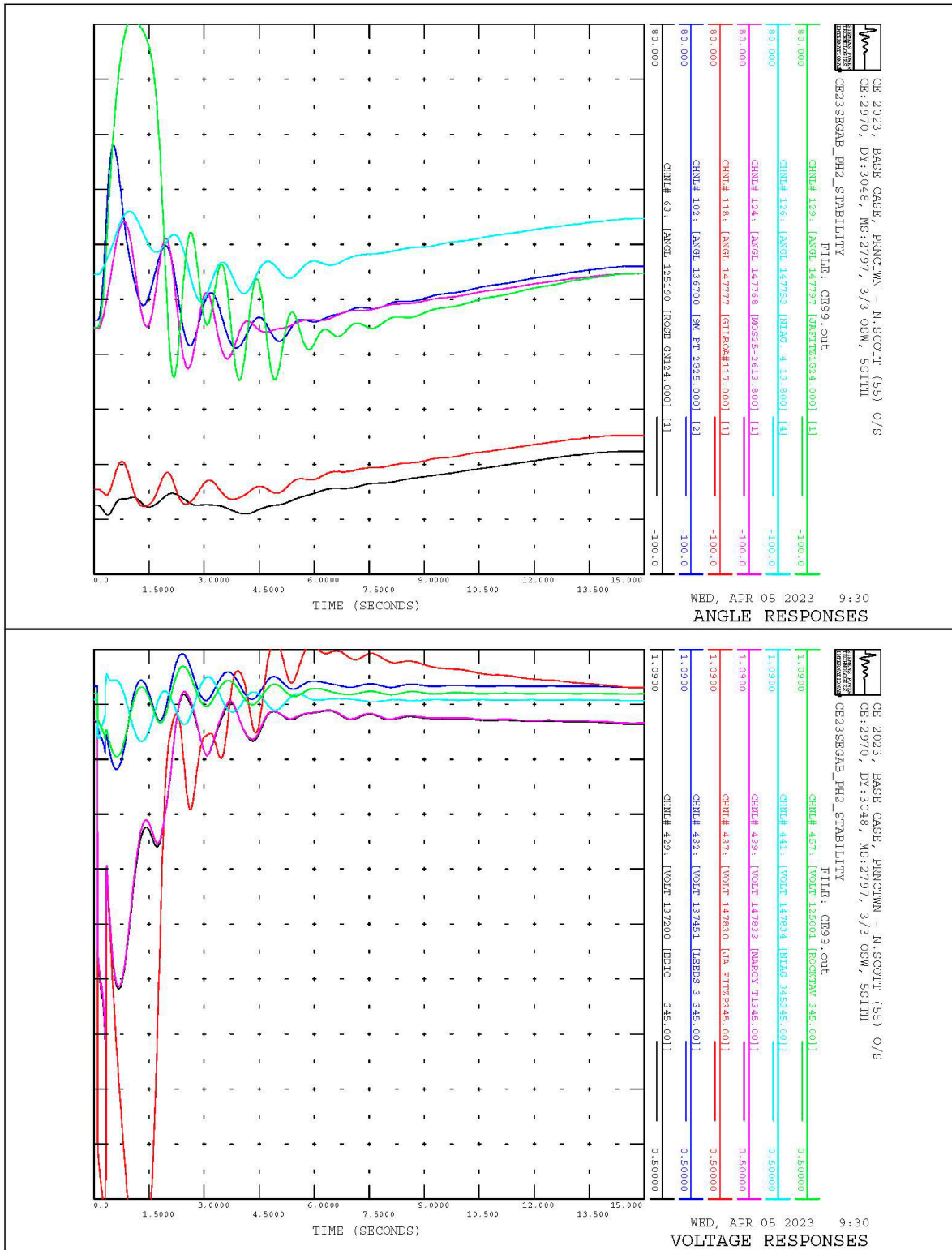


Figure 10: Case 3 Oswego, 3 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

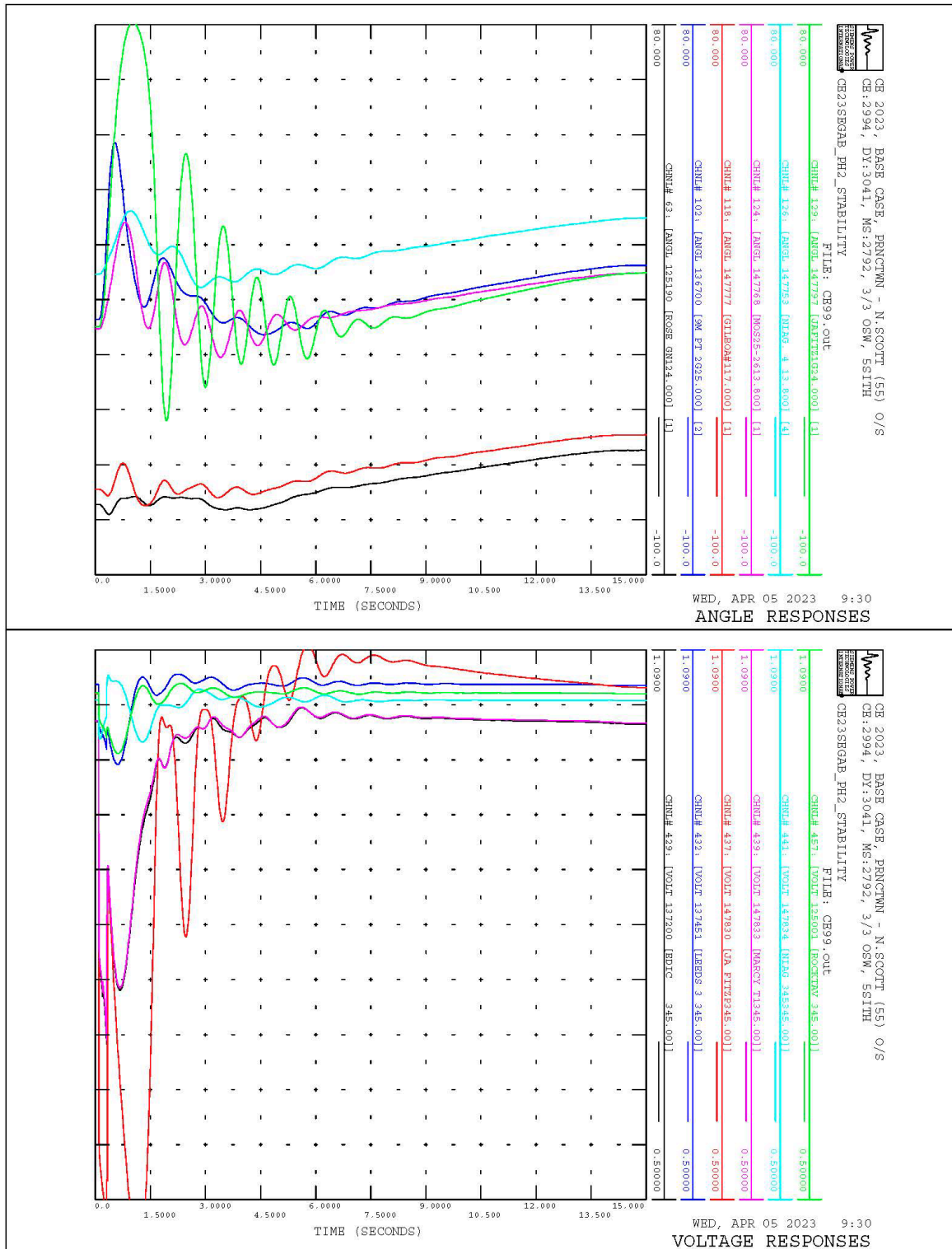


Figure 11: Case 3 Oswego, 3 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

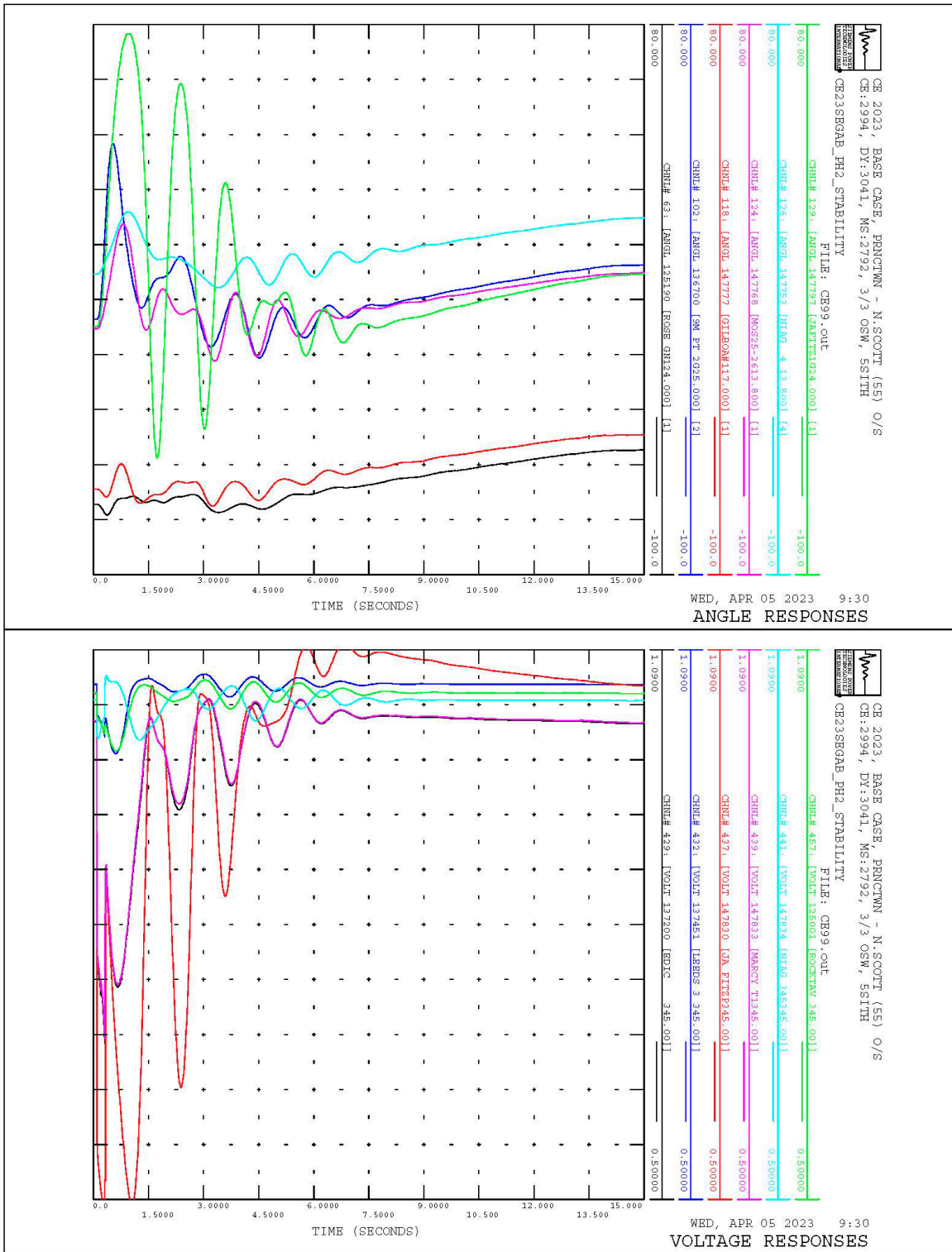


Figure 12: Case 3 Oswego, 3 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

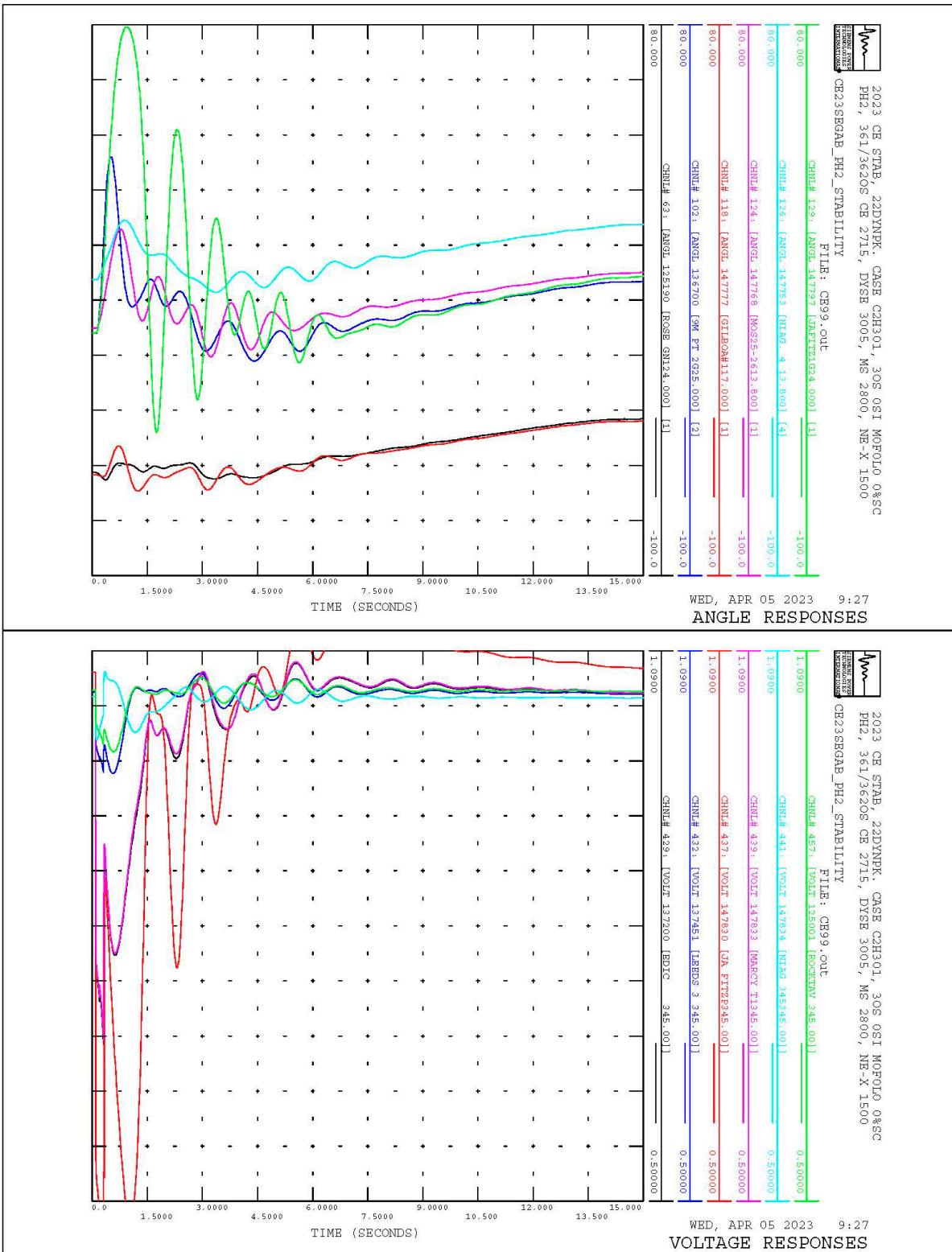


Figure 13: Case 3 Oswego, 0 Sithe, Marcy StatCom and SVCs 0/S (1) with Contingency CE99 Angle/Voltage Plots

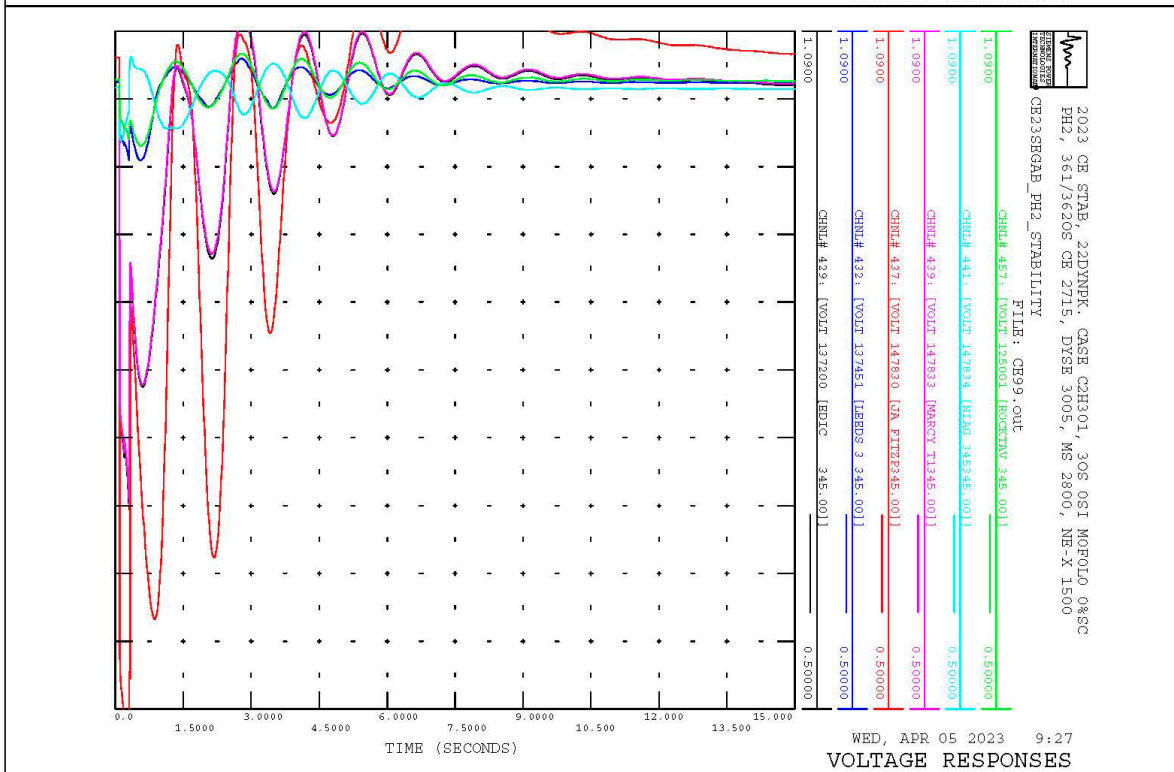
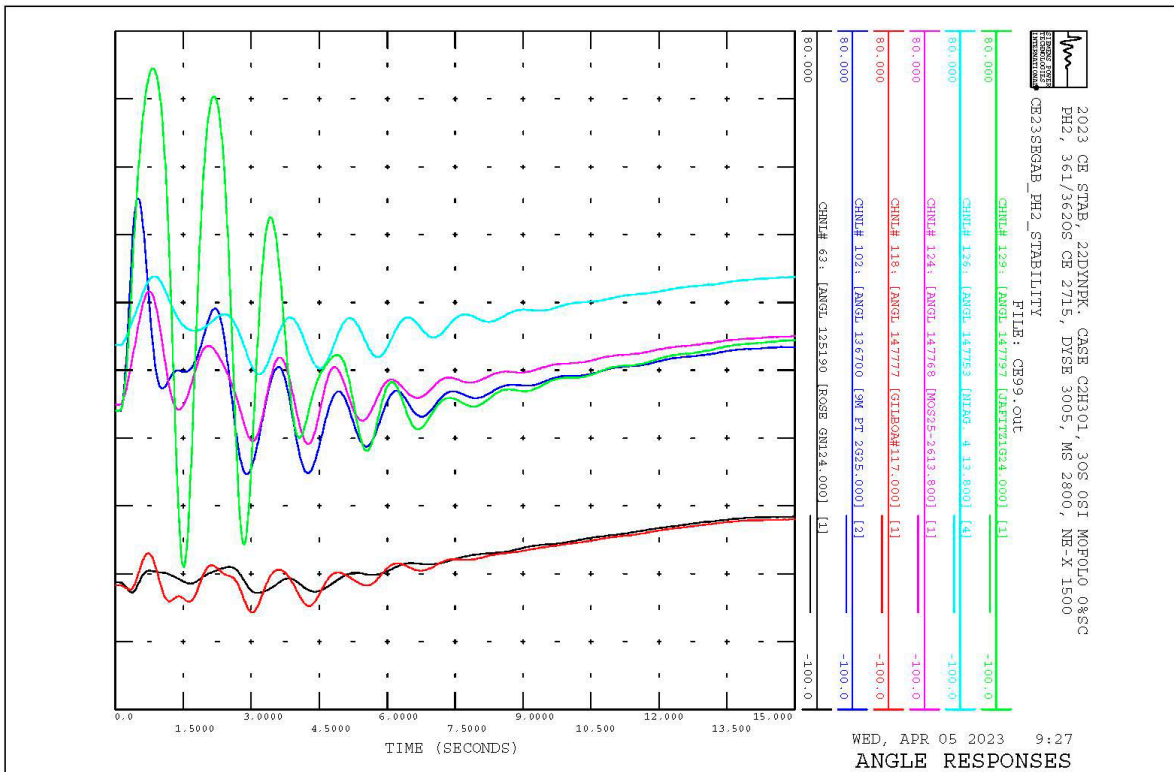


Figure 15: Case 3 Oswego, 0 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

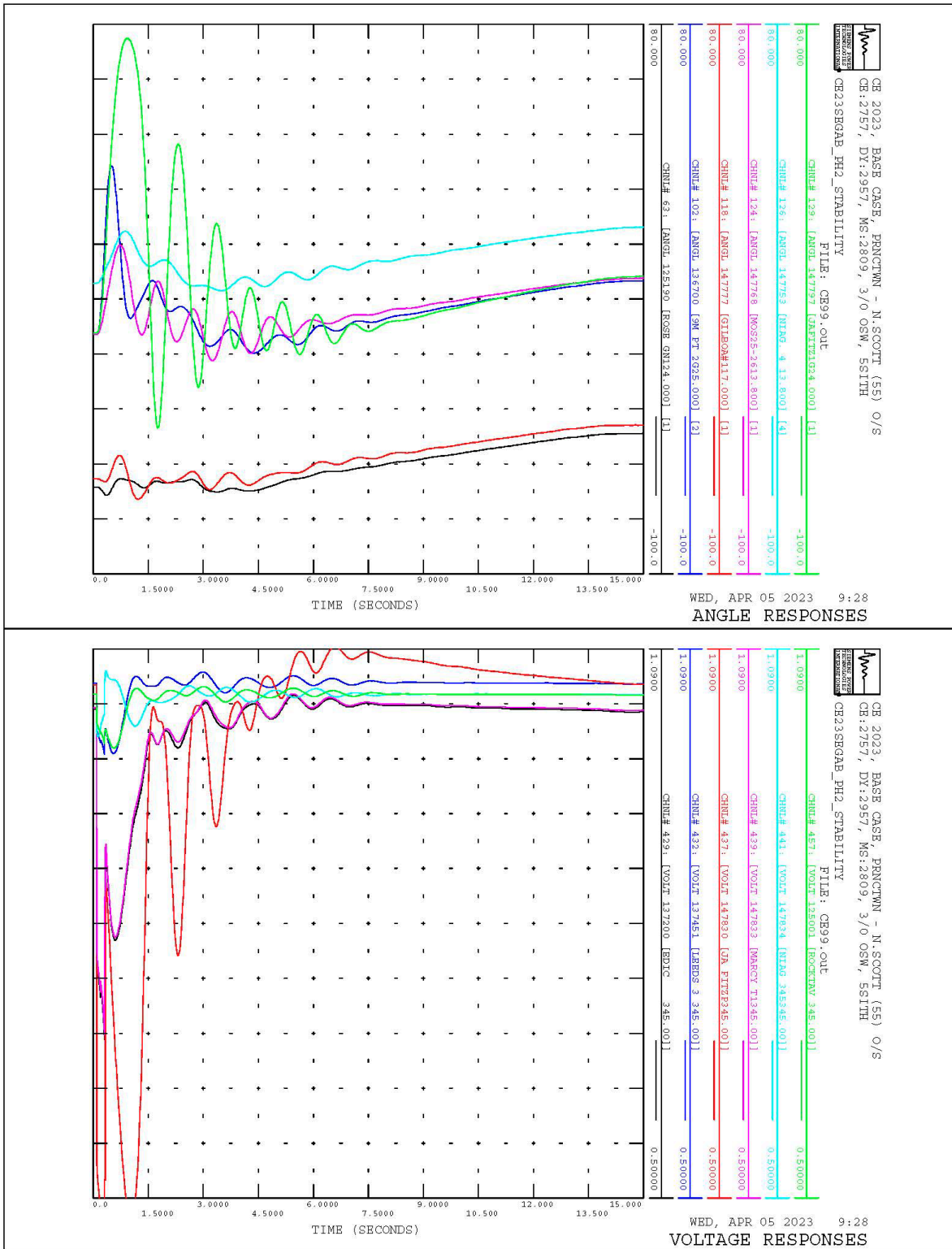


Figure 16: Case 3 Oswego, 0 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

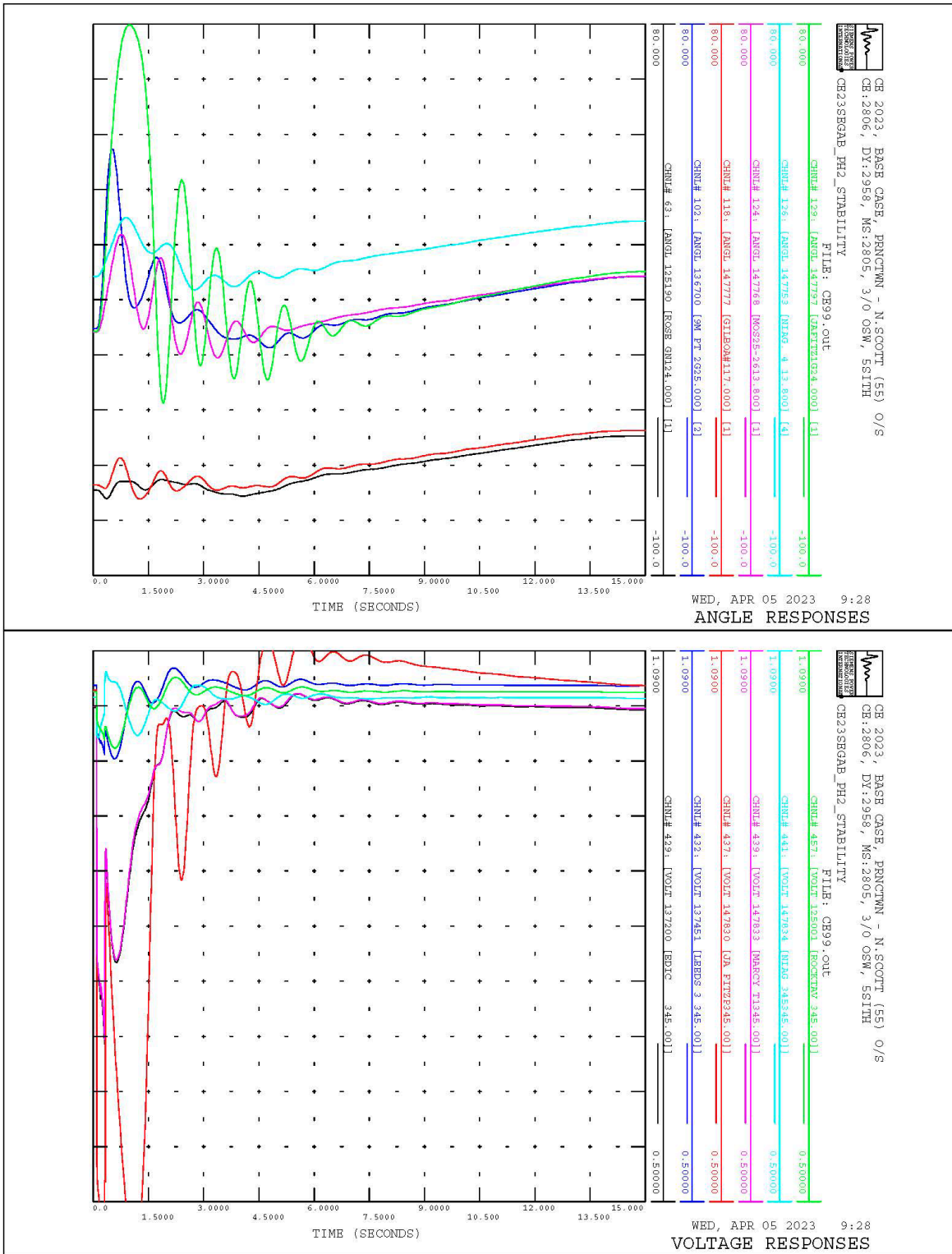


Figure 17: Case 3 Oswego, 0 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

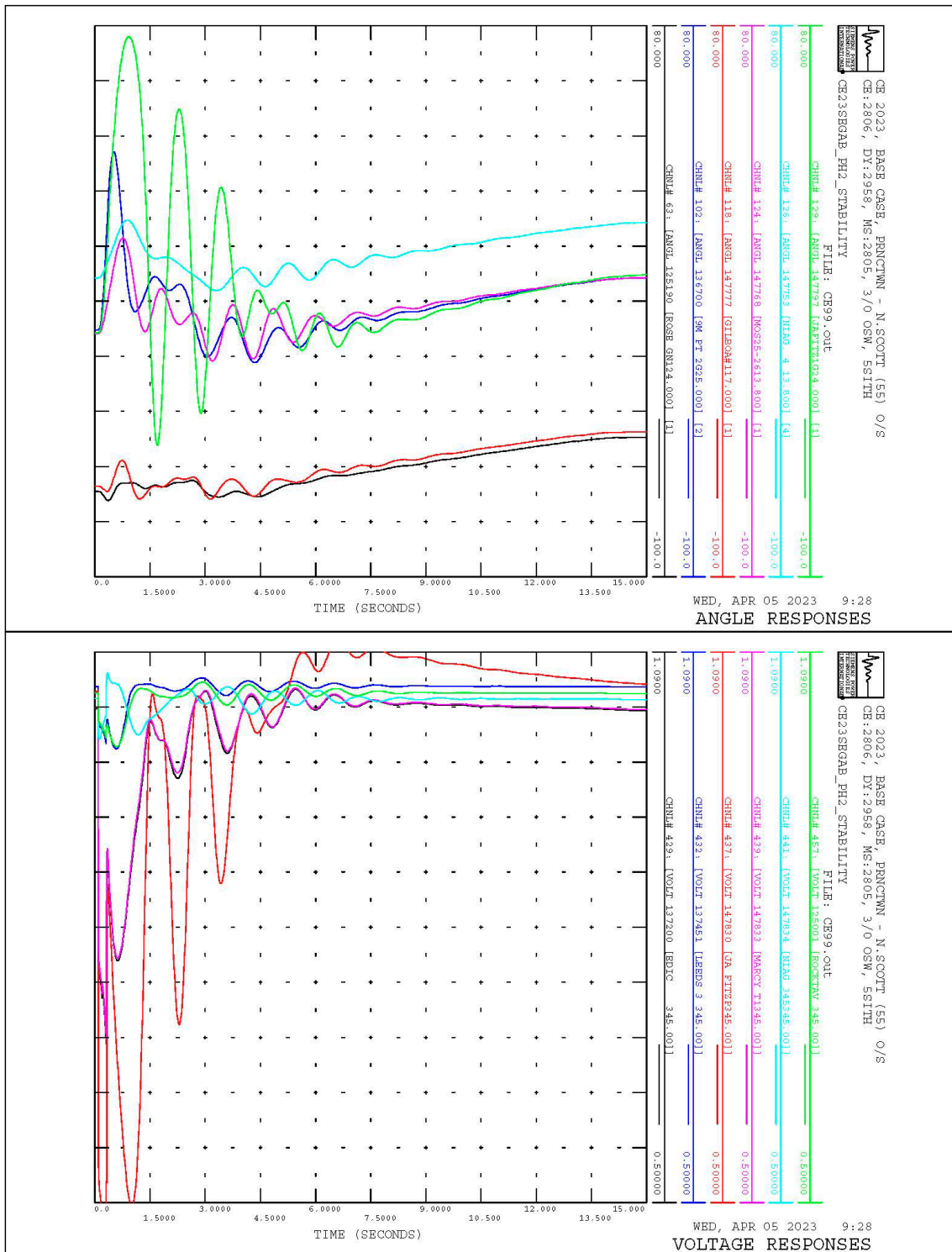


Figure 18: Case 3 Oswego, 0 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

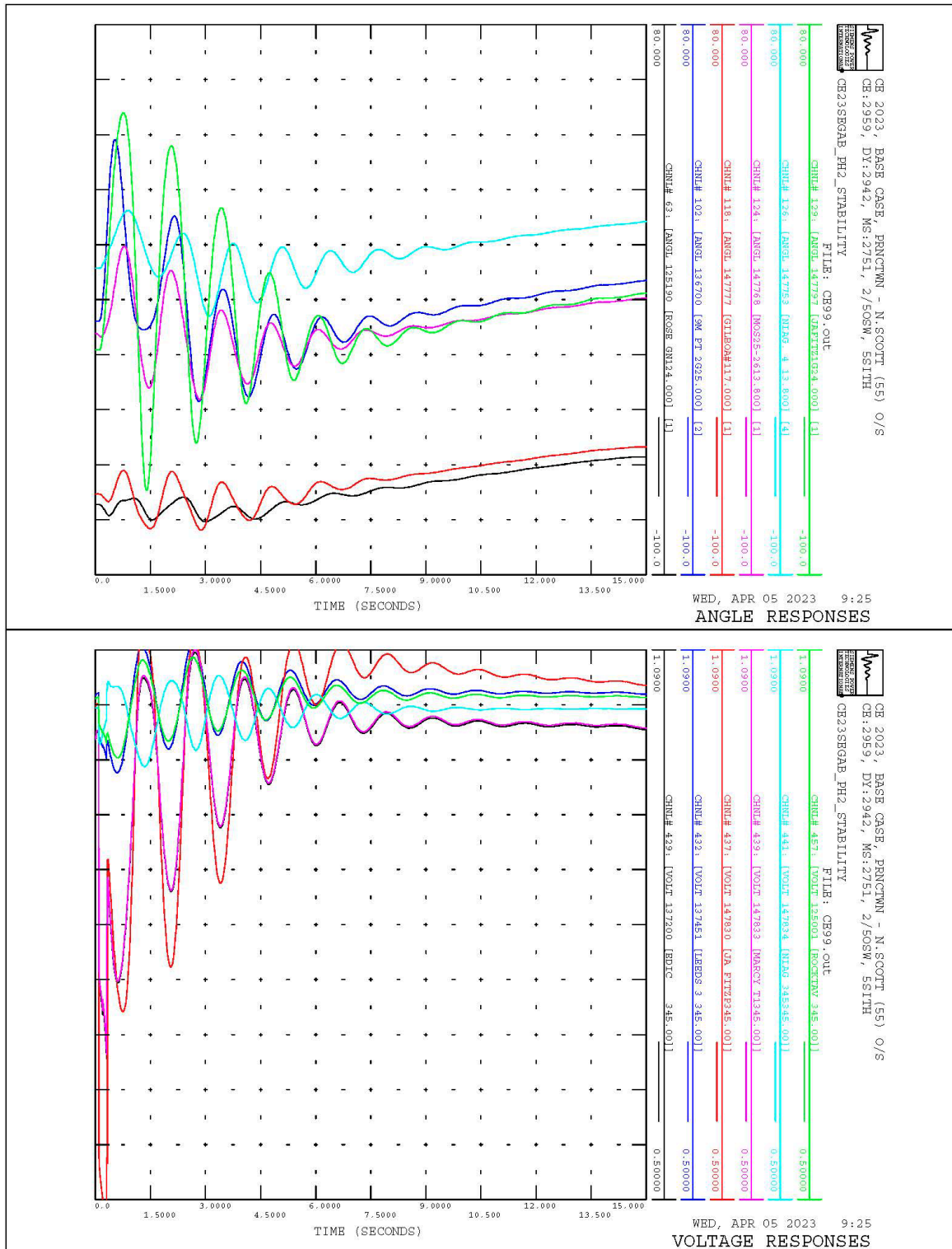


Figure 19: Case 2 Oswego, 5 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

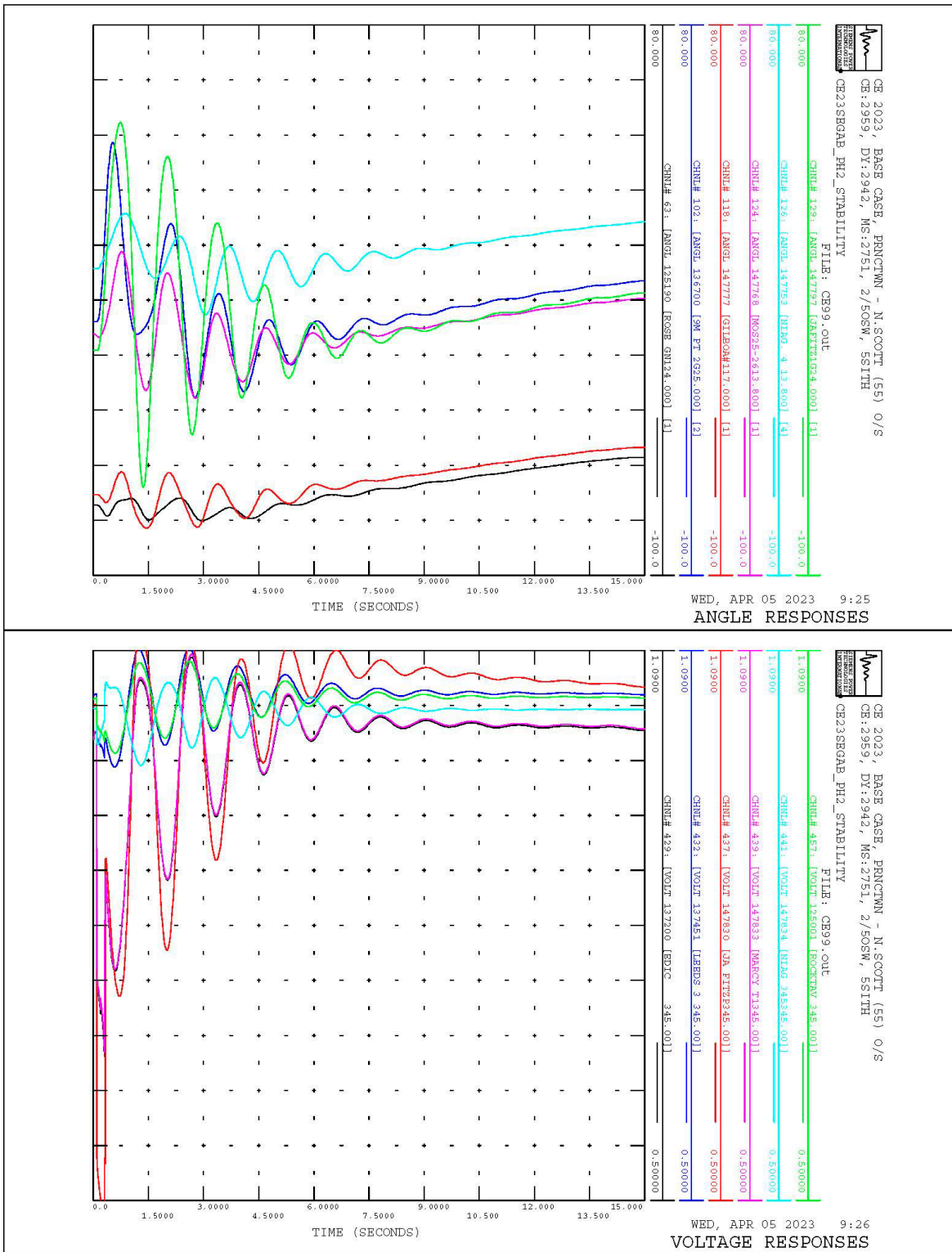


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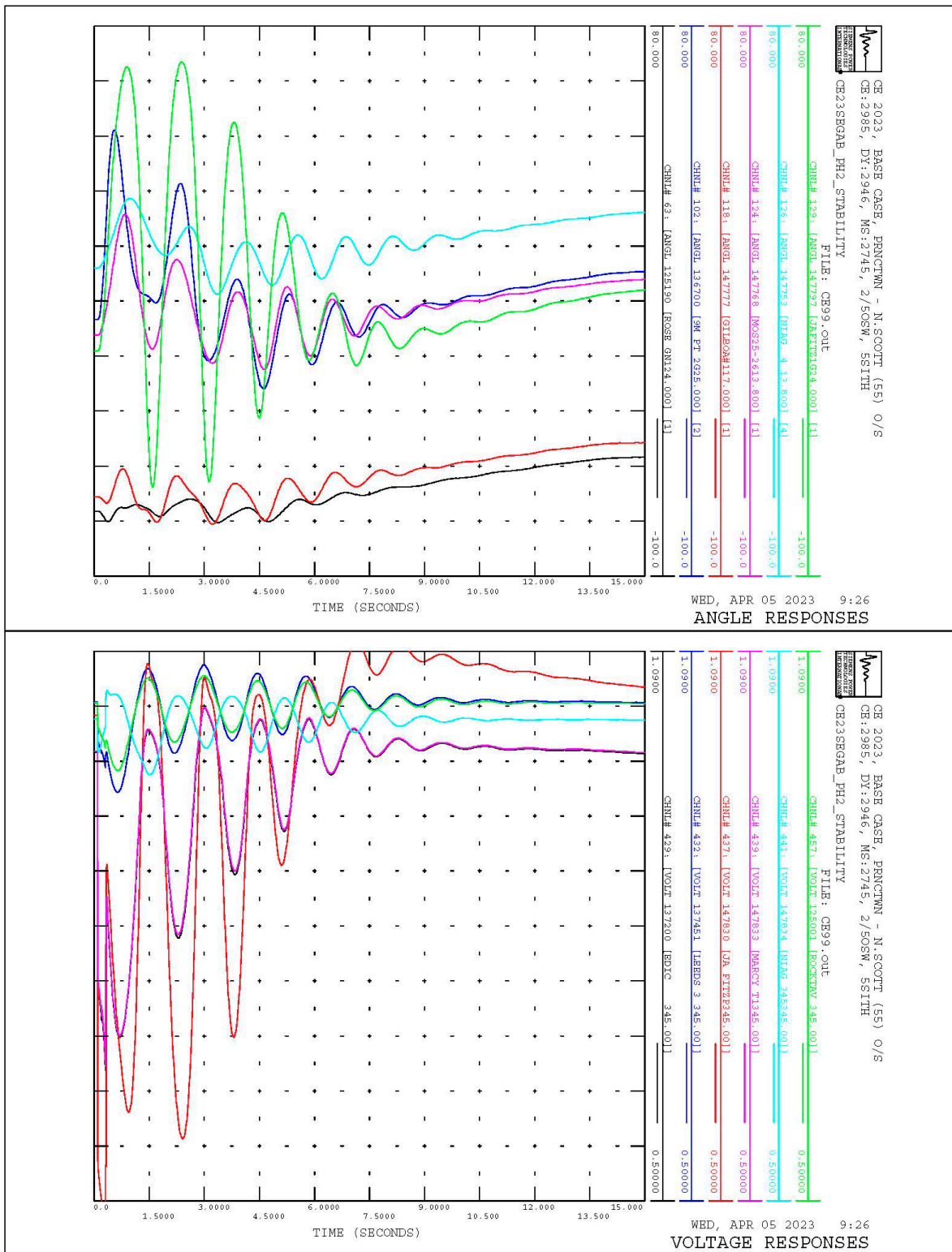


Figure 21: Case 2 Oswego, 5 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

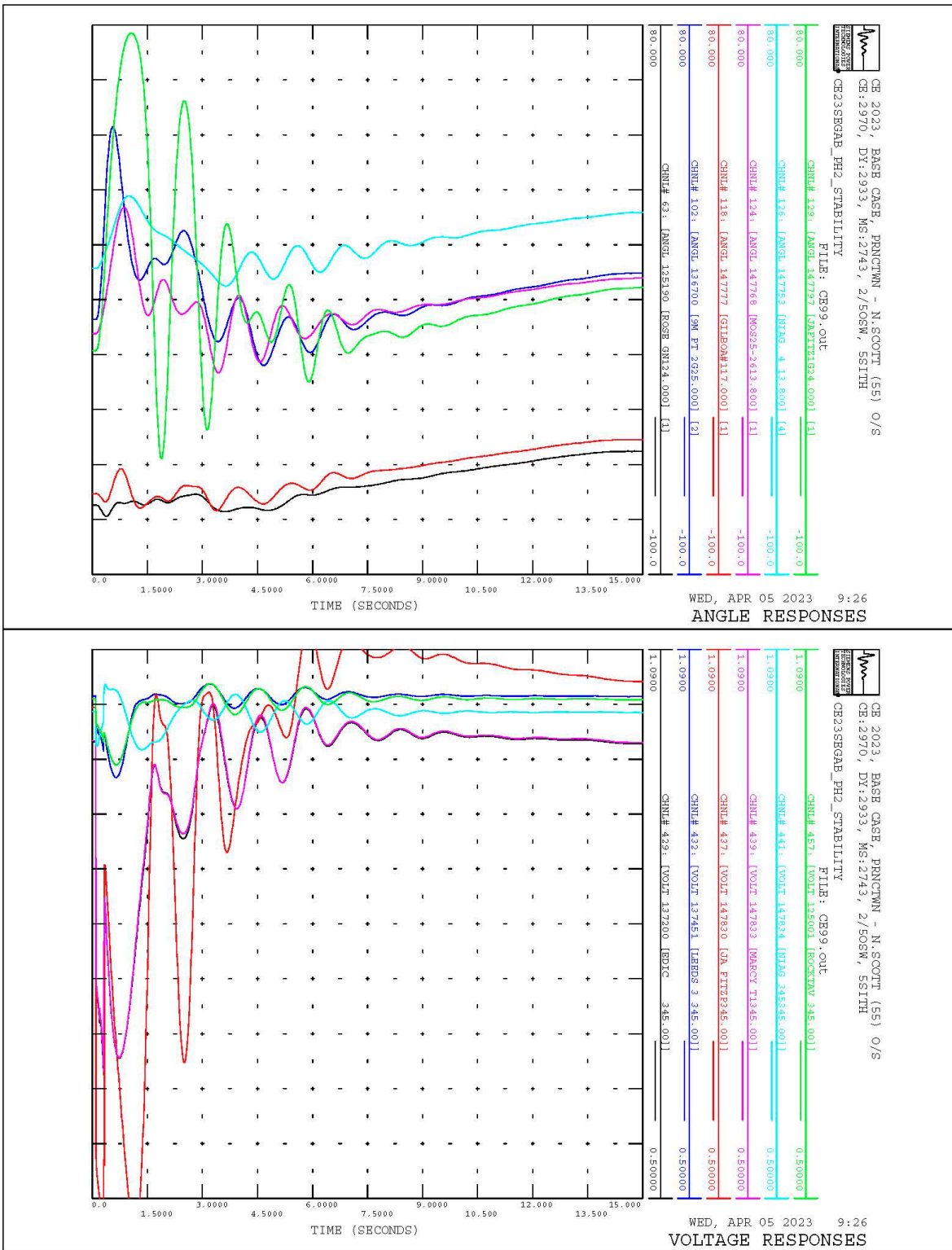


Figure 22: Case 2 Oswego, 5 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

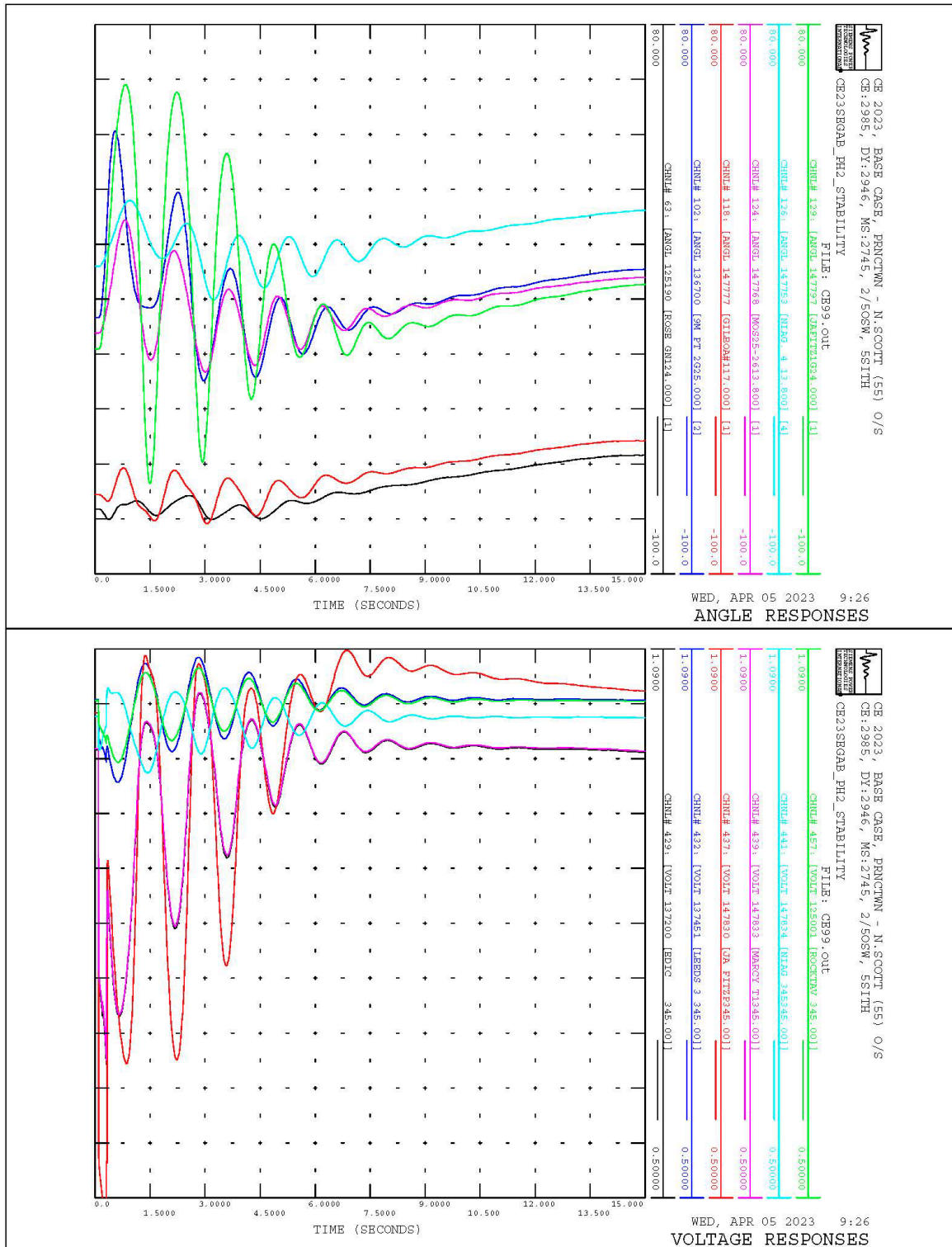


Figure 23: Case 2 Oswego, 5 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

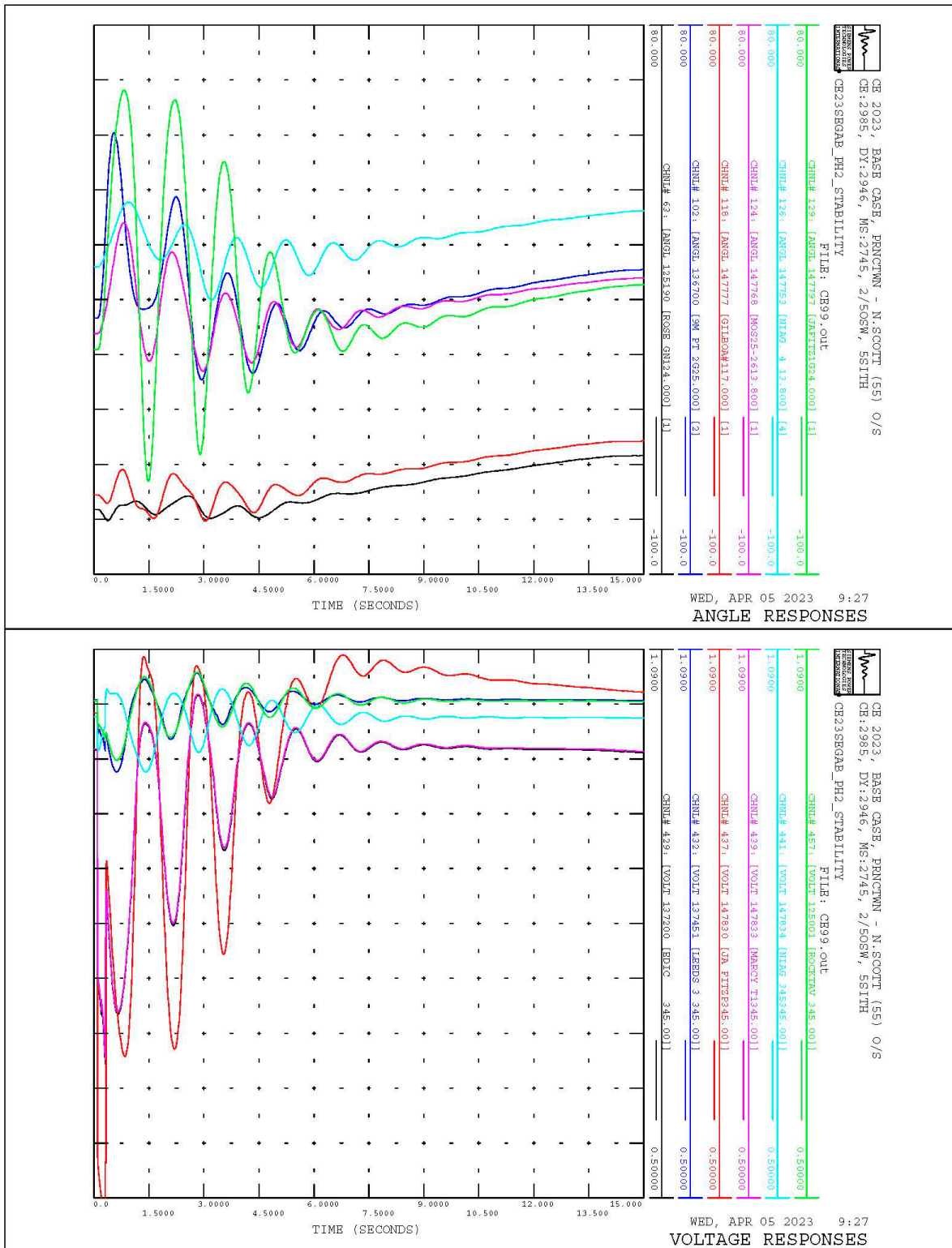


Figure 24: Case 2 Oswego, 5 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

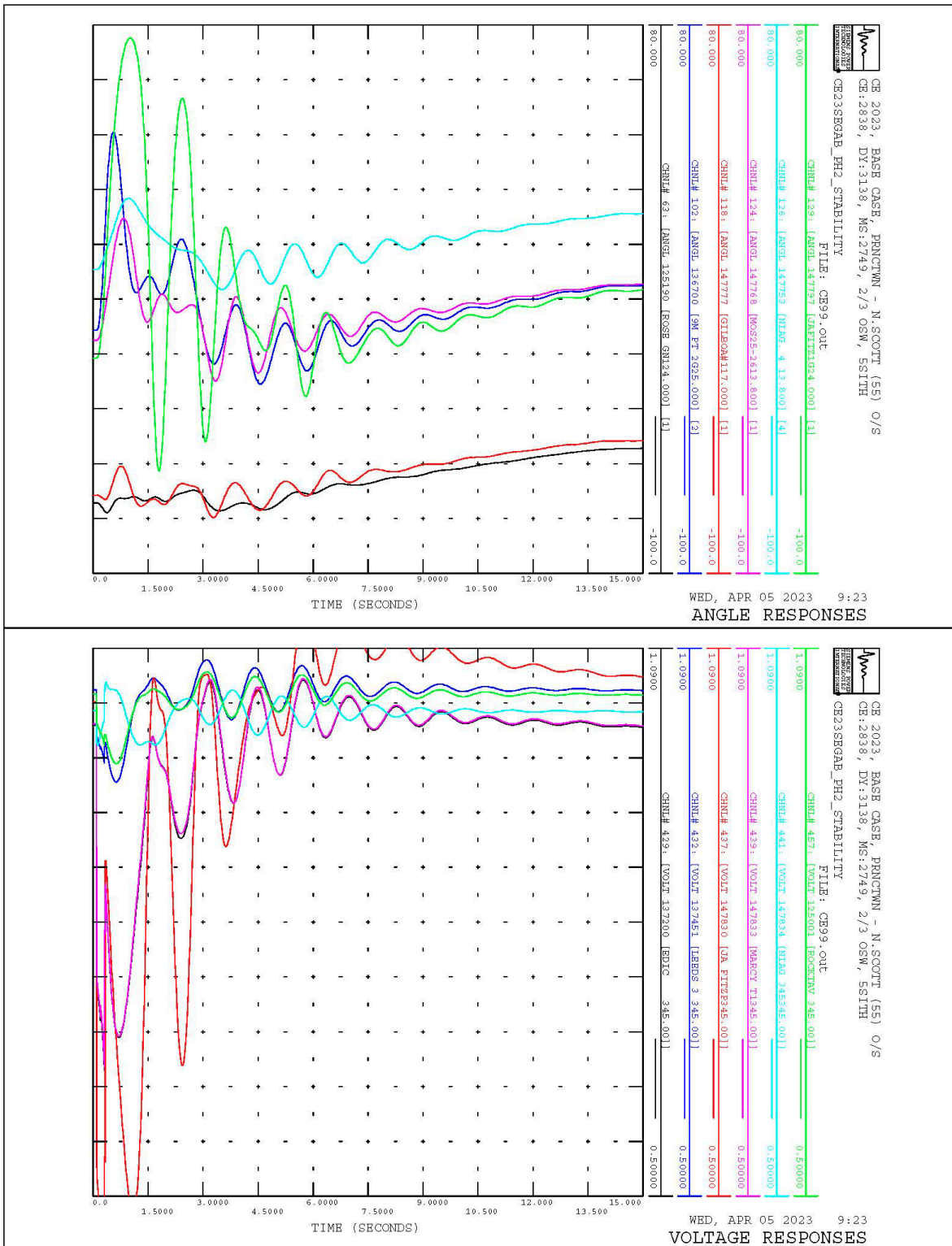


Figure 25: Case 2 Oswego, 3 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

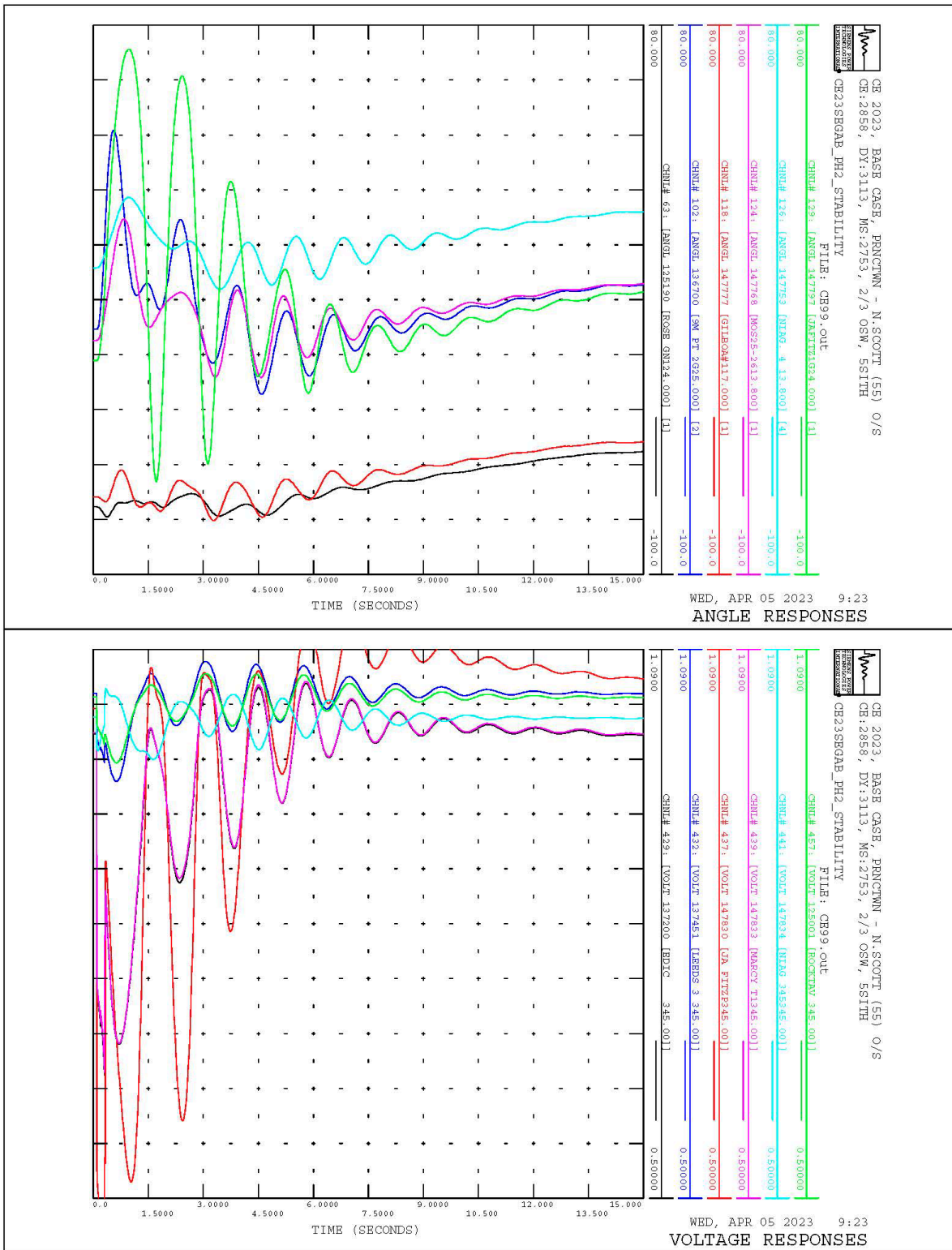


Figure 26: Case 2 Oswego, 3 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

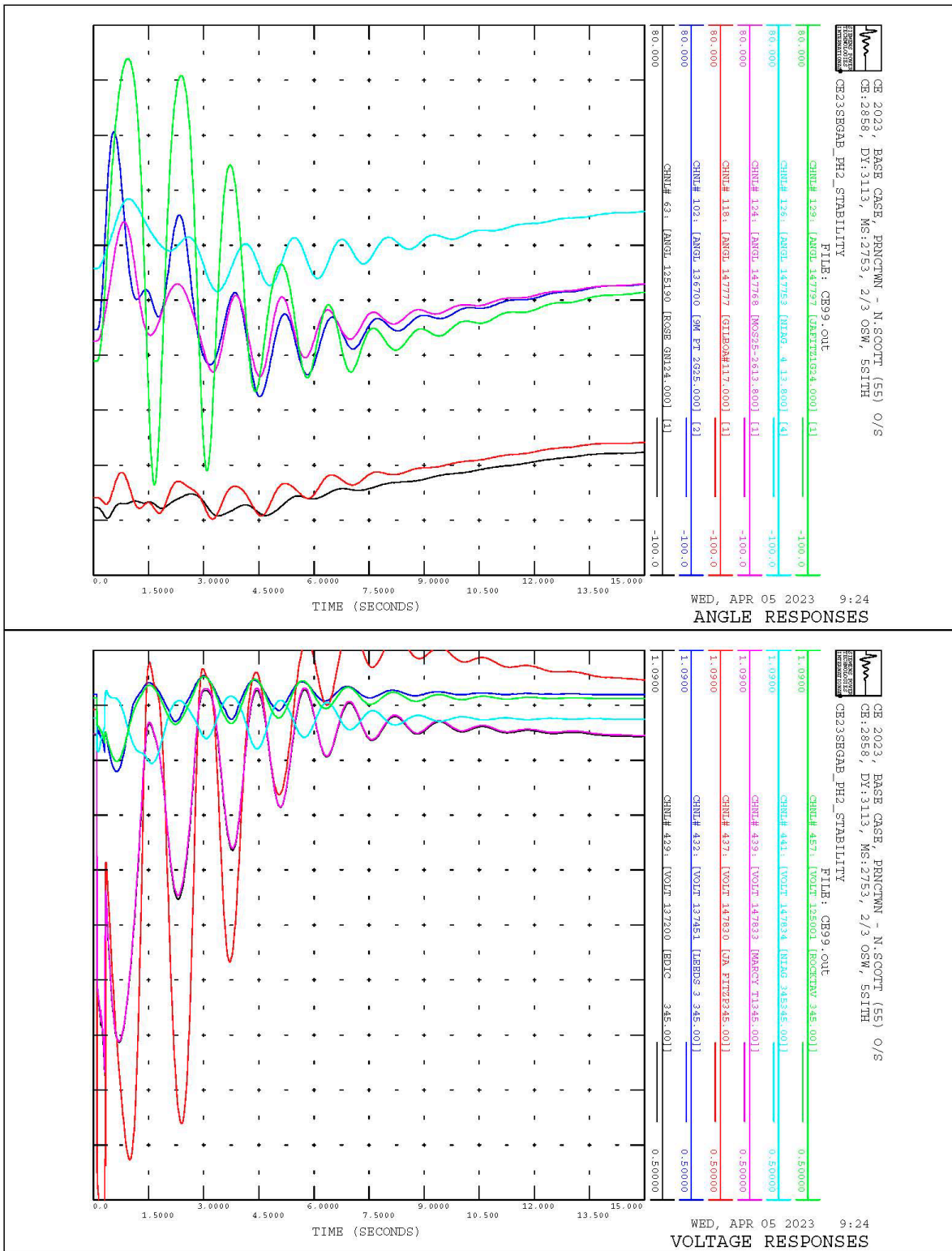


Figure 27: Case 2 Oswego, 3 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

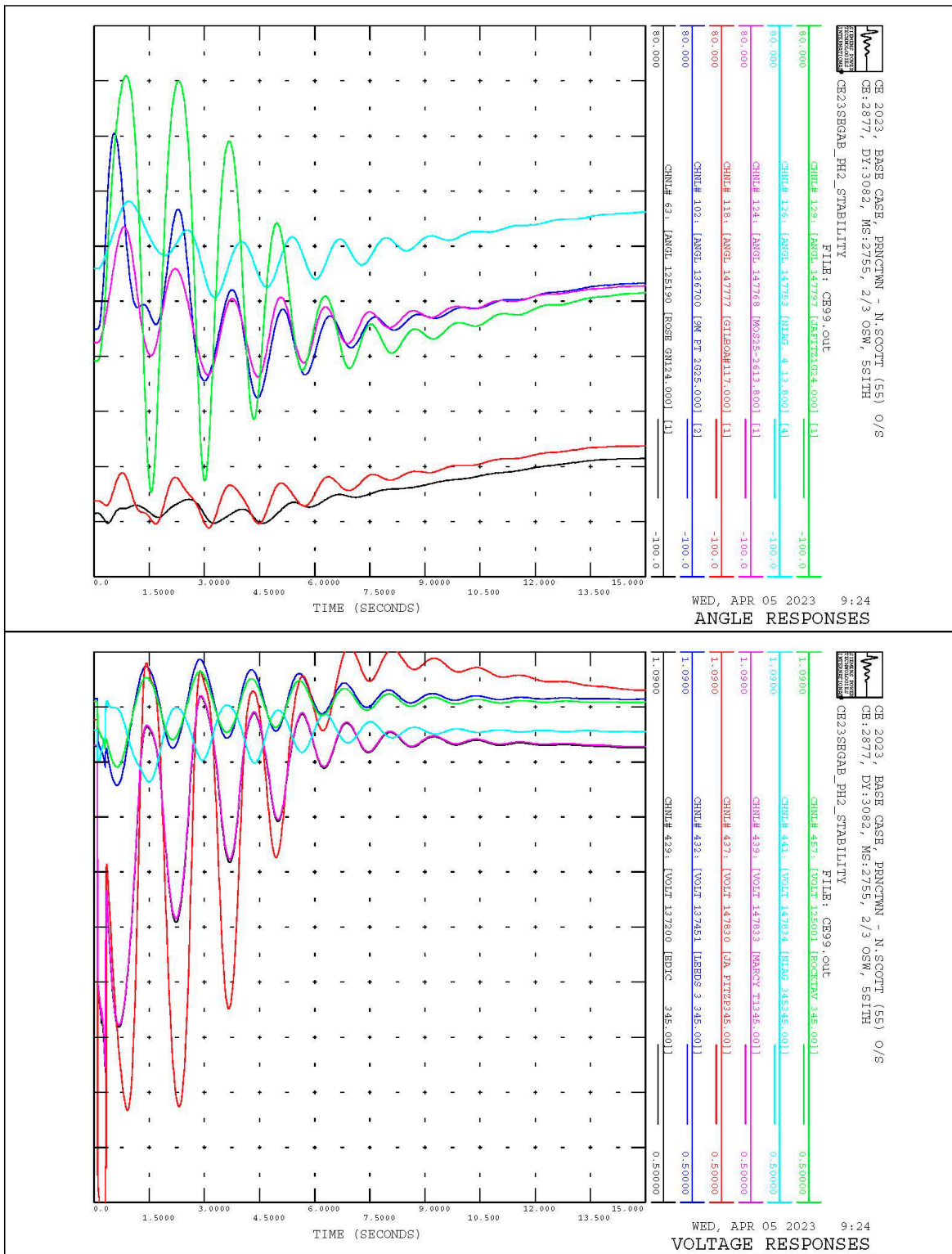


Figure 28: Case 2 Oswego, 3 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

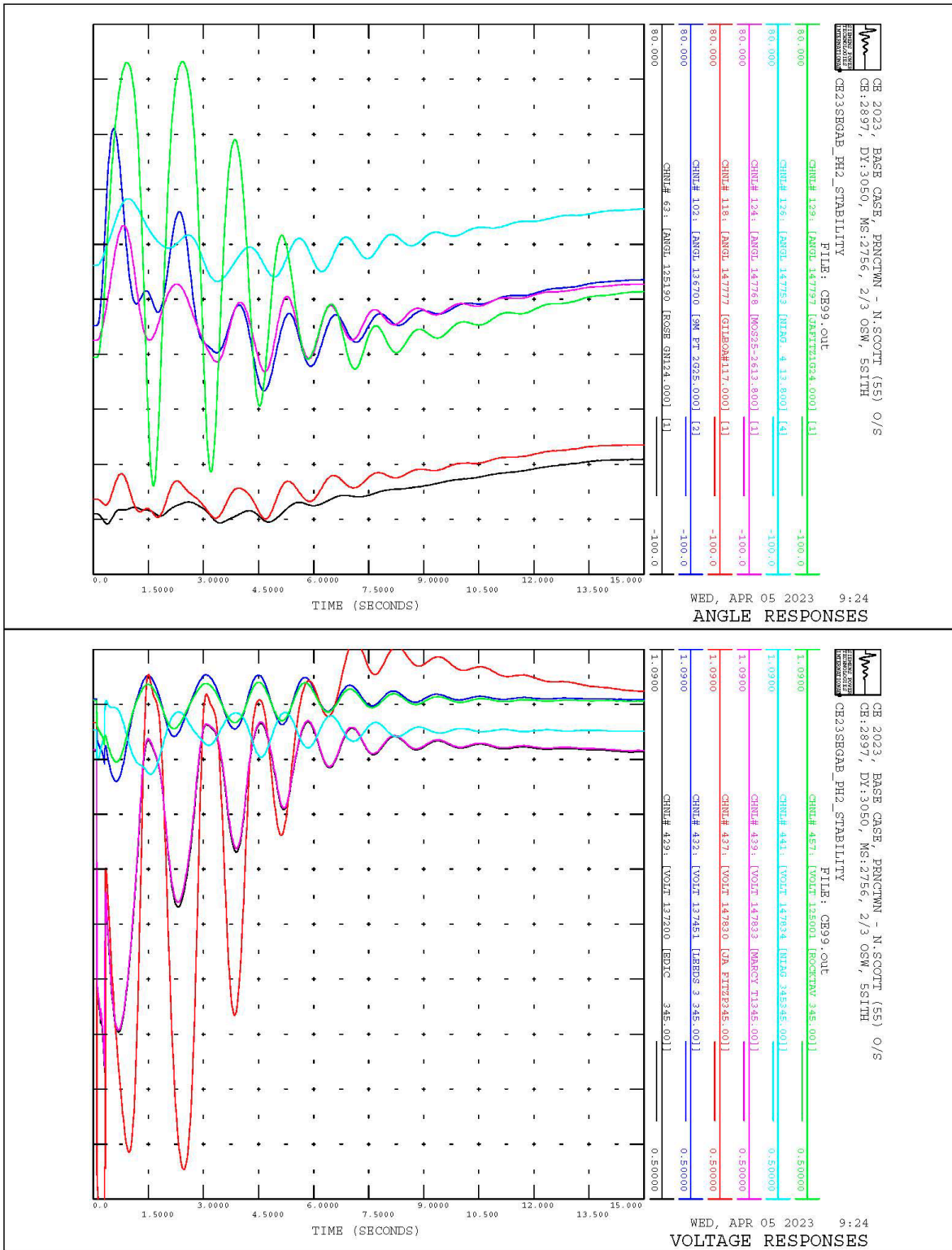


Figure 29: Case 2 Oswego, 3 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

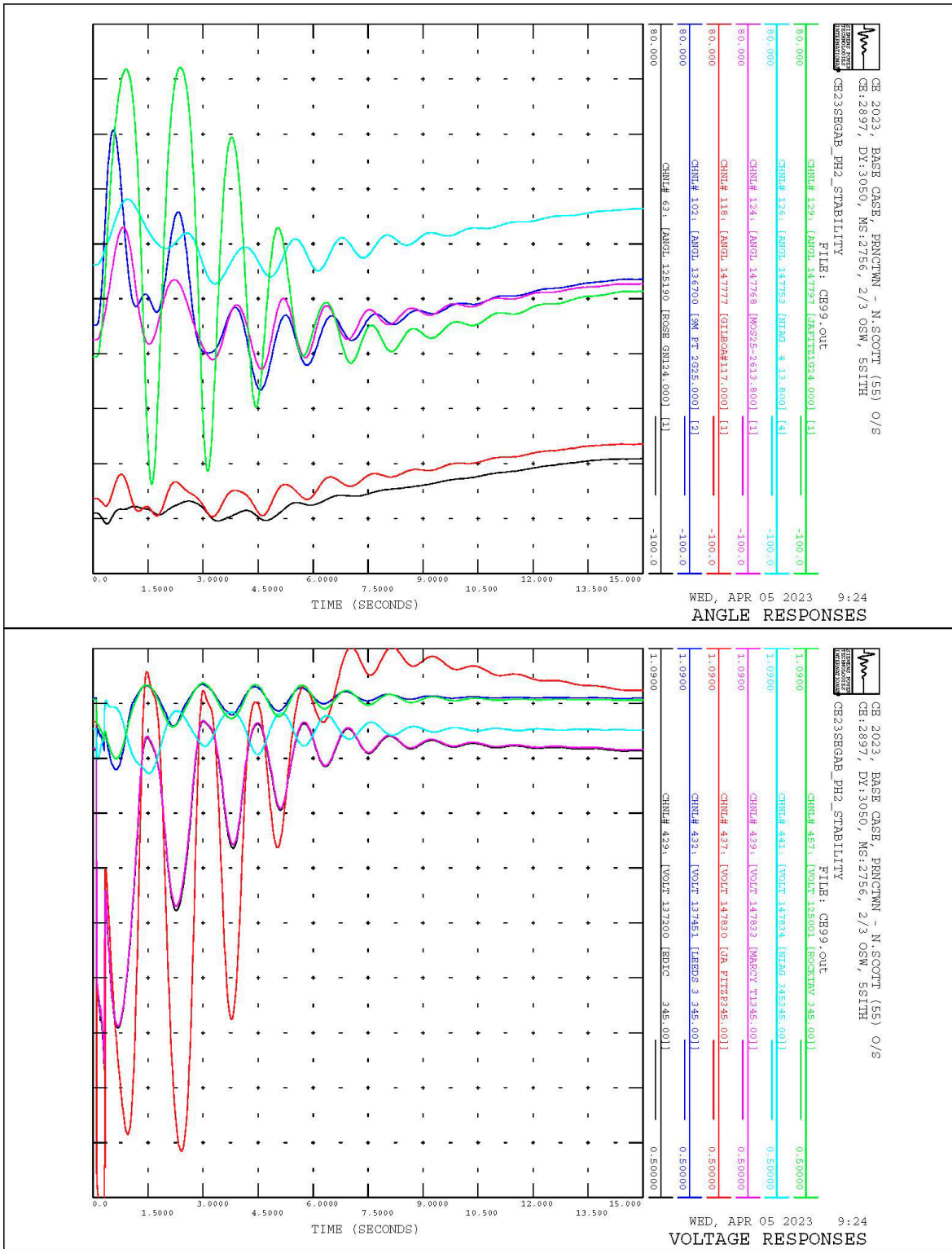


Figure 30: Case 2 Oswego, 3 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

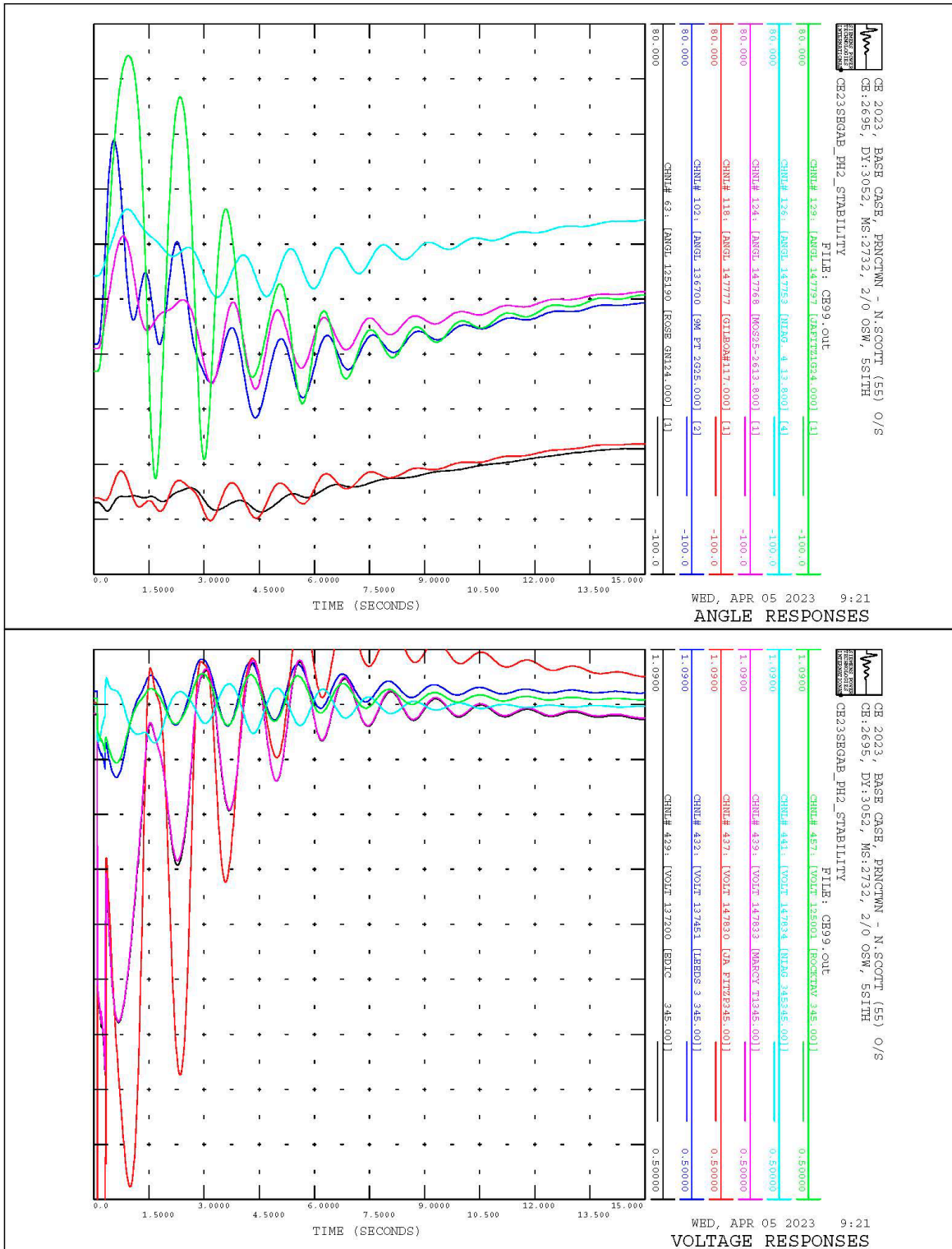


Figure 31: Case 2 Oswego, 0 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

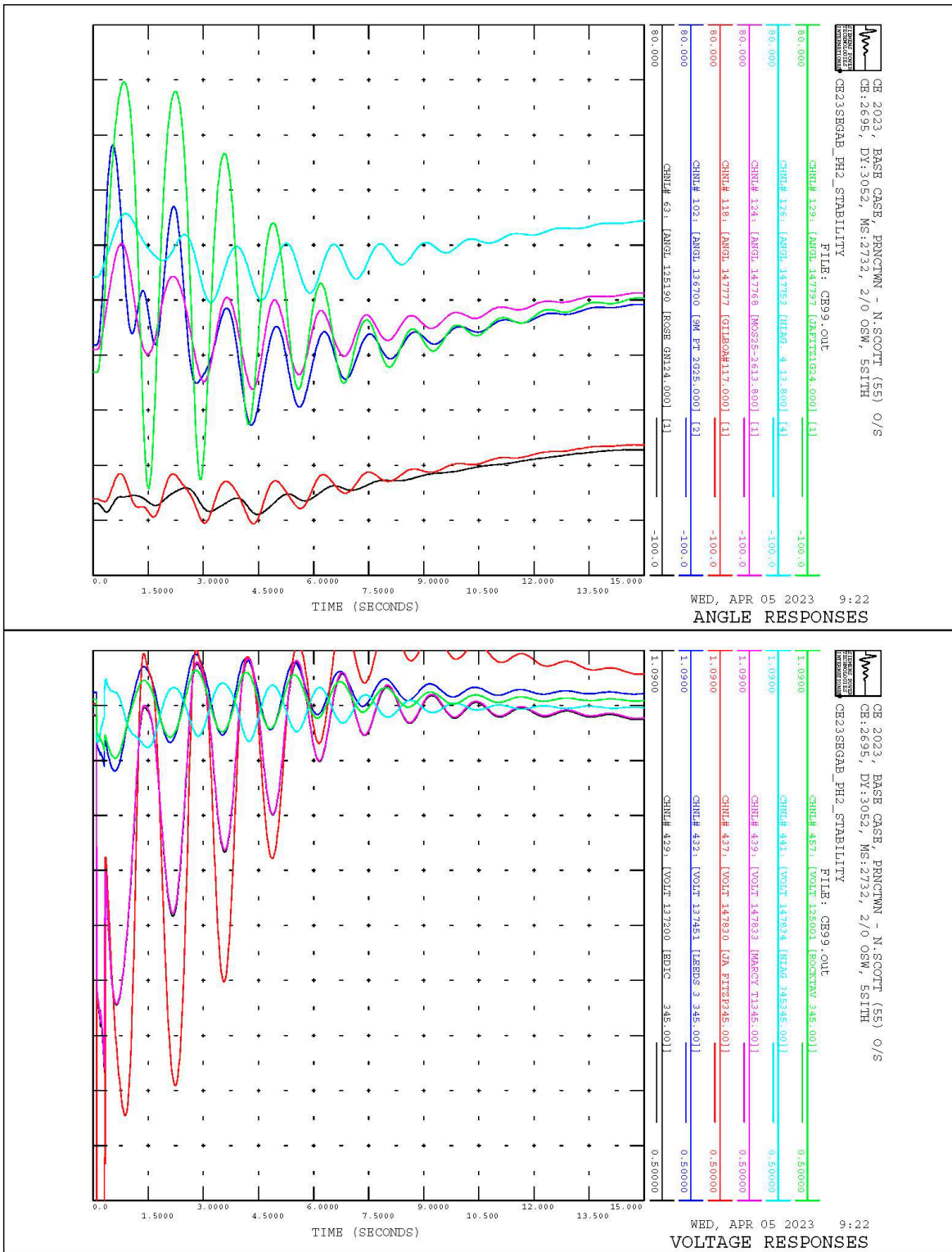


Figure 32: Case 2 Oswego, 0 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

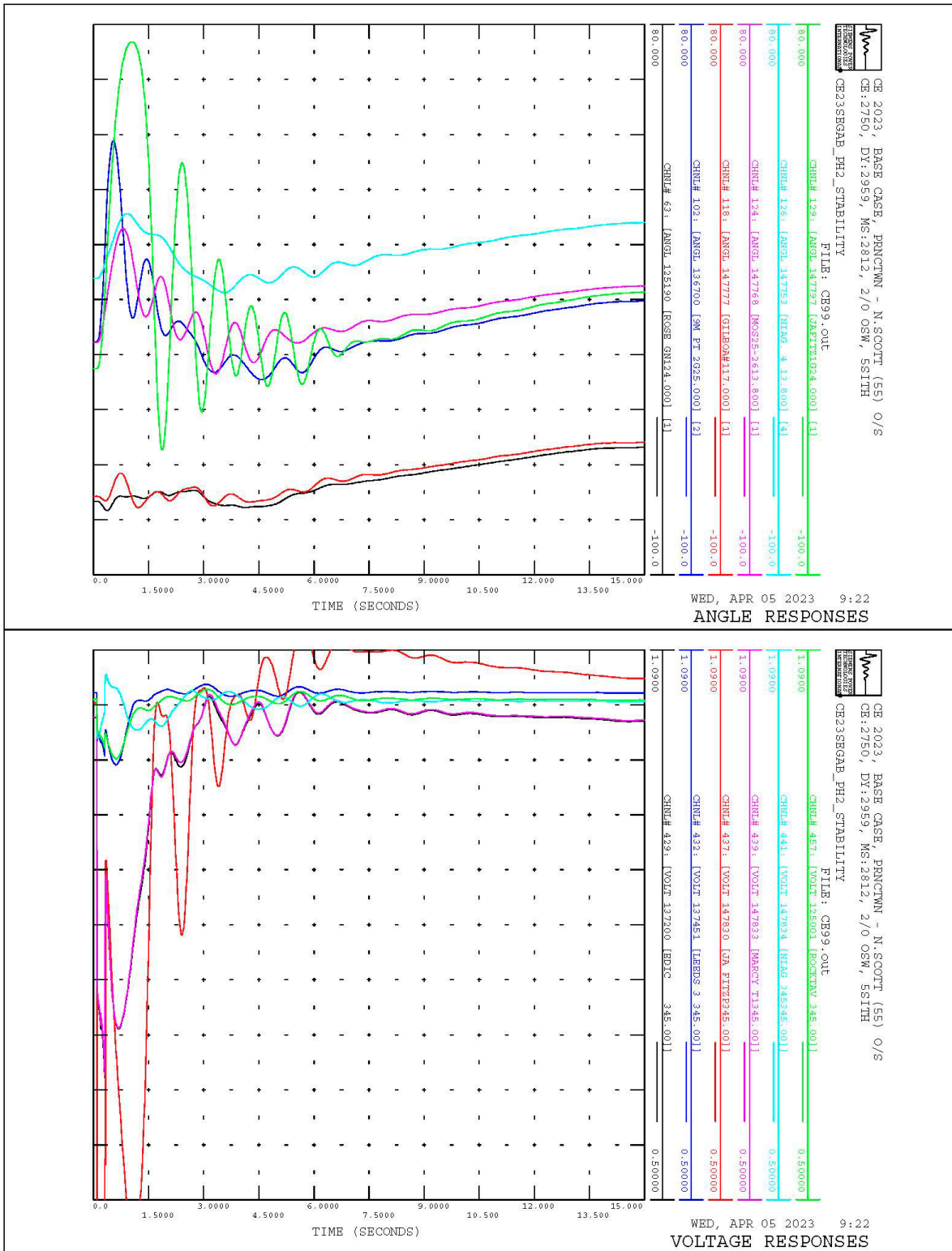


Figure 33: Case 2 Oswego, 0 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

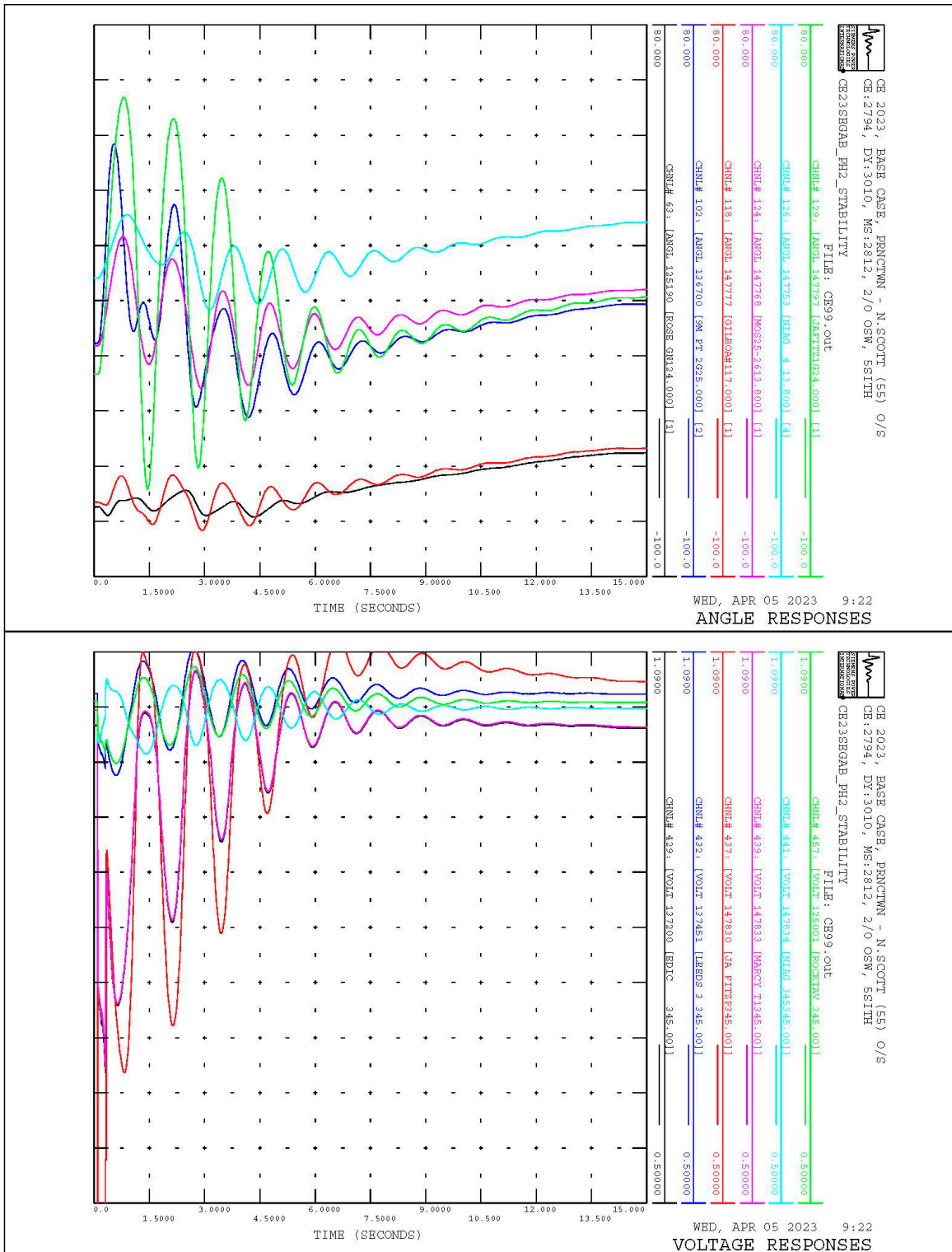


Figure 34: Case 2 Oswego, 0 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

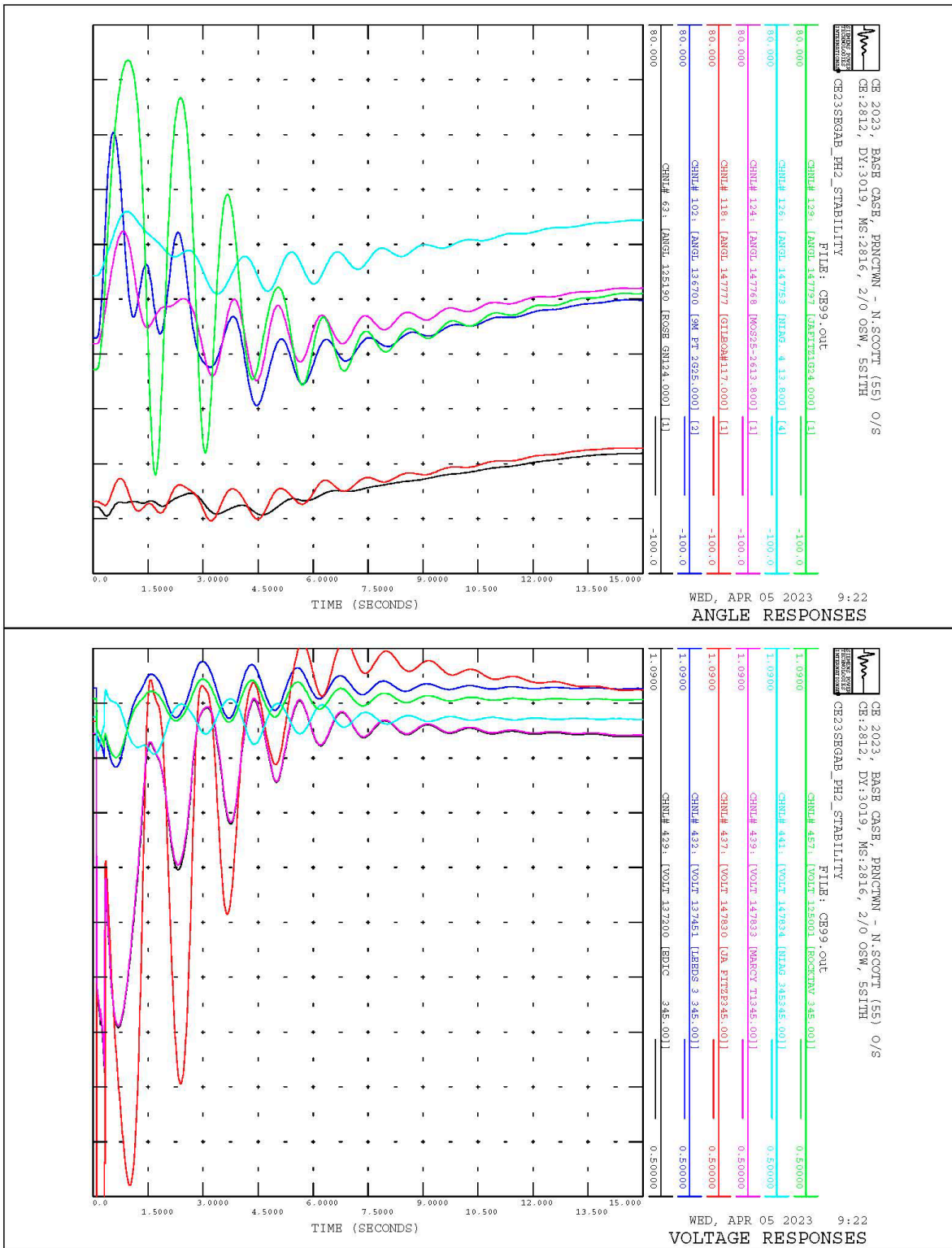


Figure 35: Case 2 Oswego, 0 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

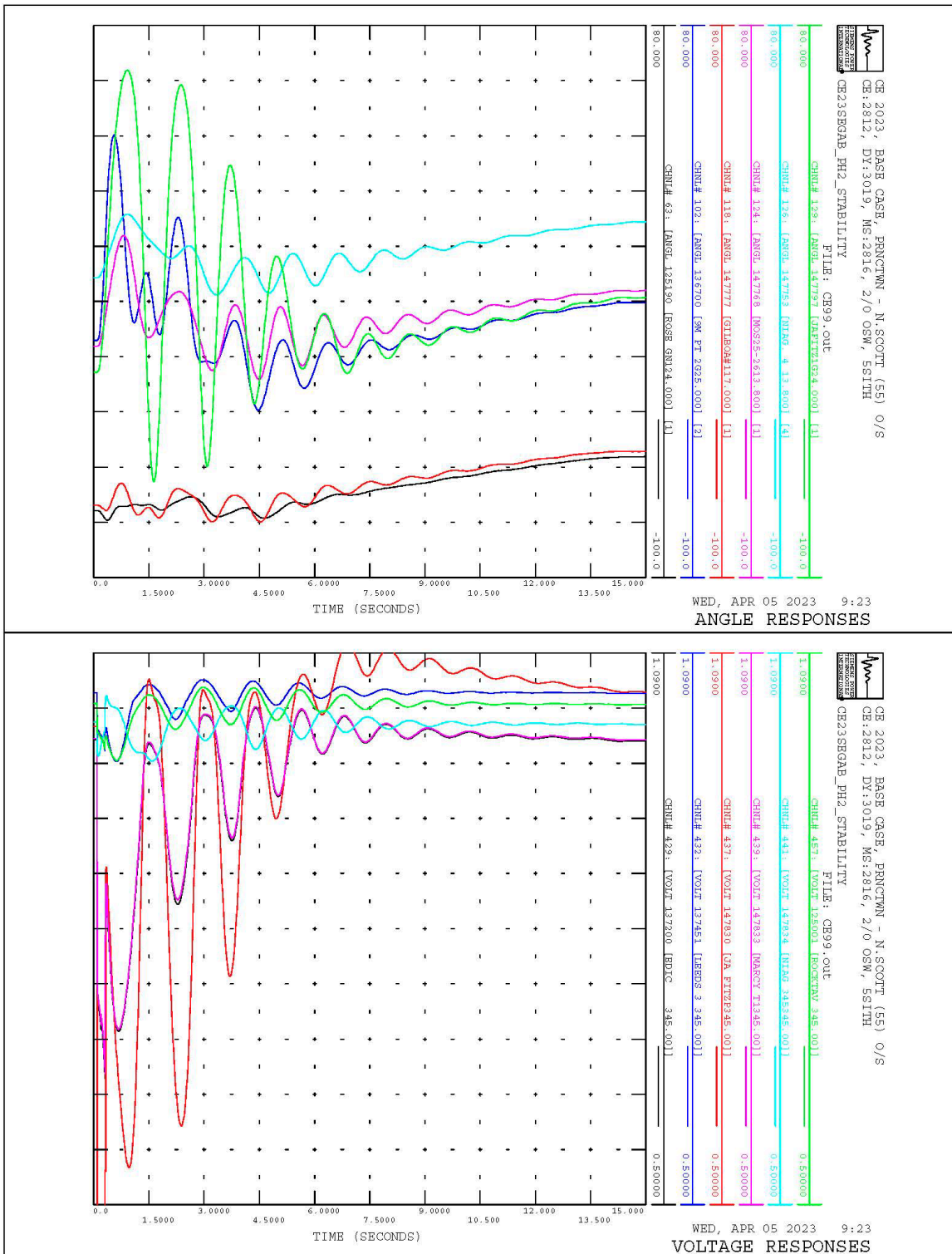


Figure 36: Case 2 Oswego, 0 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

Appendix B: Princetown – New Scotland (361 or 362) 345 kV Outage

ANGLE AND VOLTAGE RESPONSES

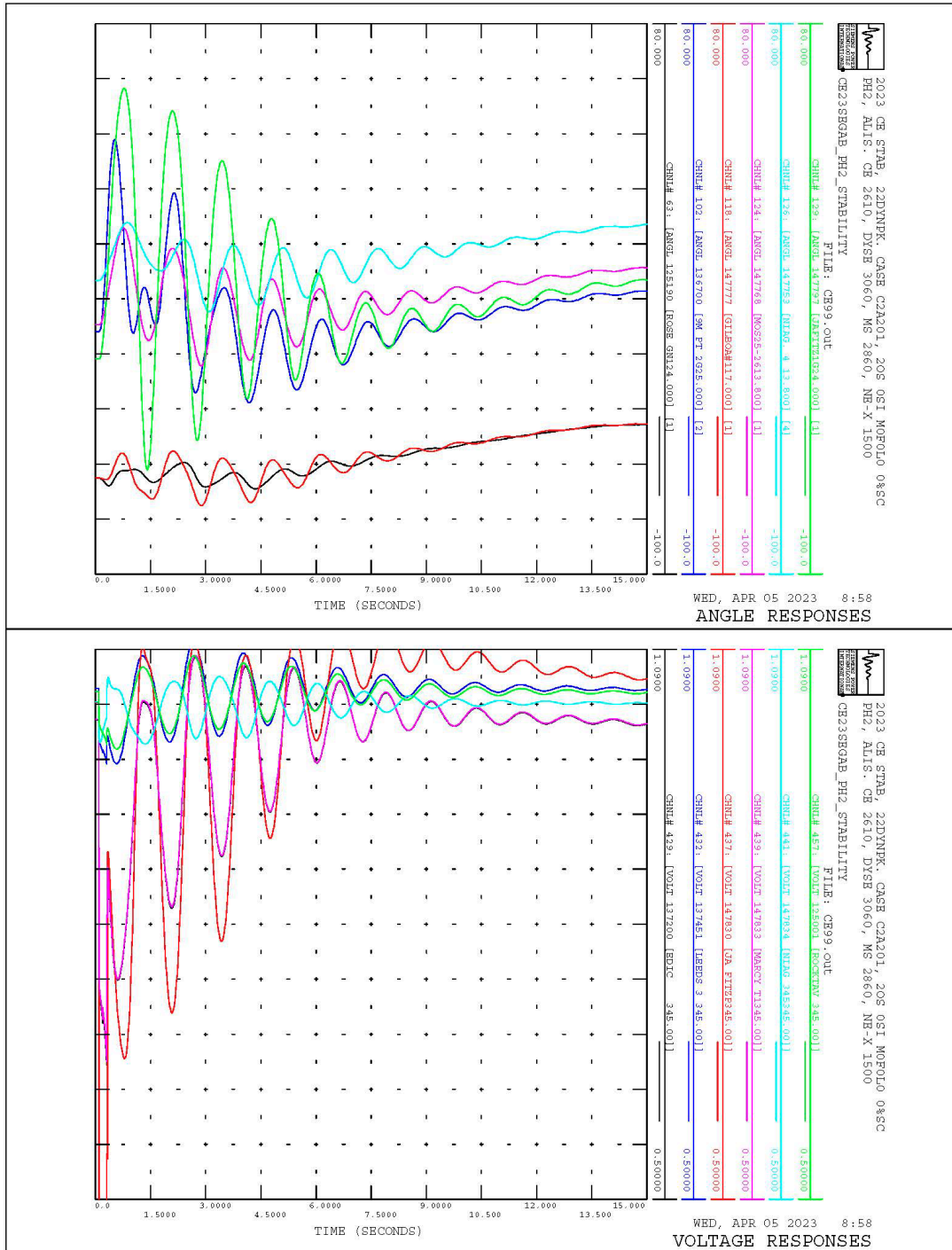


Figure 37: Case 3 Oswego, 5 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

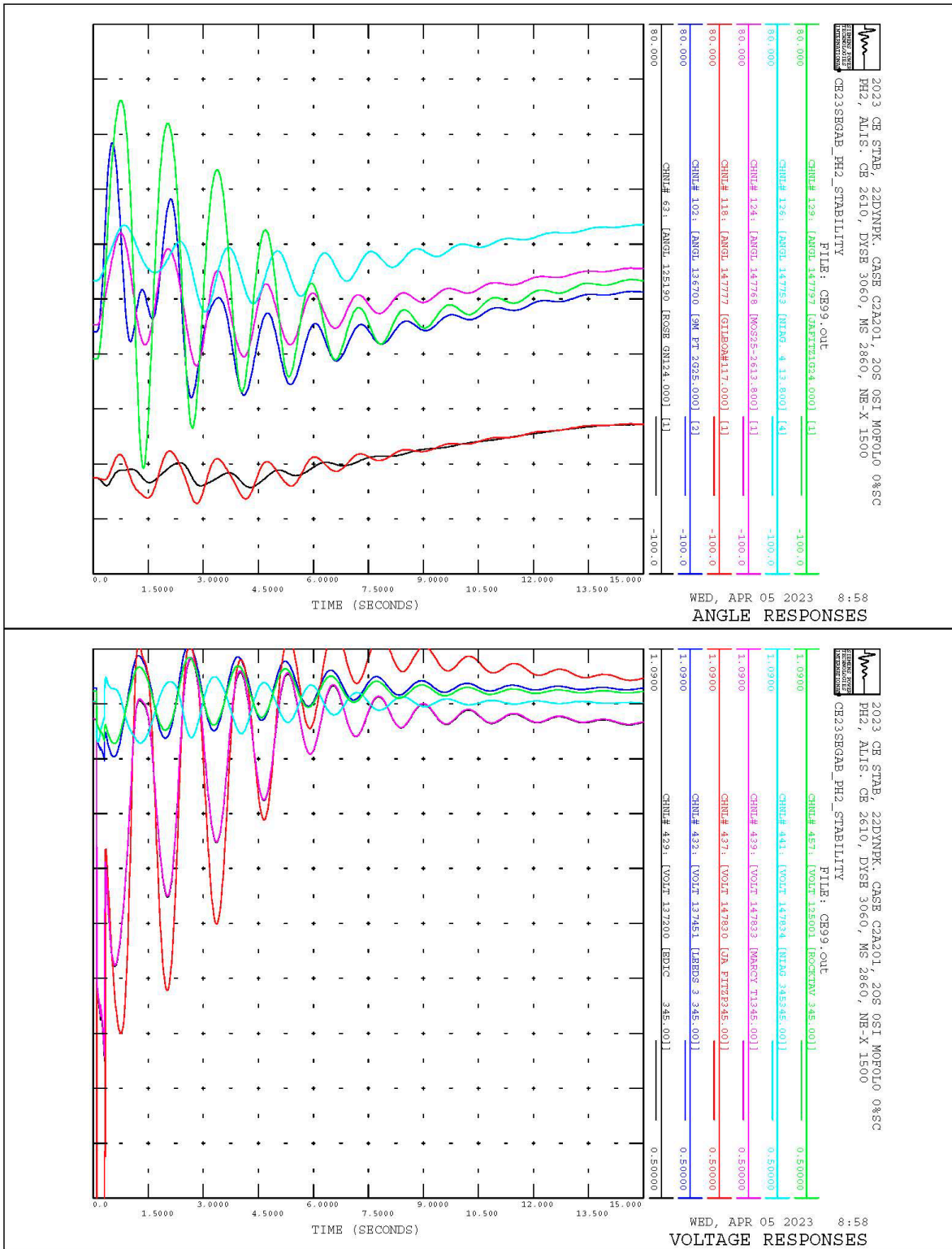


Figure 38: Case 3 Oswego, 5 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

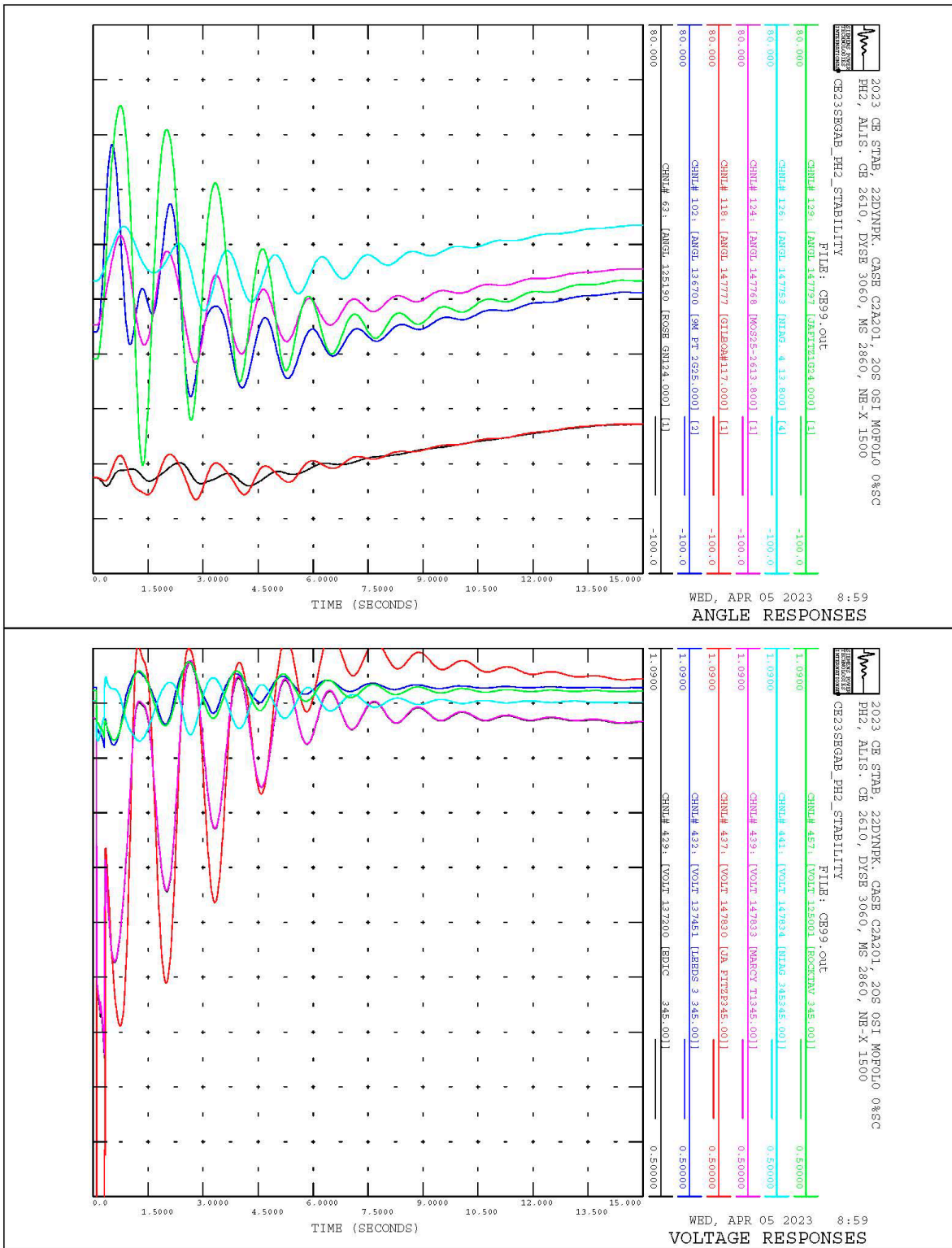


Figure 39: Case 3 Oswego, 5 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

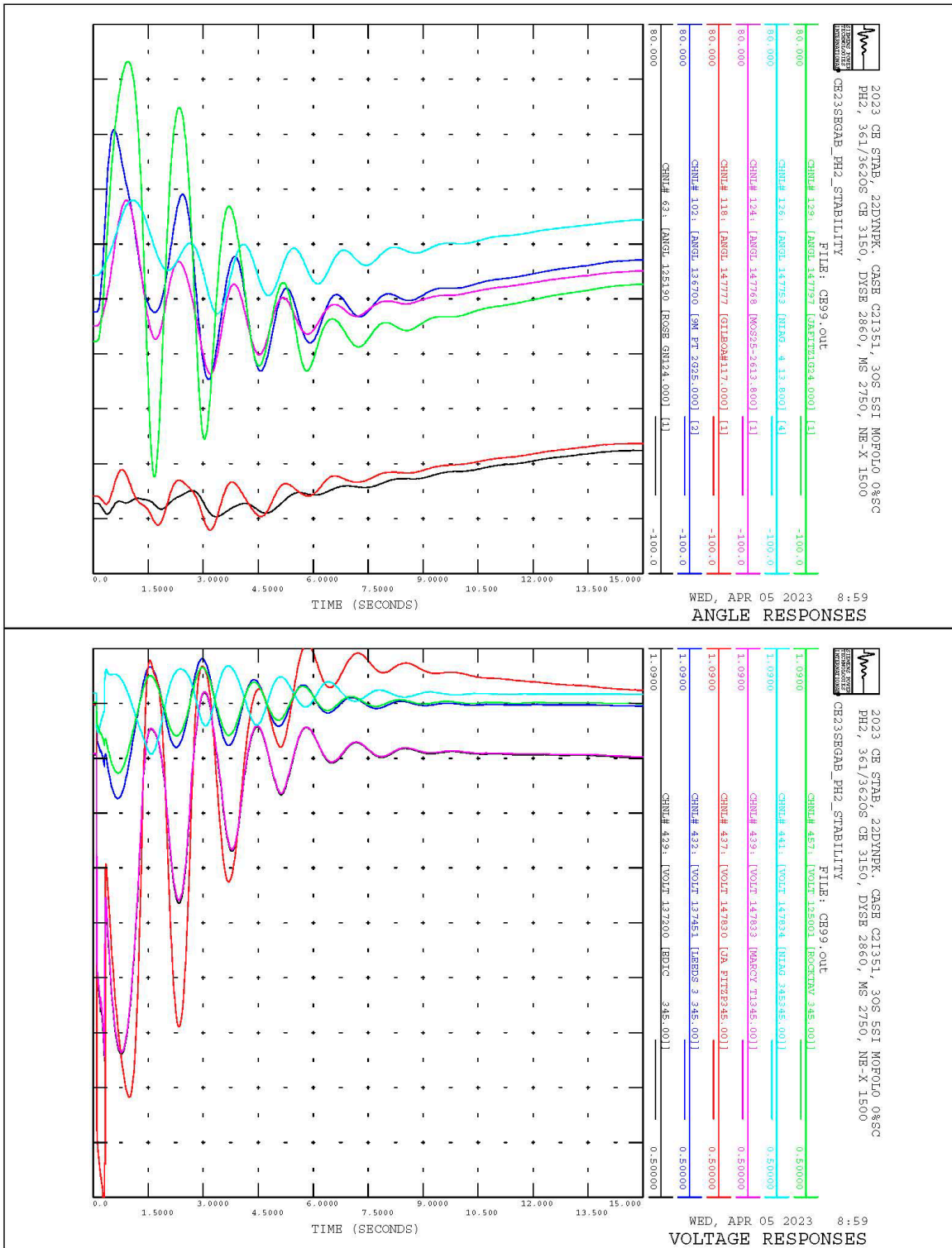


Figure 40: Case 3 Oswego, 5 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

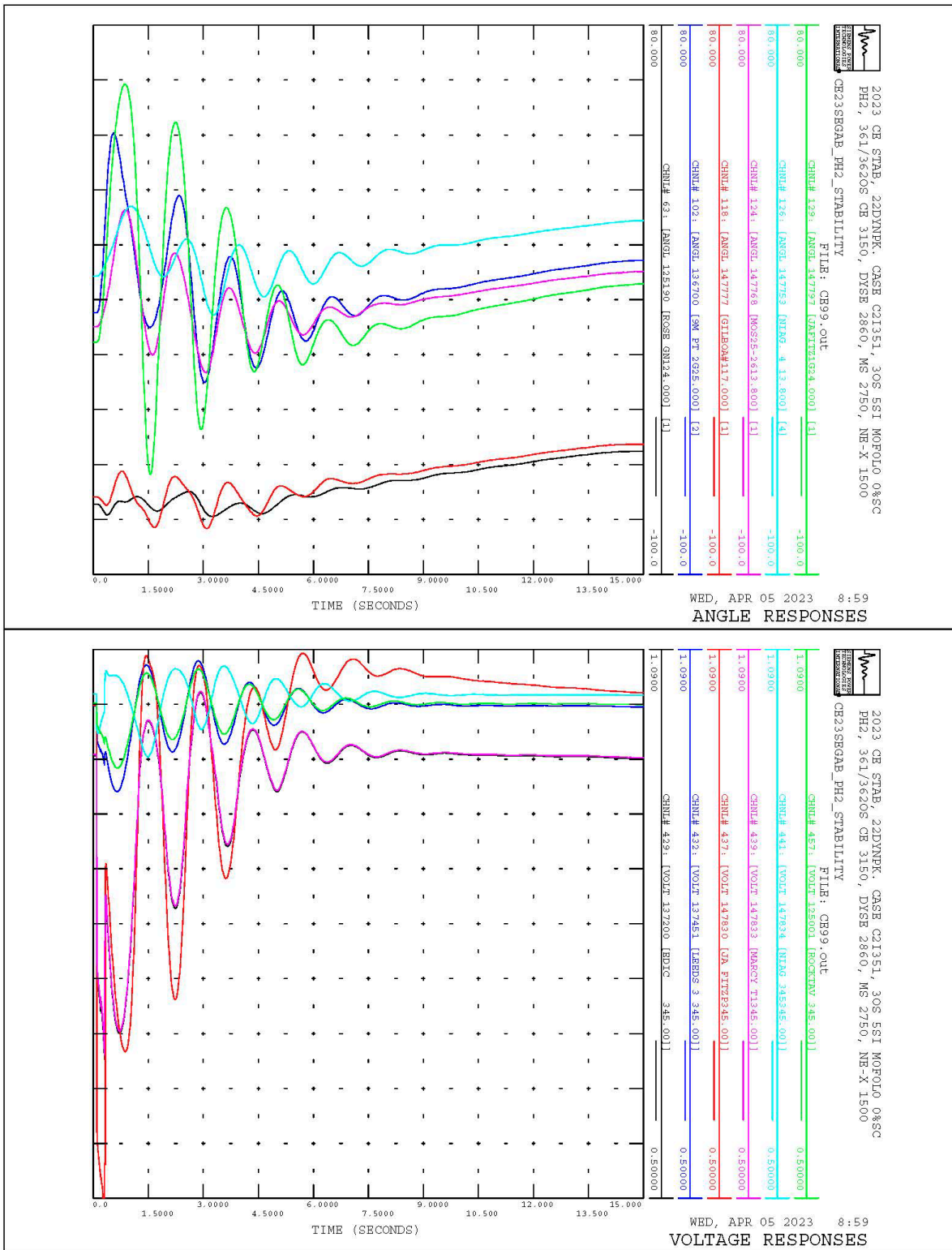


Figure 41: Case 3 Oswego, 5 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

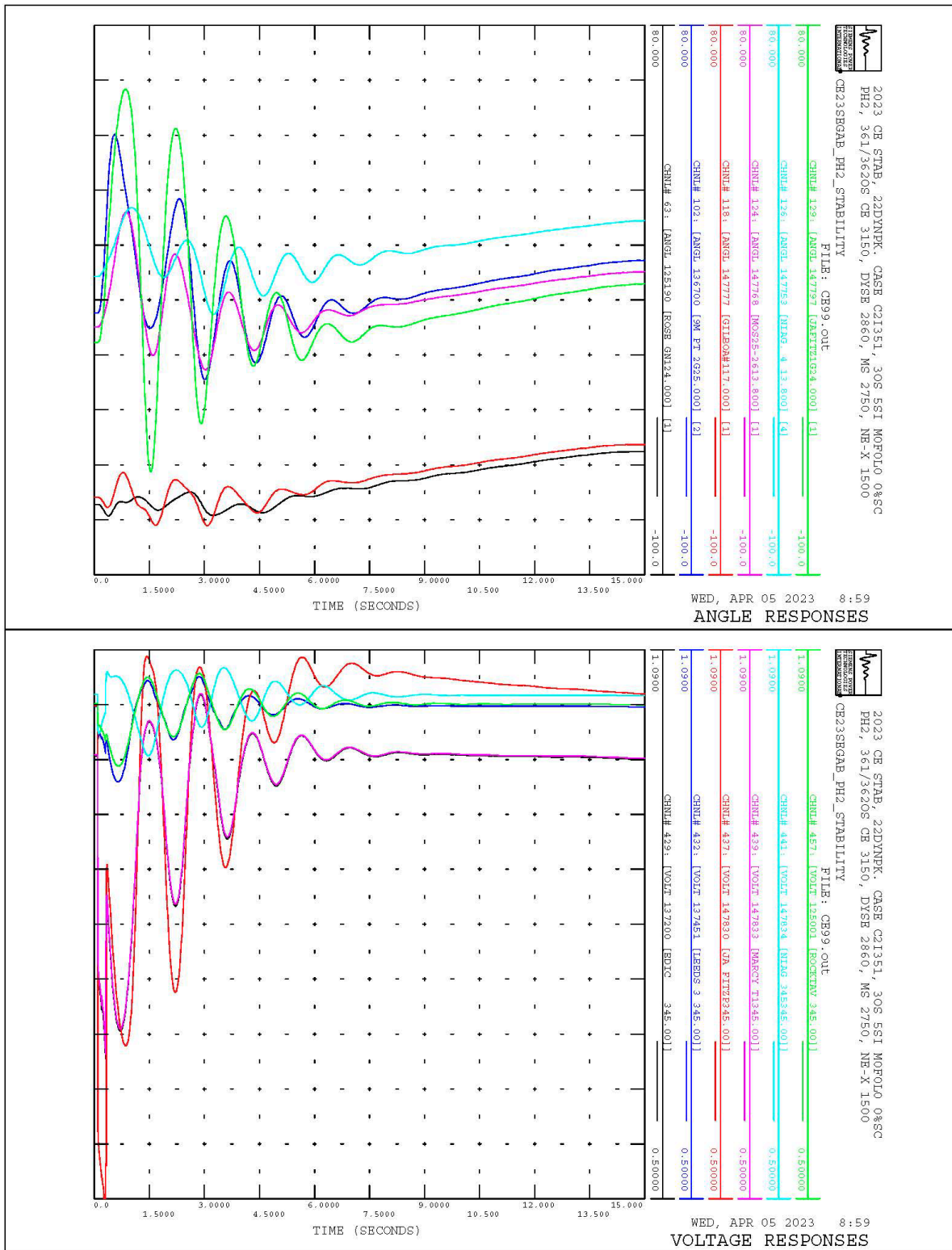


Figure 42: Case 3 Oswego, 5 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

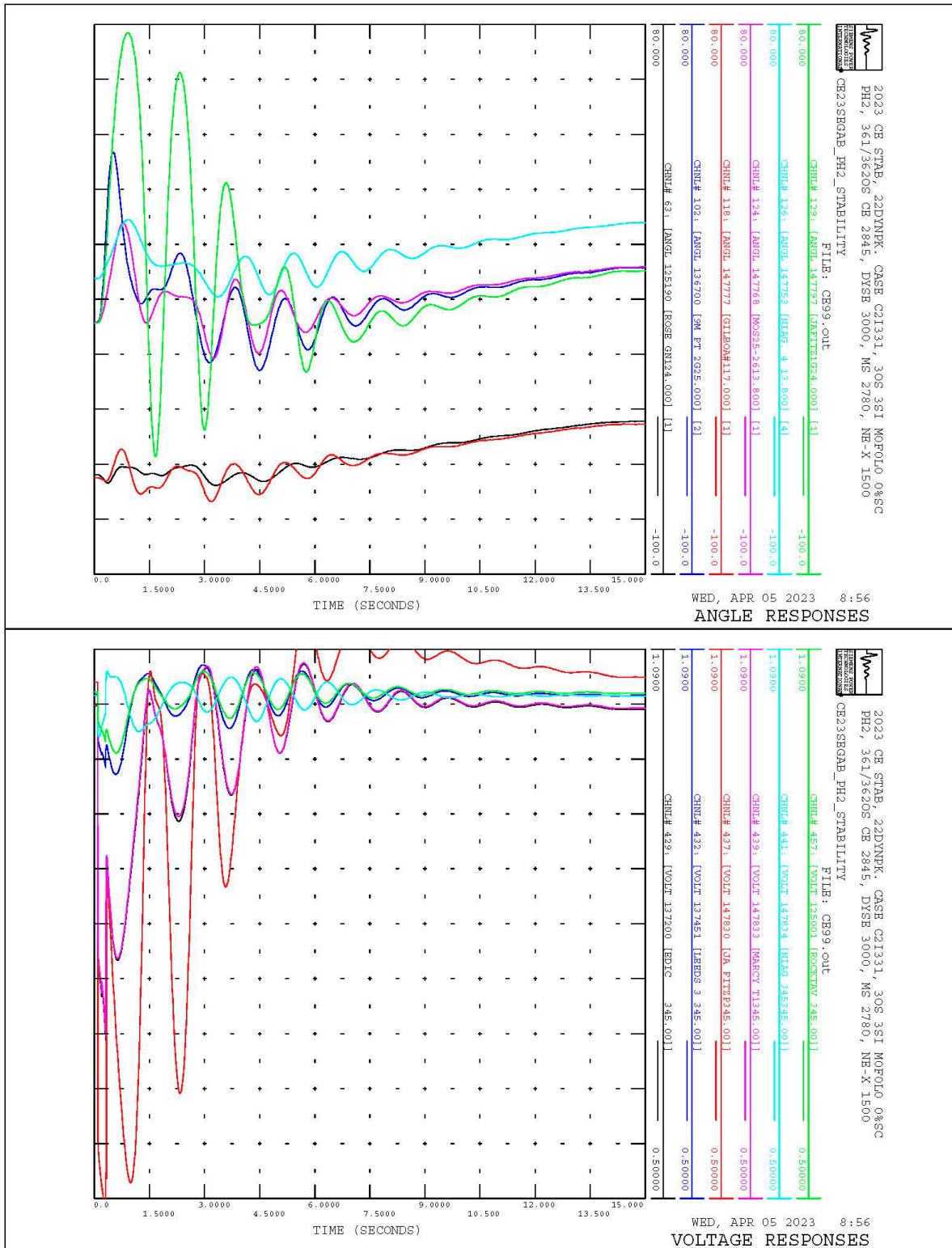


Figure 43: Case 3 Oswego, 3 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

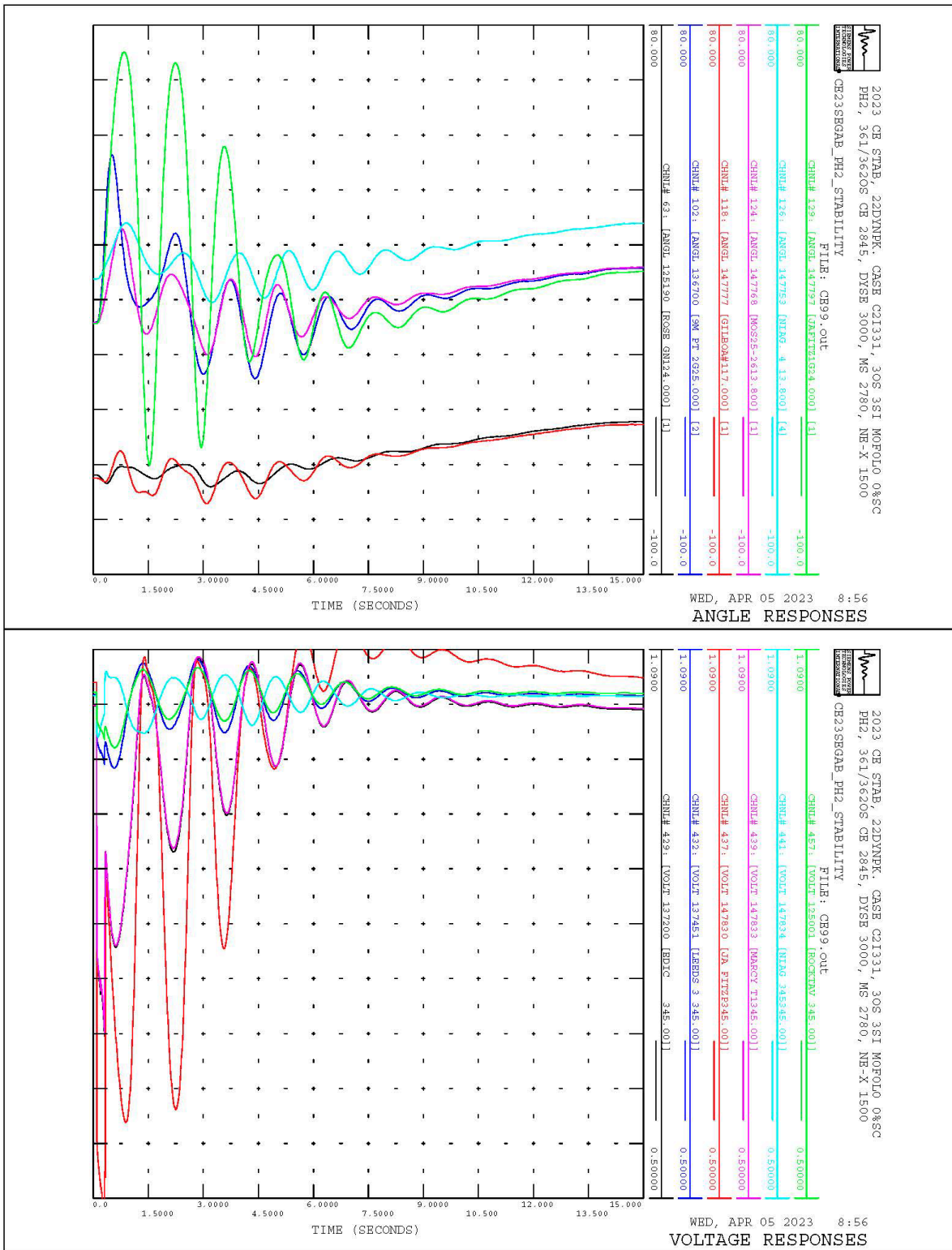


Figure 44: Case 3 Oswego, 3 Sithe, Marcy StatCom 0/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

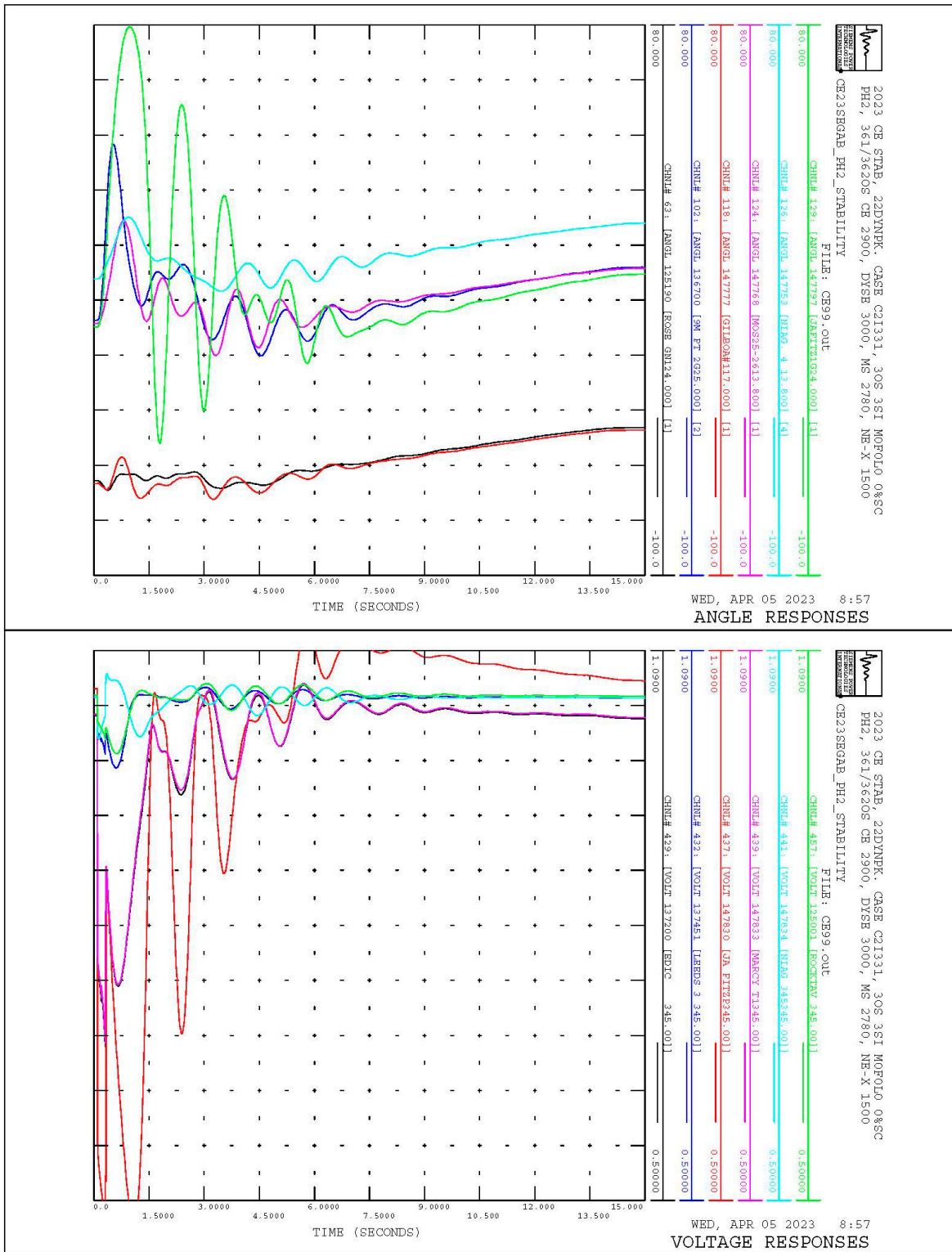


Figure 45: Case 3 Oswego, 3 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

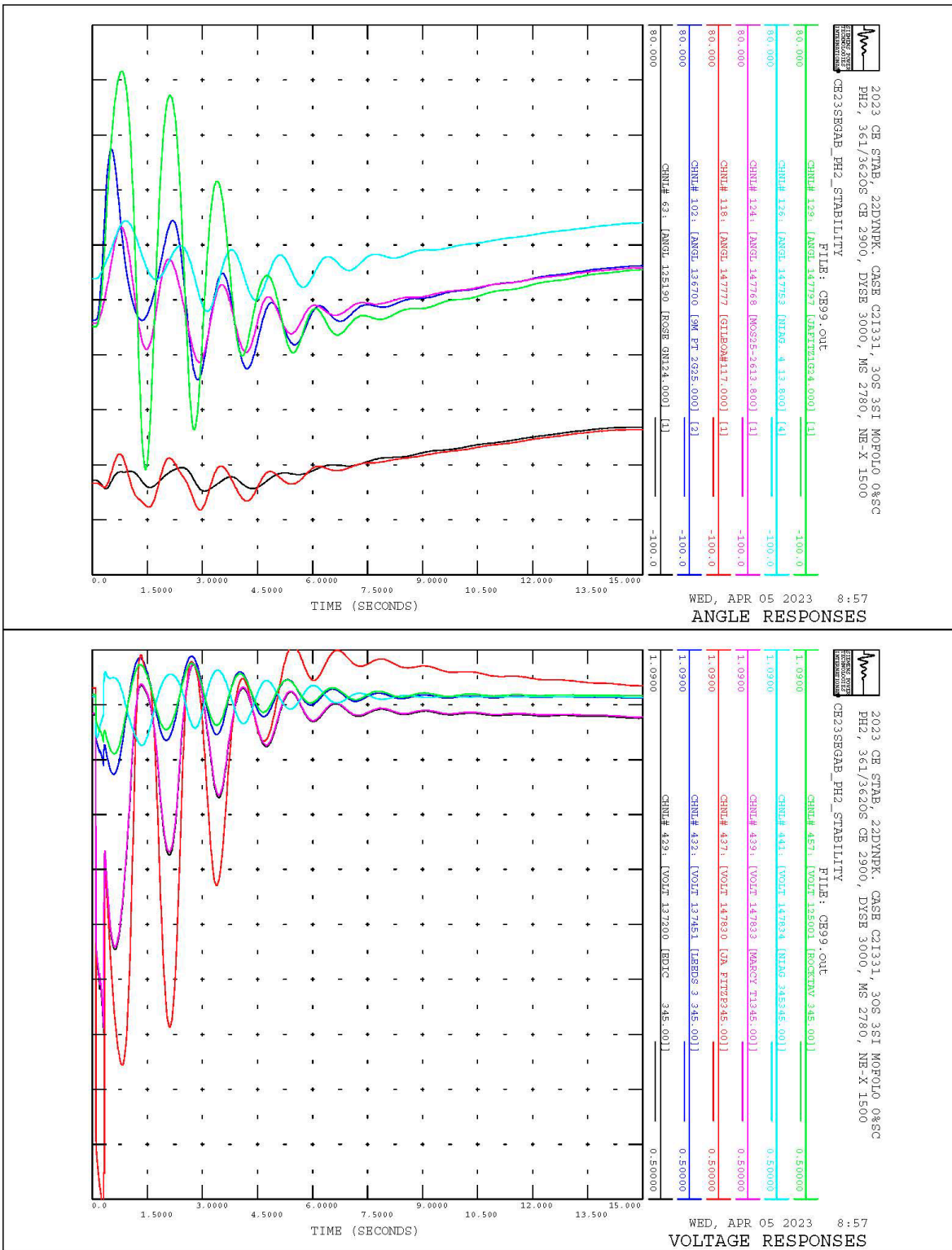


Figure 46: Case 3 Oswego, 3 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

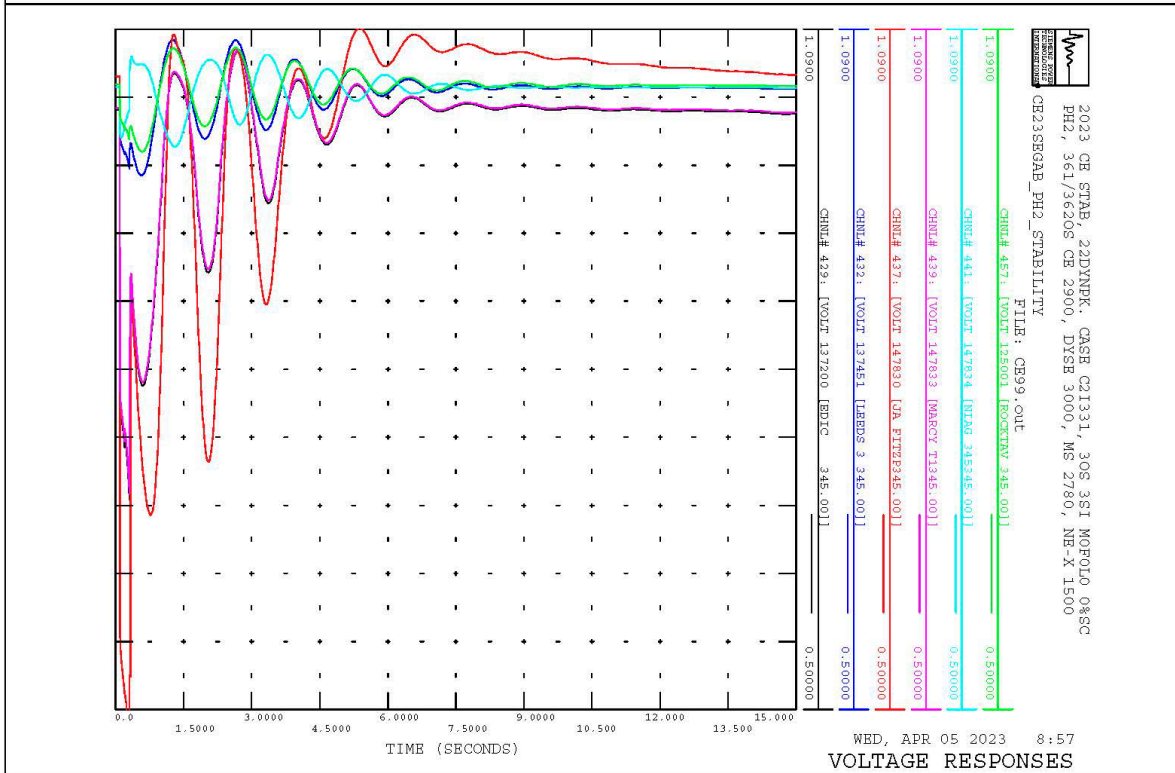
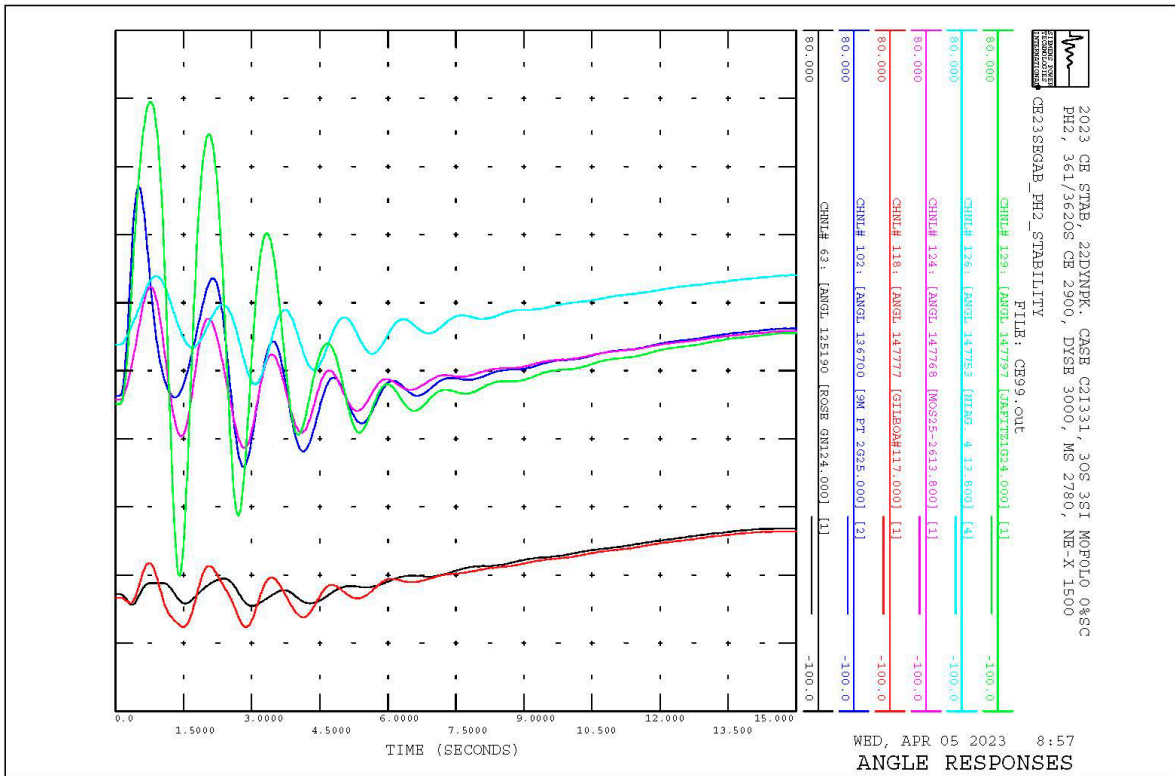


Figure 47: Case 3 Oswego, 3 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

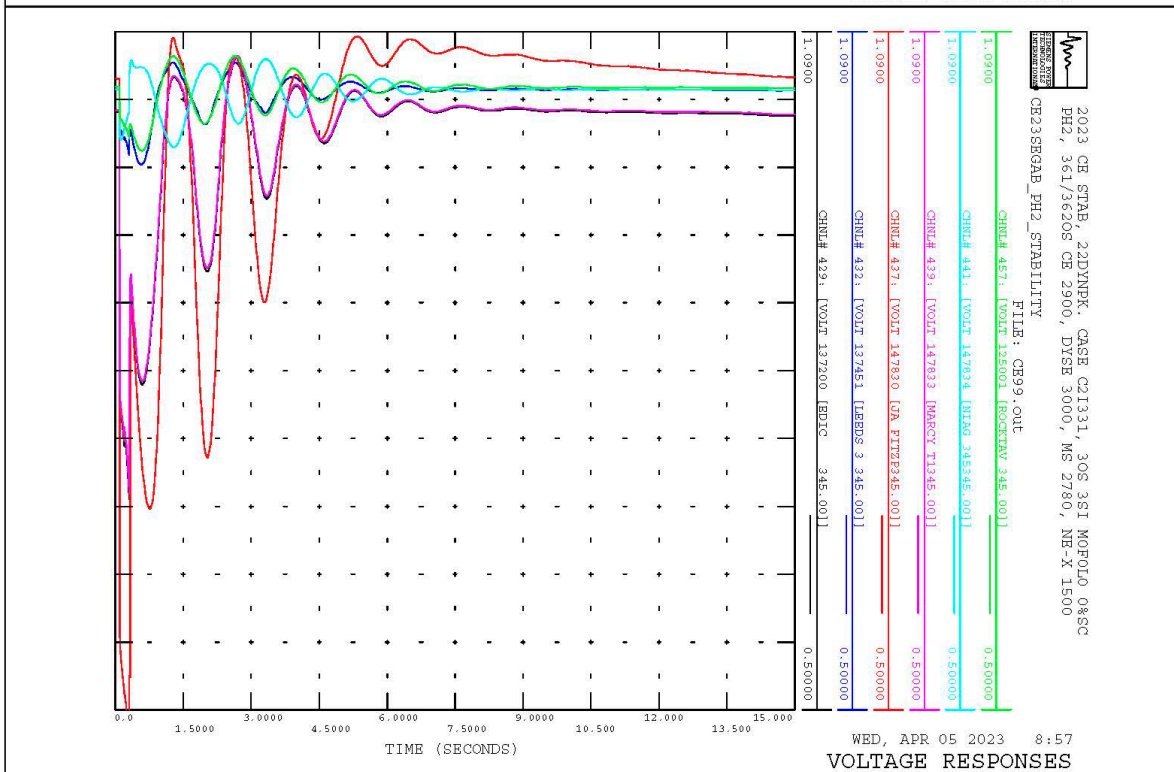
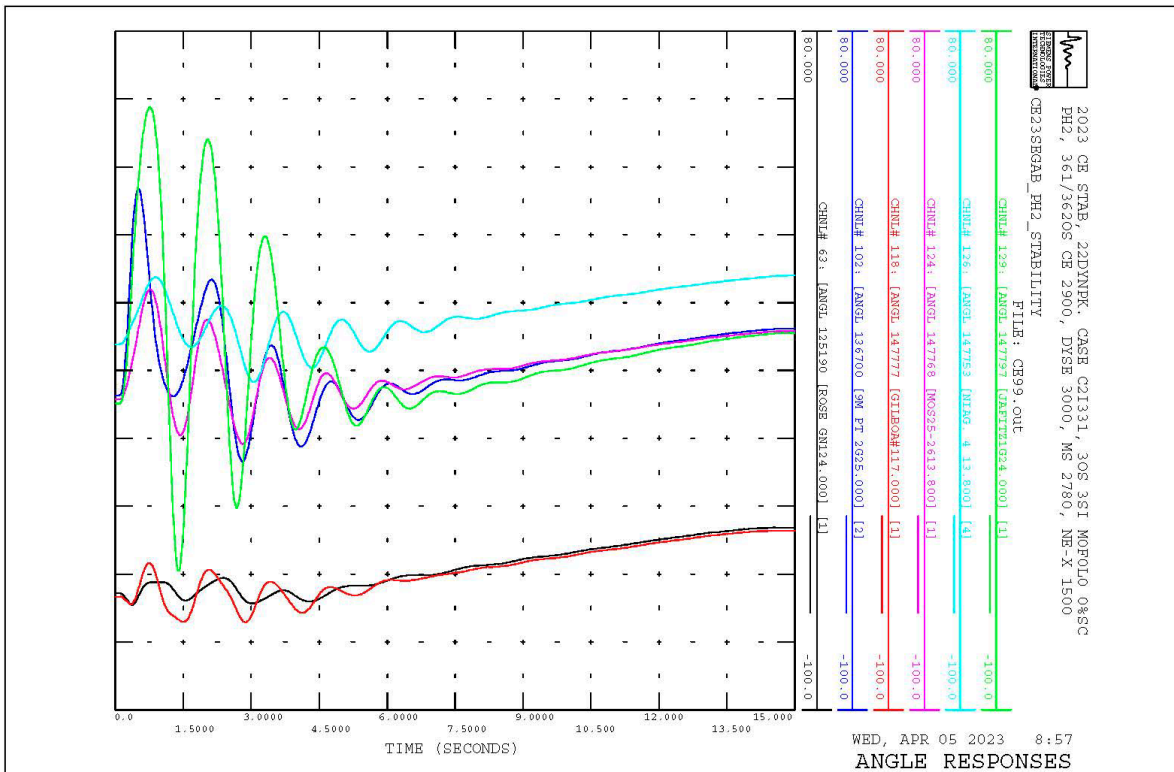


Figure 48: Case 3 Oswego, 3 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

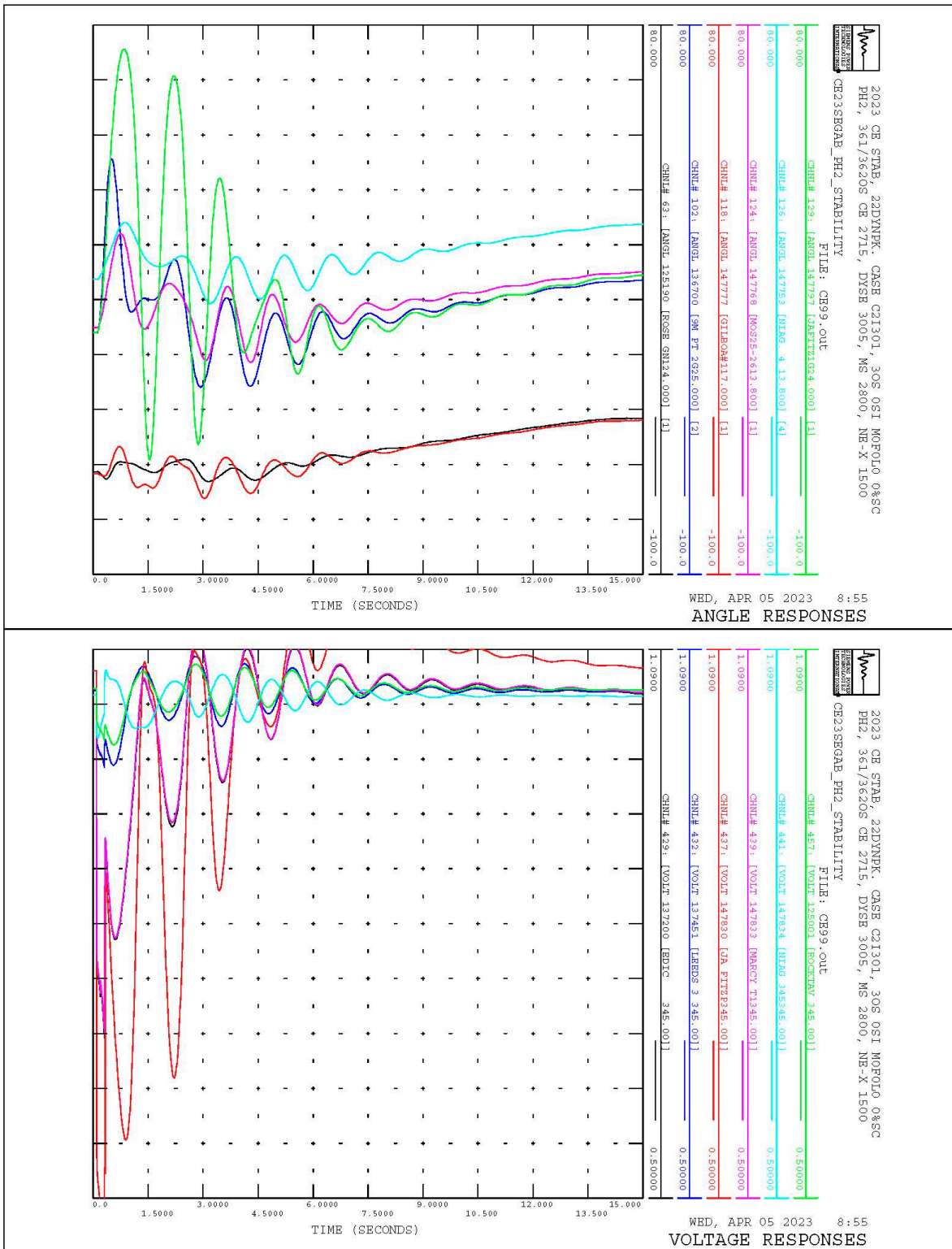


Figure 49: Case 3 Oswego, 0 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

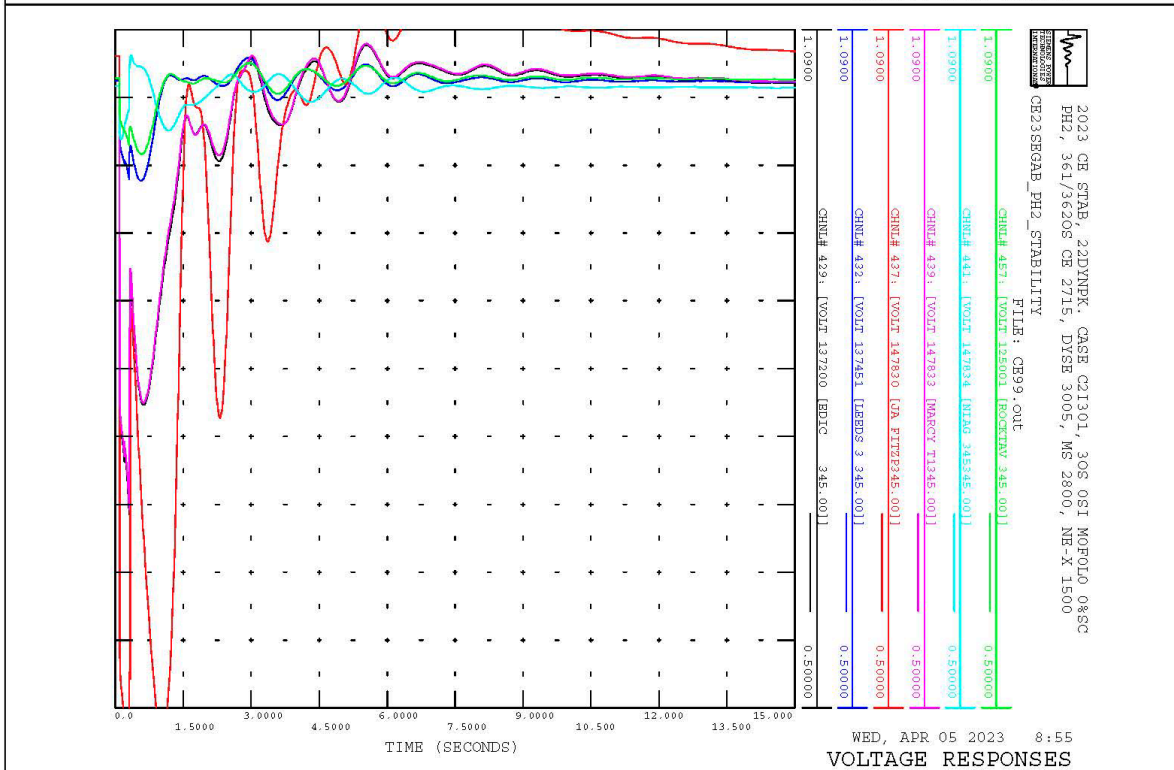
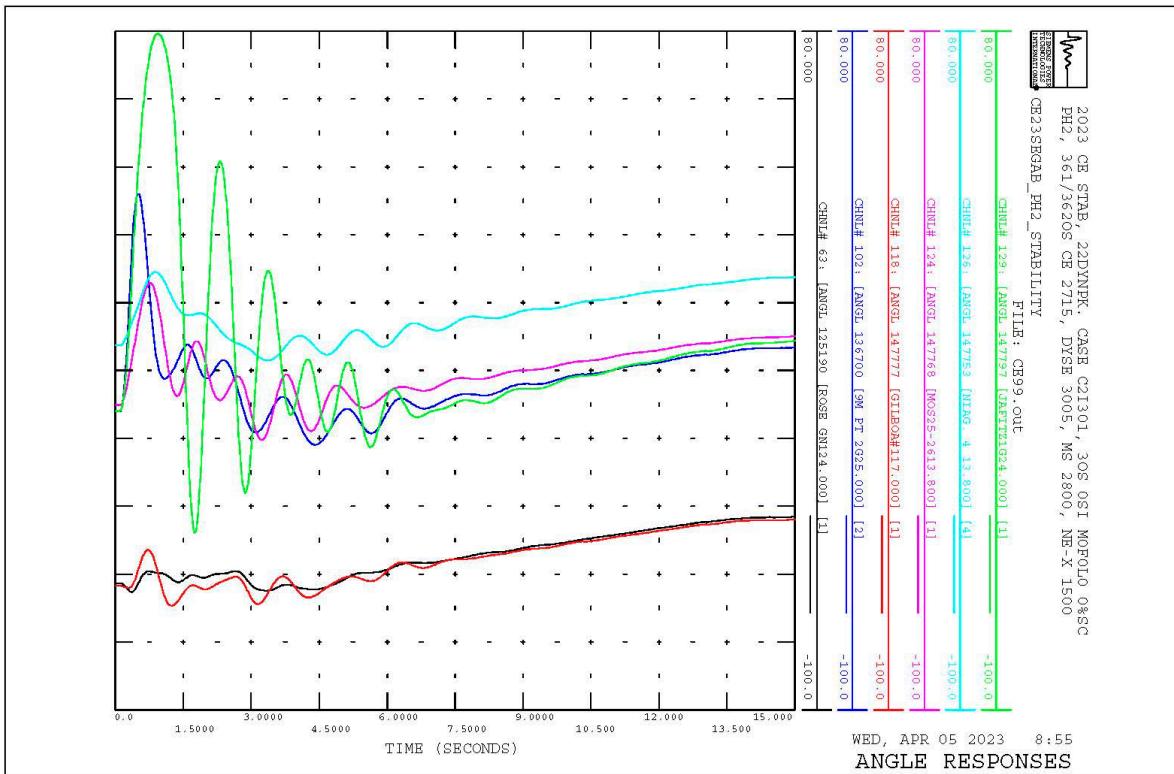


Figure 50: Case 3 Oswego, 0 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

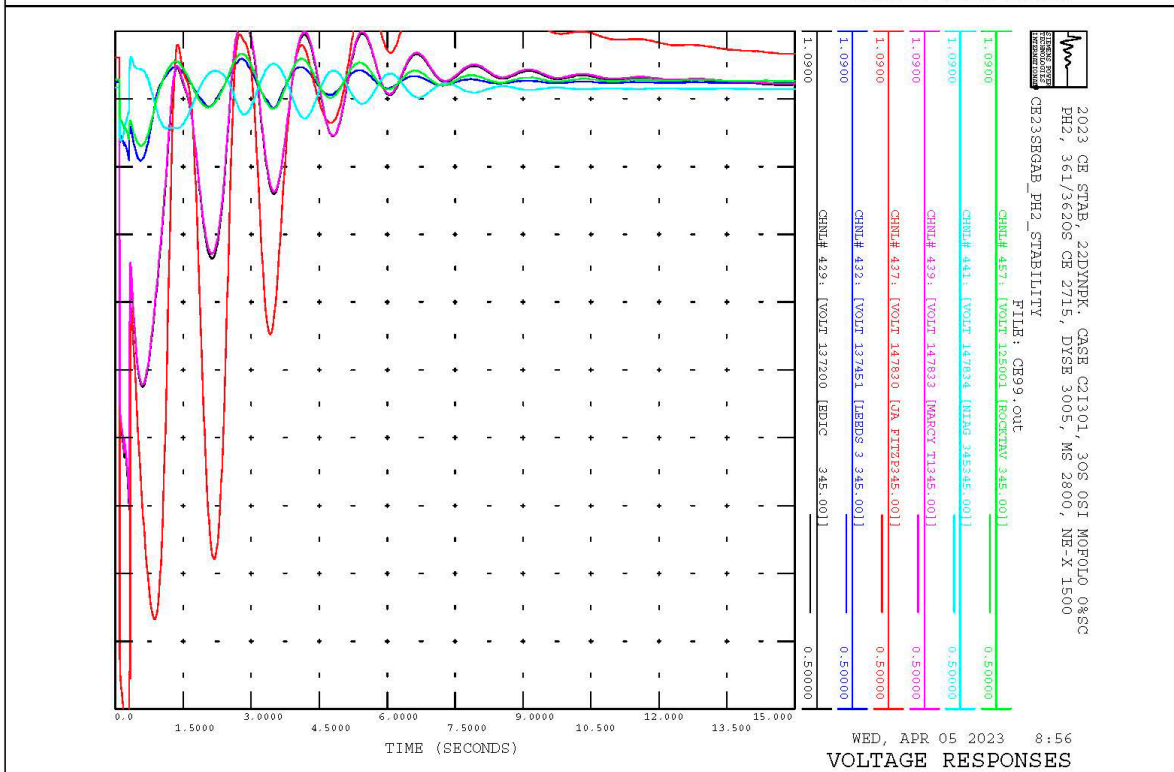
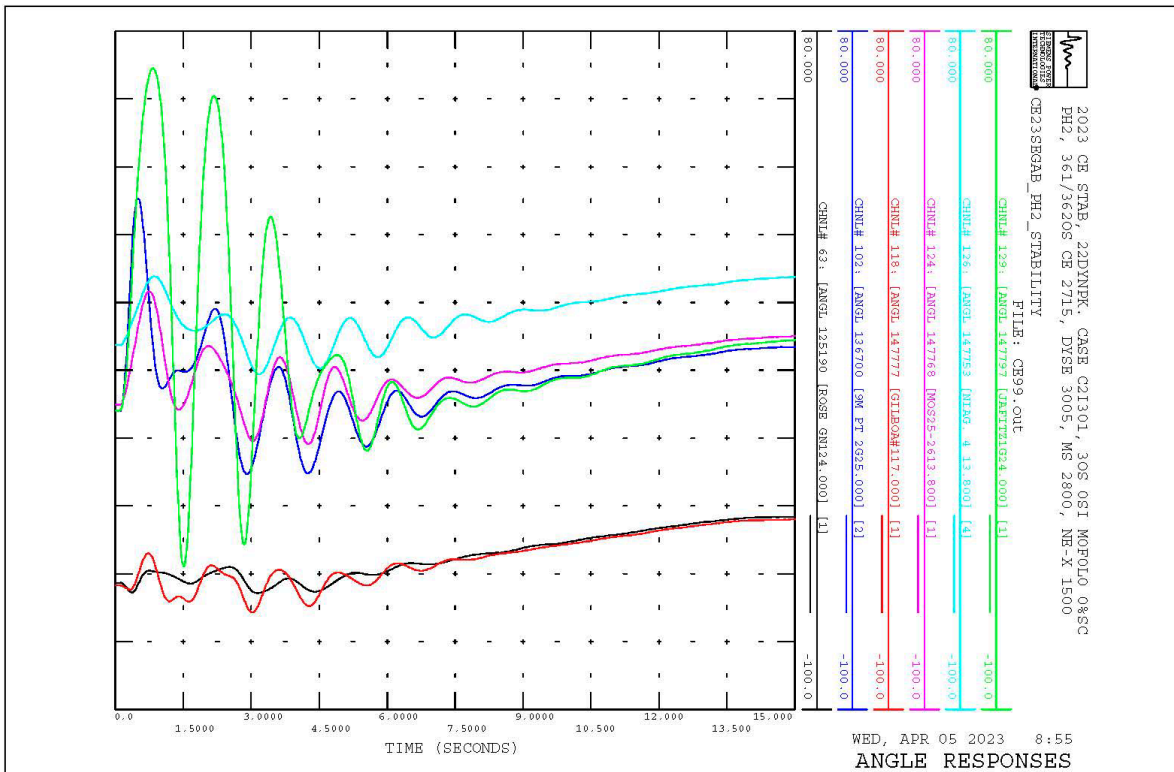


Figure 51: Case 3 Oswego, 0 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

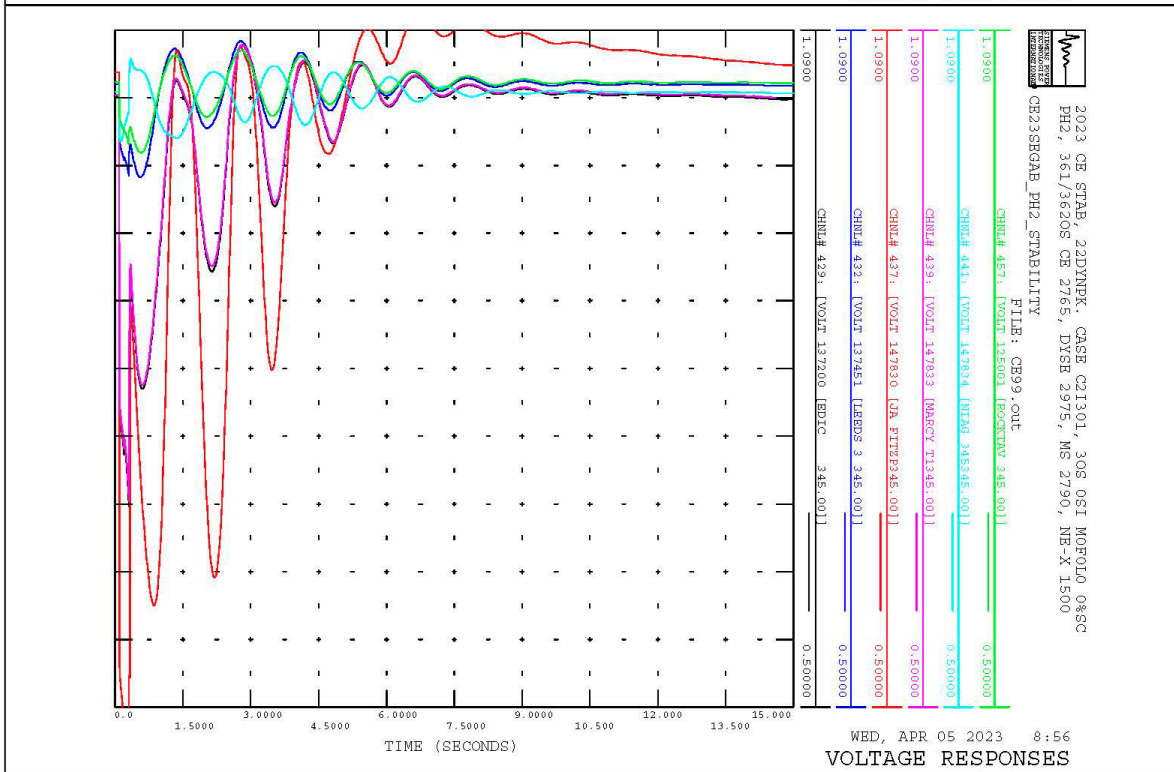
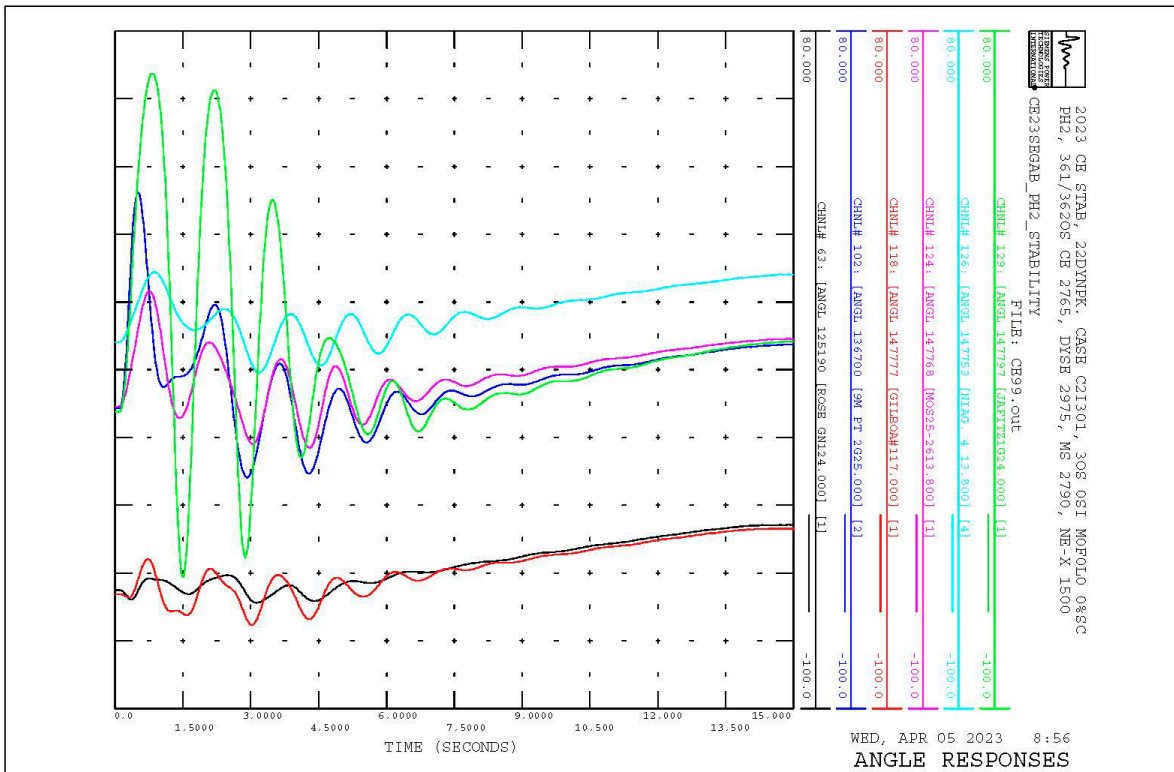


Figure 52: Case 3 Oswego, 0 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

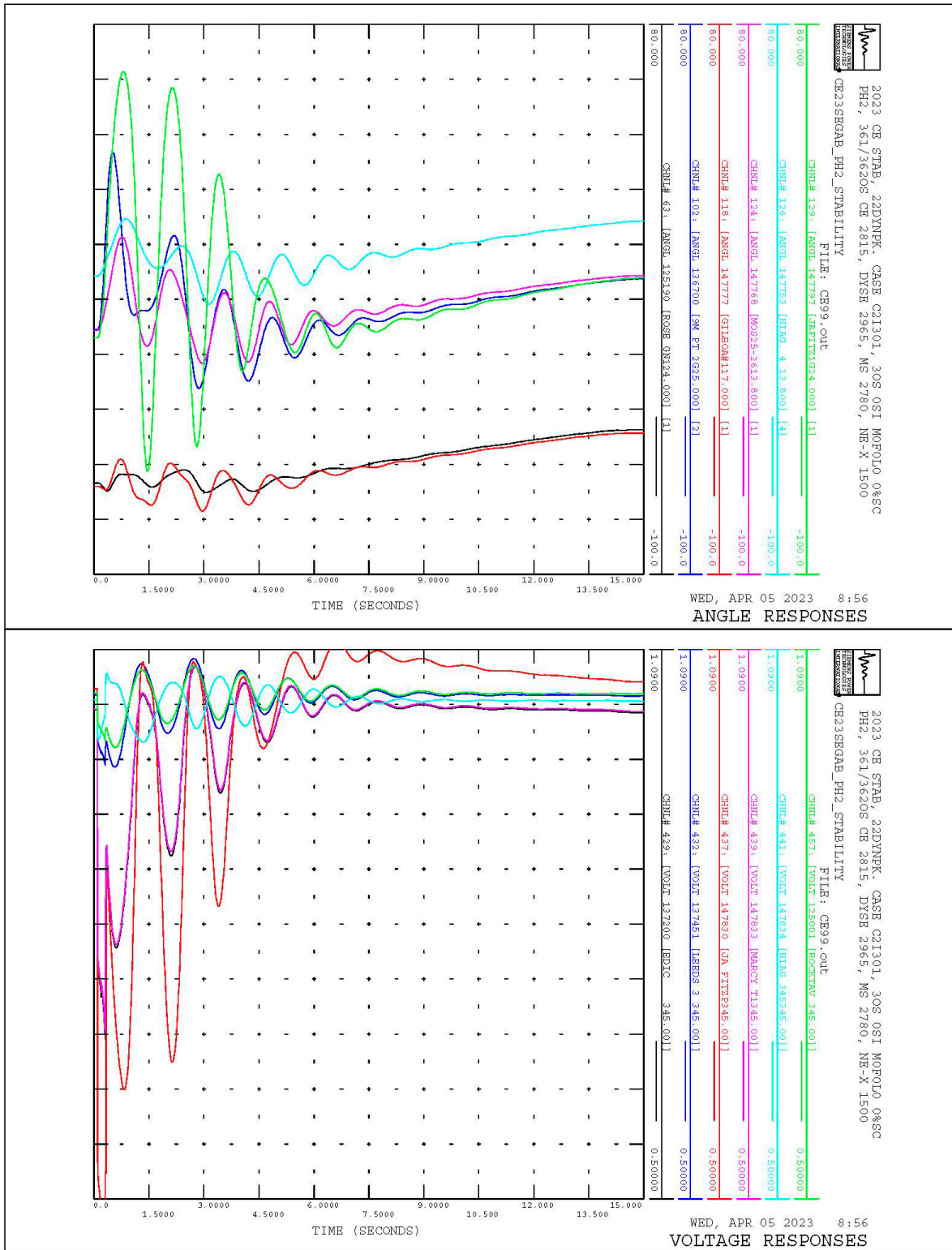


Figure 53: Case 3 Oswego, 0 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

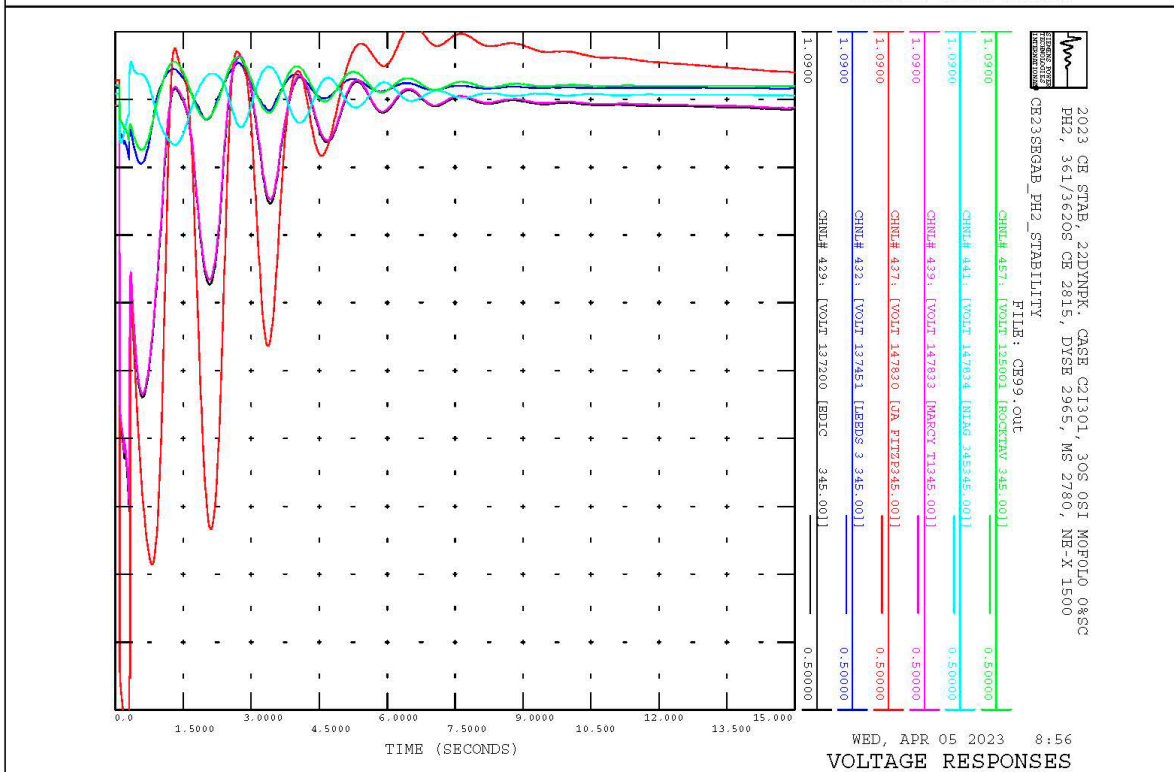
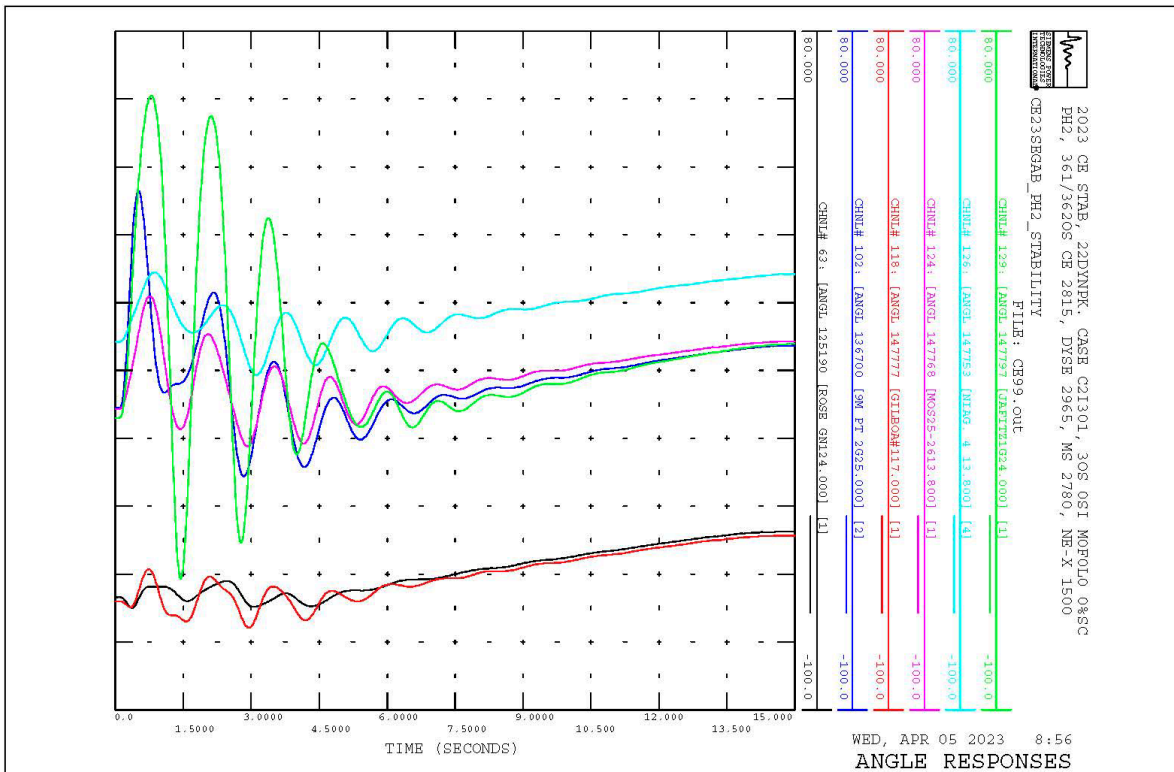


Figure 54: Case 3 Oswego, 0 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

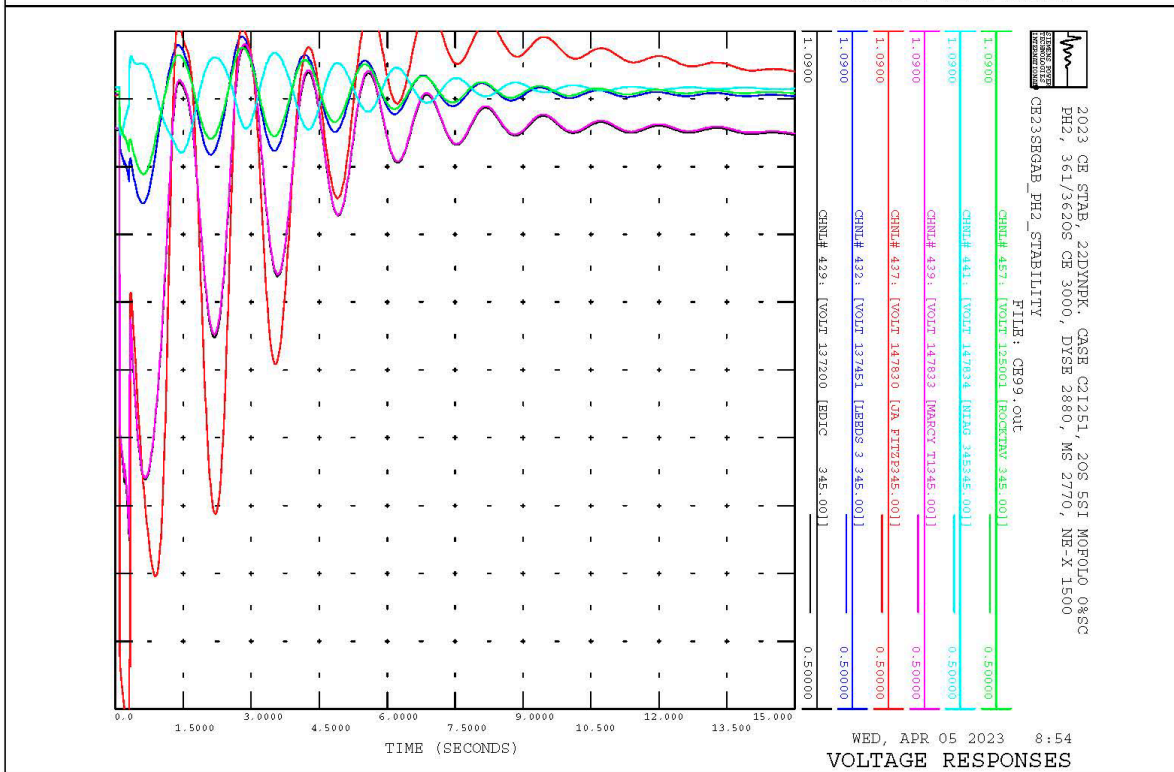
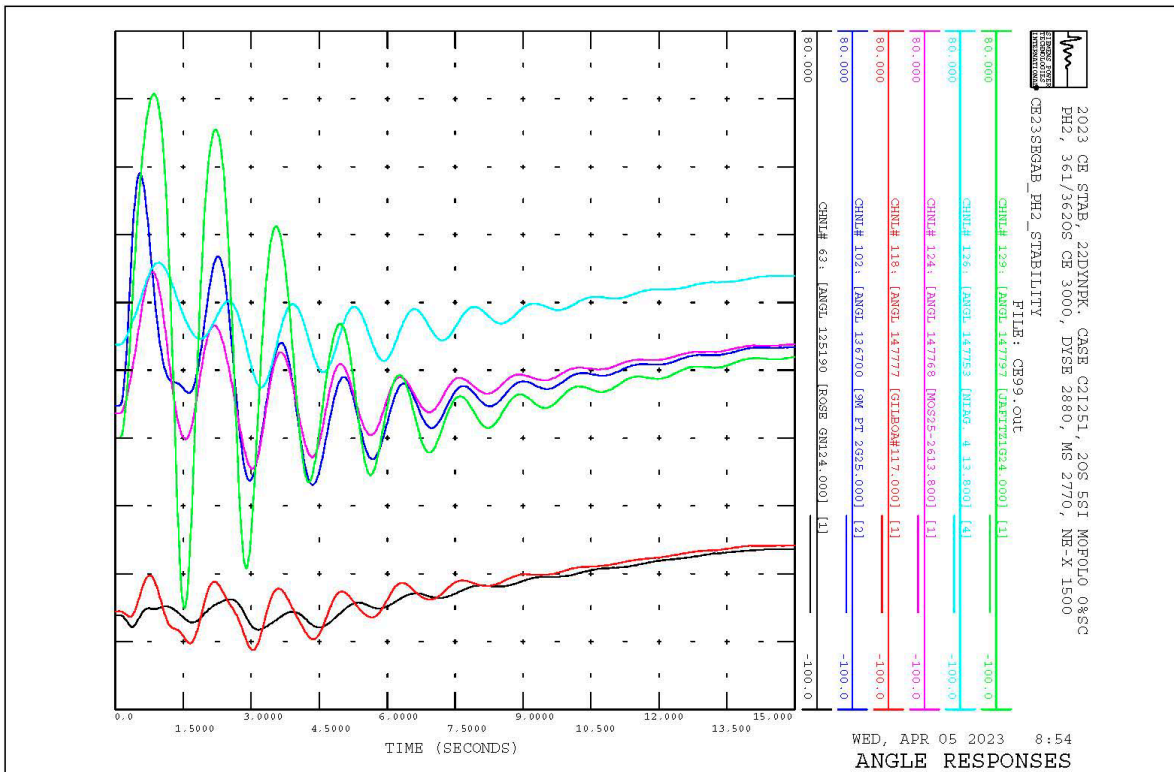


Figure 55: Case 2 Oswego, 5 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

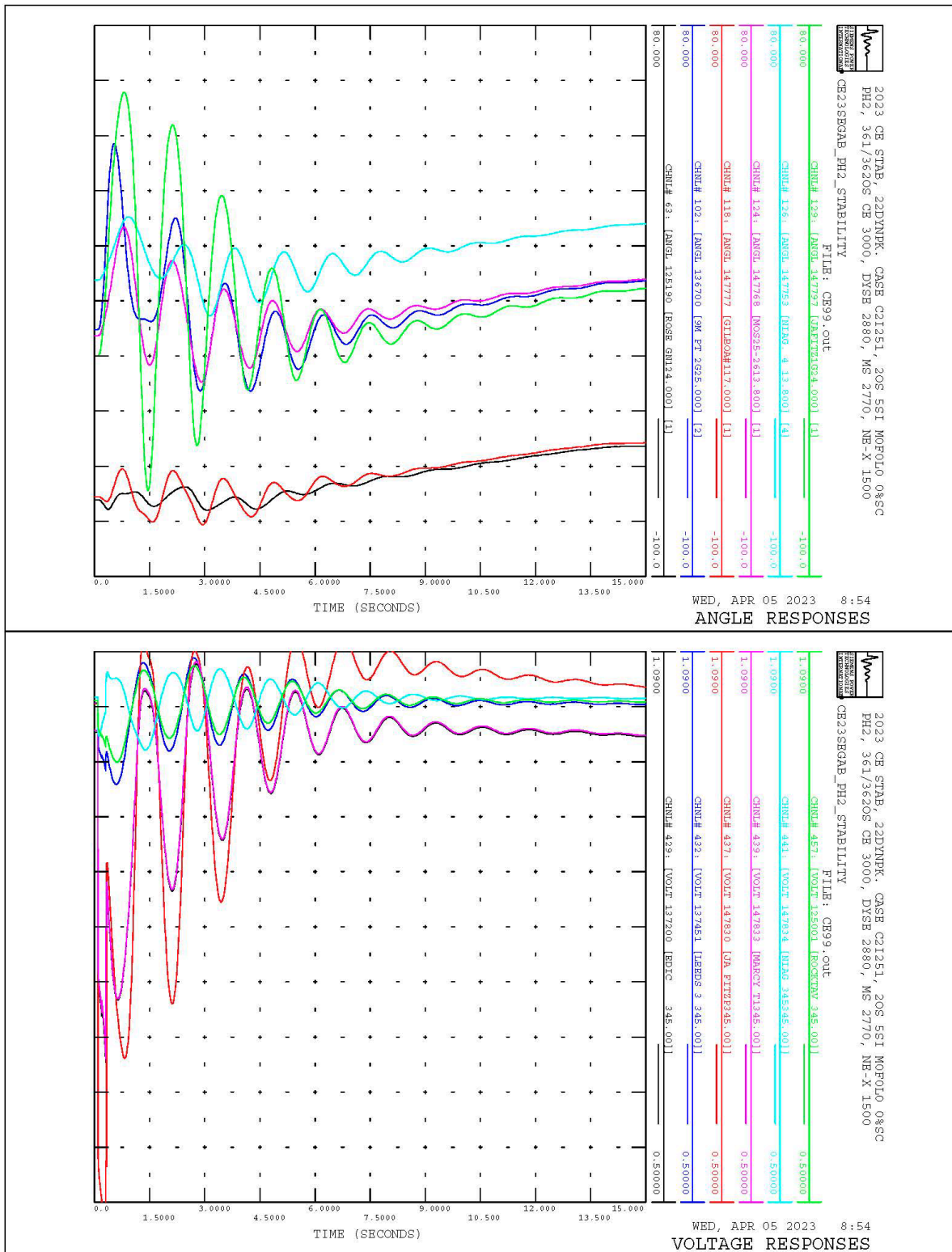


Figure 56: Case 2 Oswego, 5 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

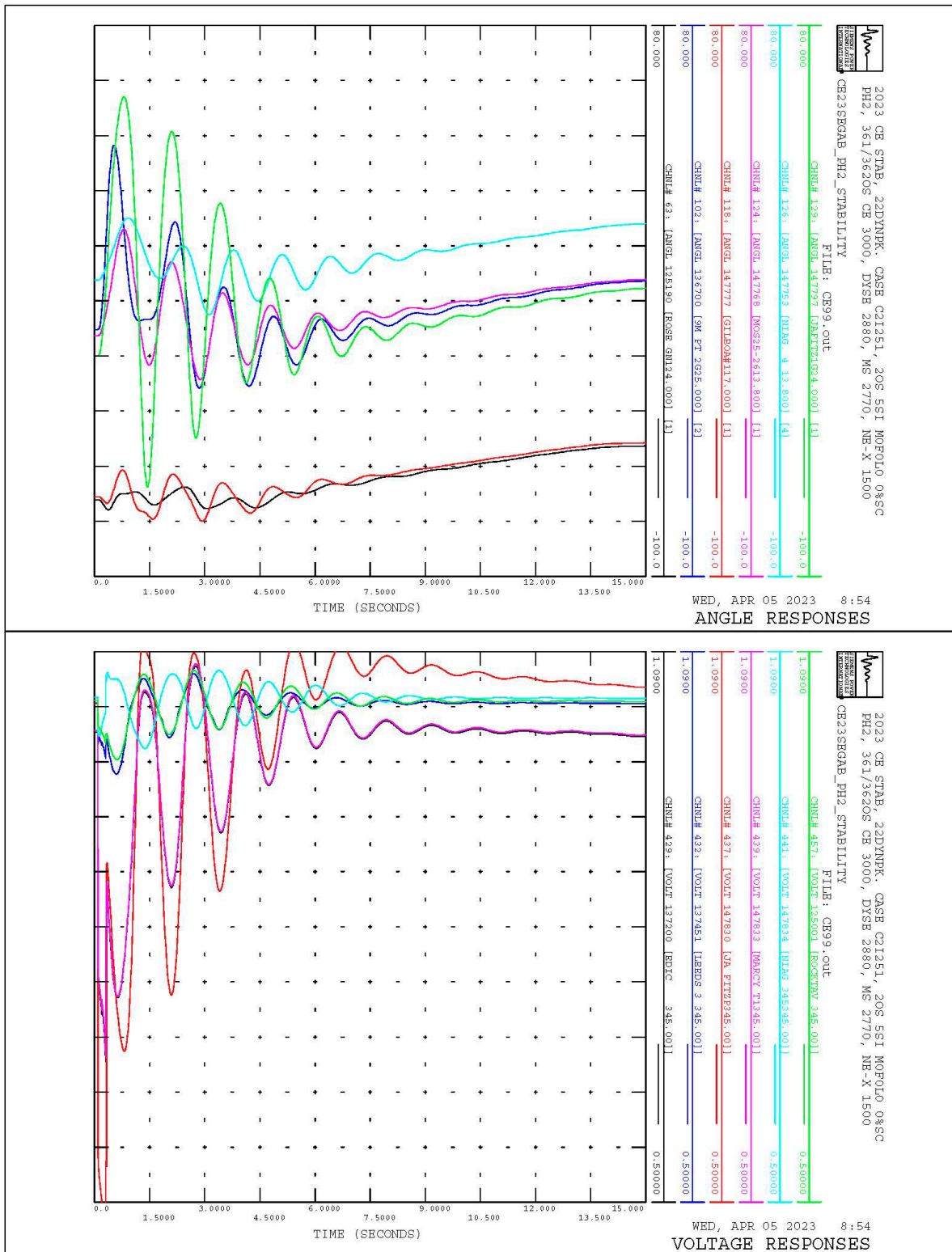


Figure 57: Case 2 Oswego, 5 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

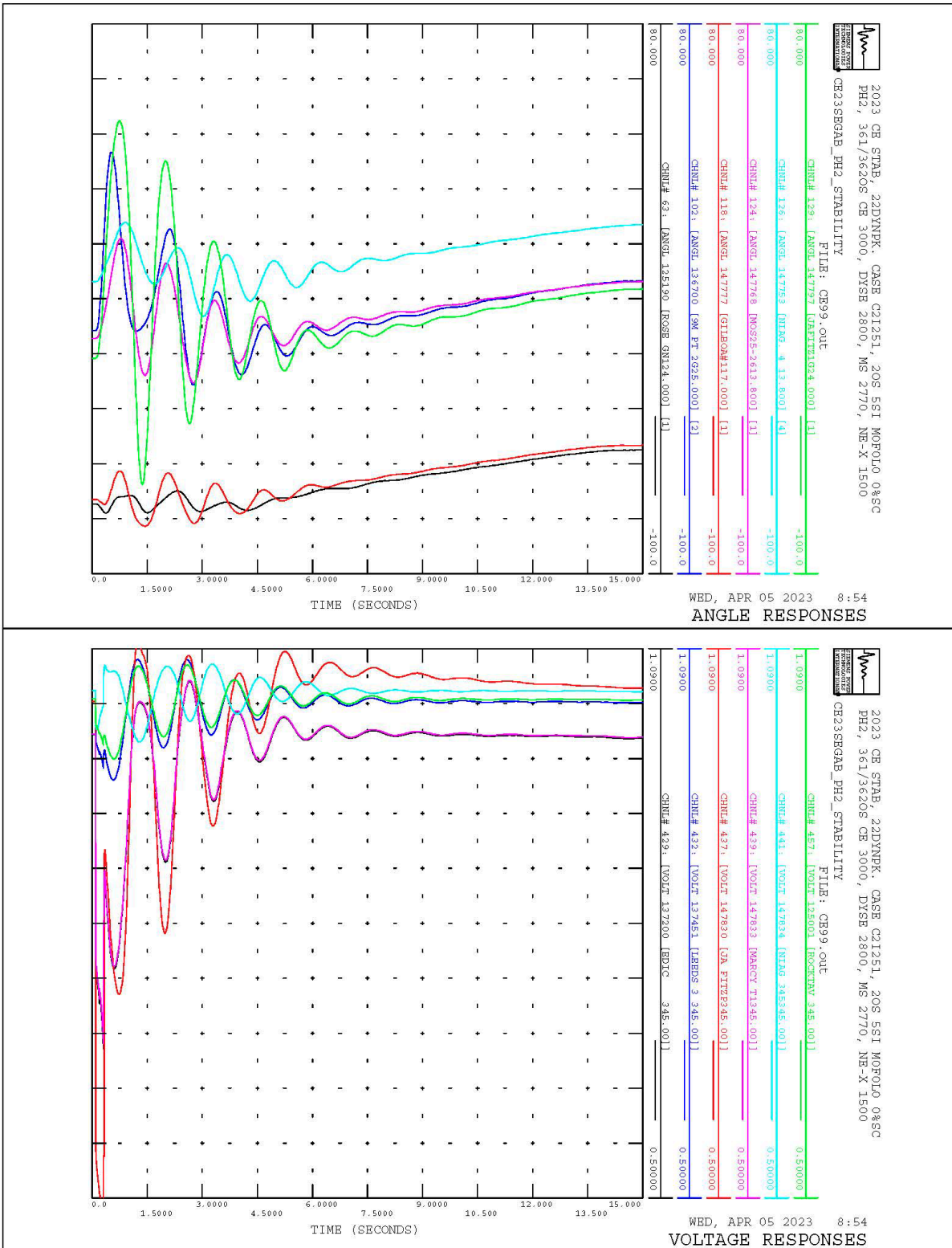


Figure 58: Case 2 Oswego, 5 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

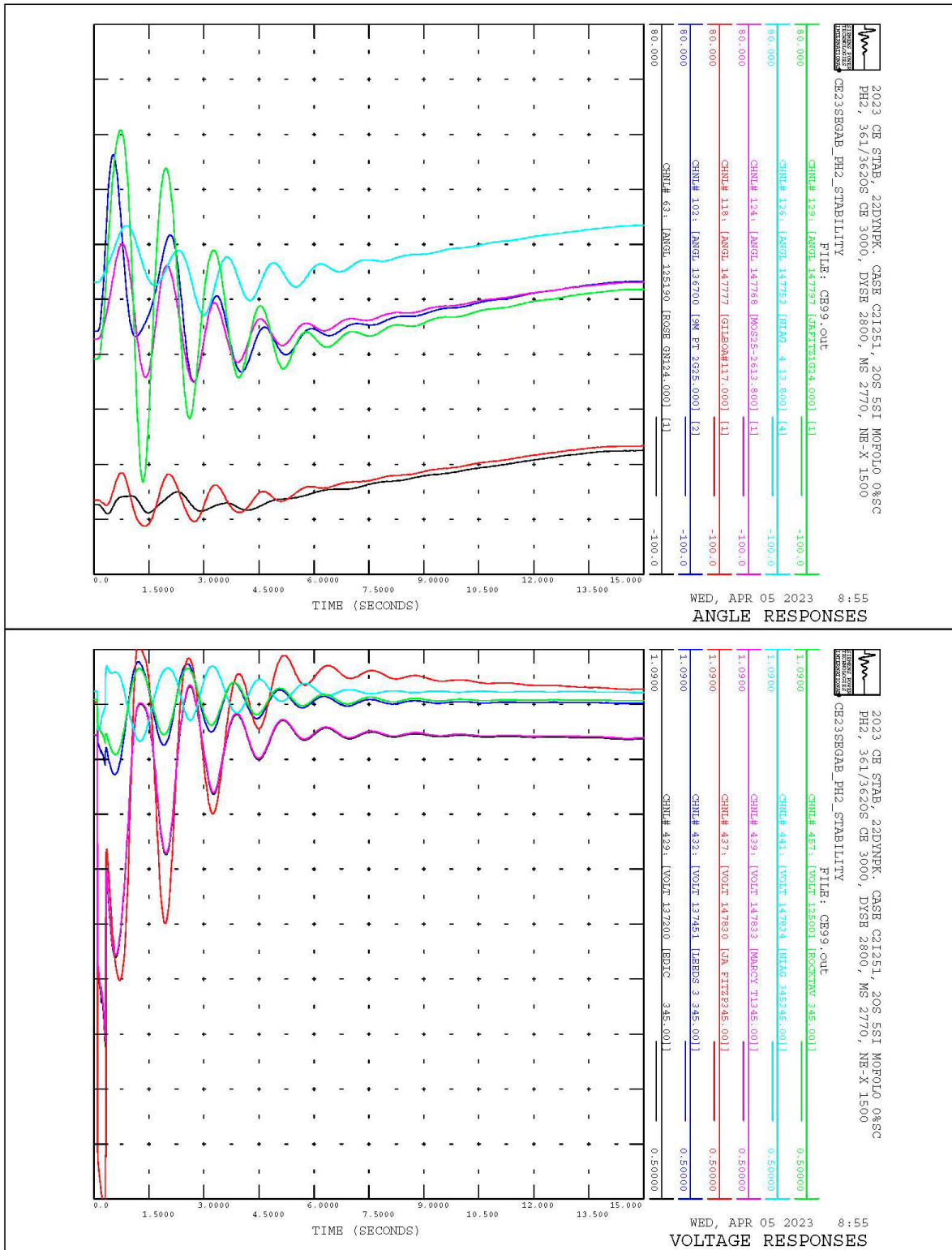


Figure 59: Case 2 Oswego, 5 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

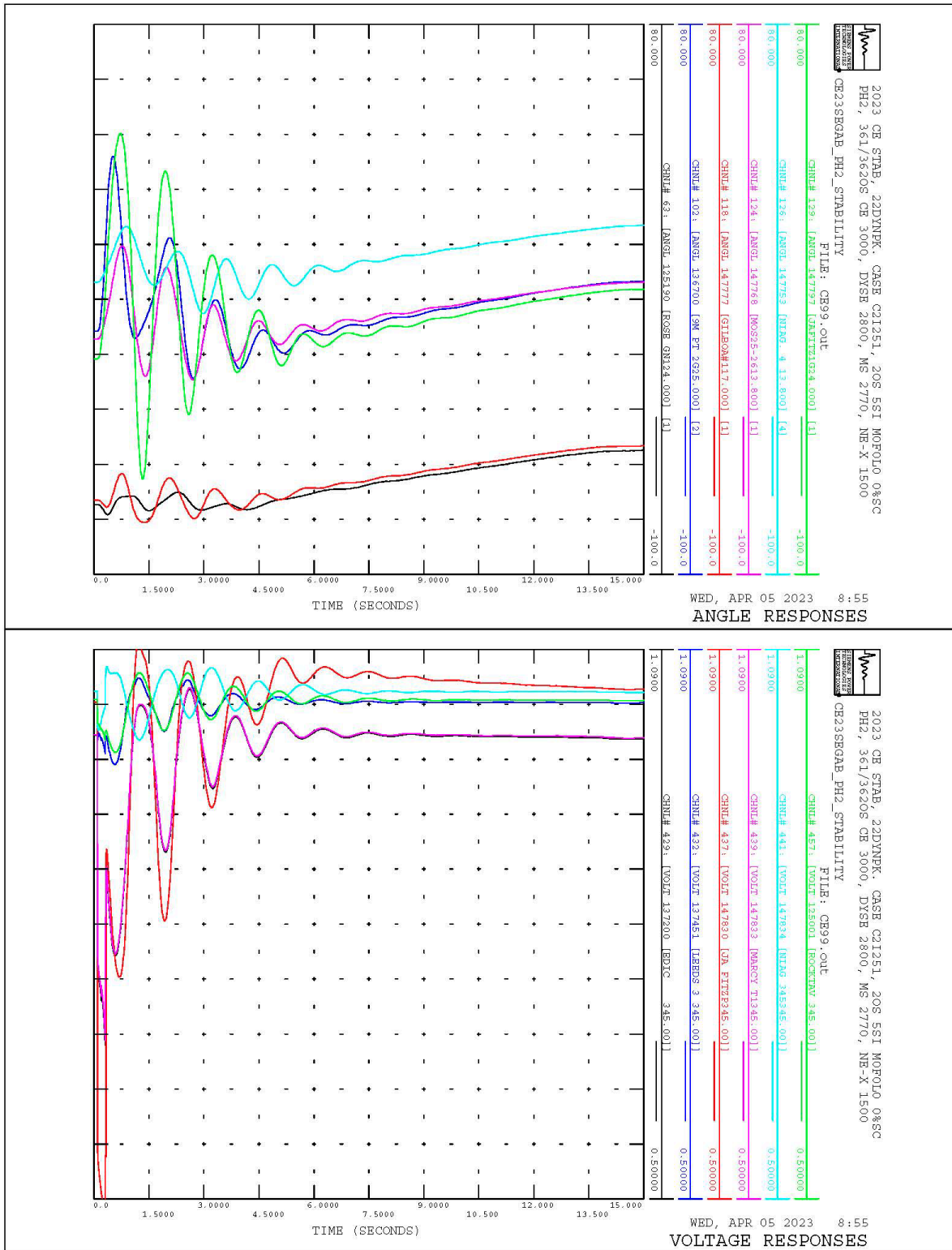


Figure 60: Case 2 Oswego, 5 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

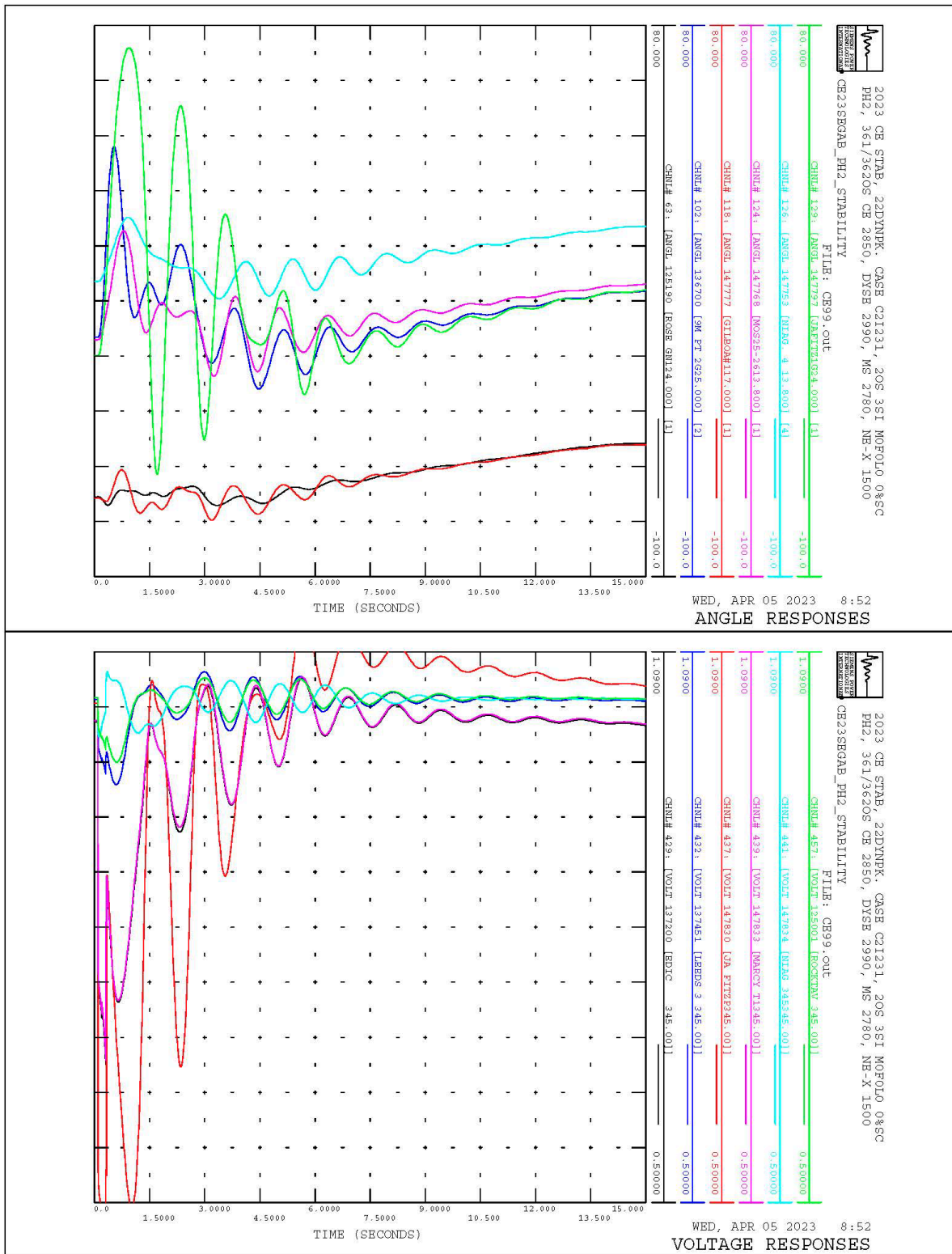


Figure 61: Case 2 Oswego, 3 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

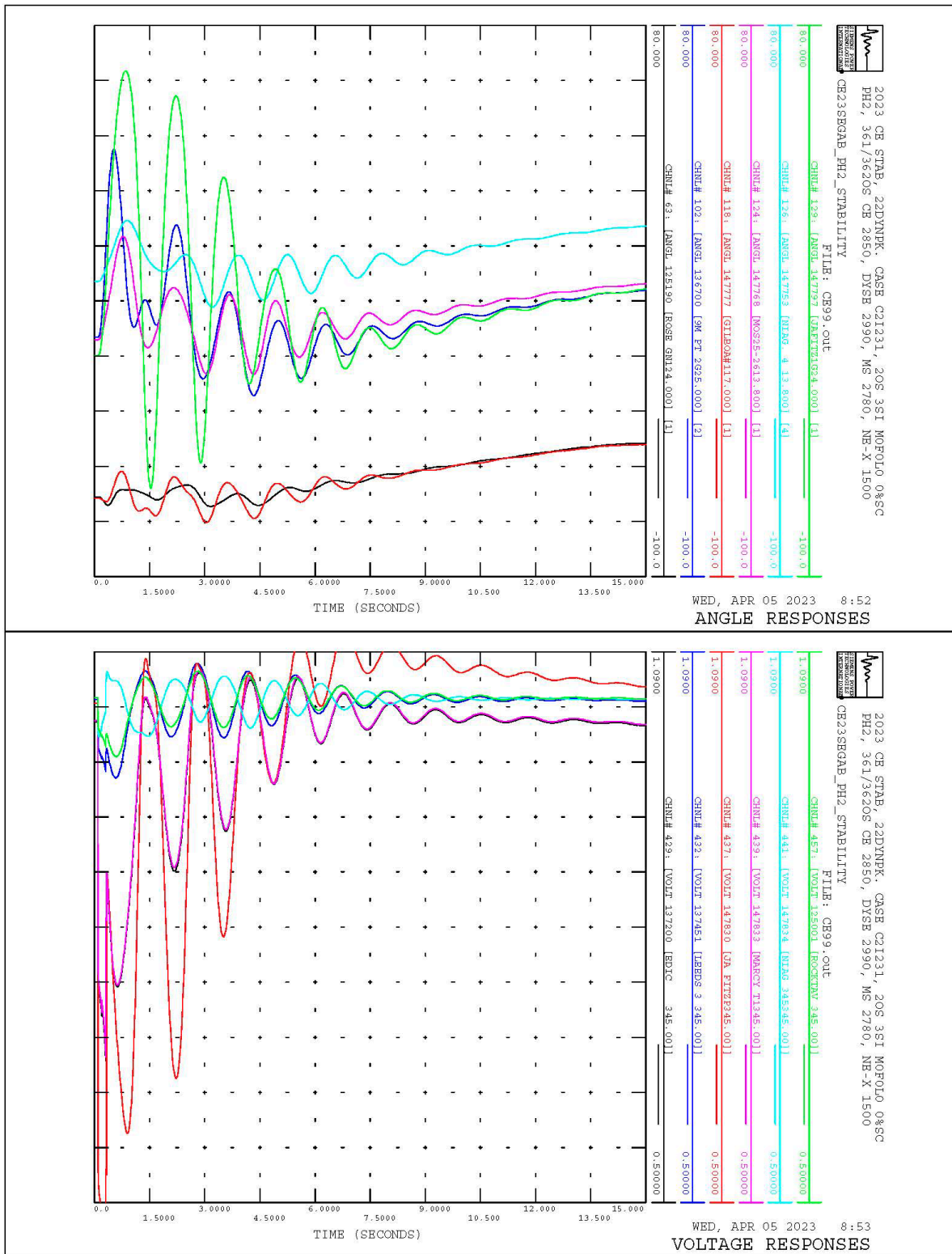


Figure 62: Case 2 Oswego, 3 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

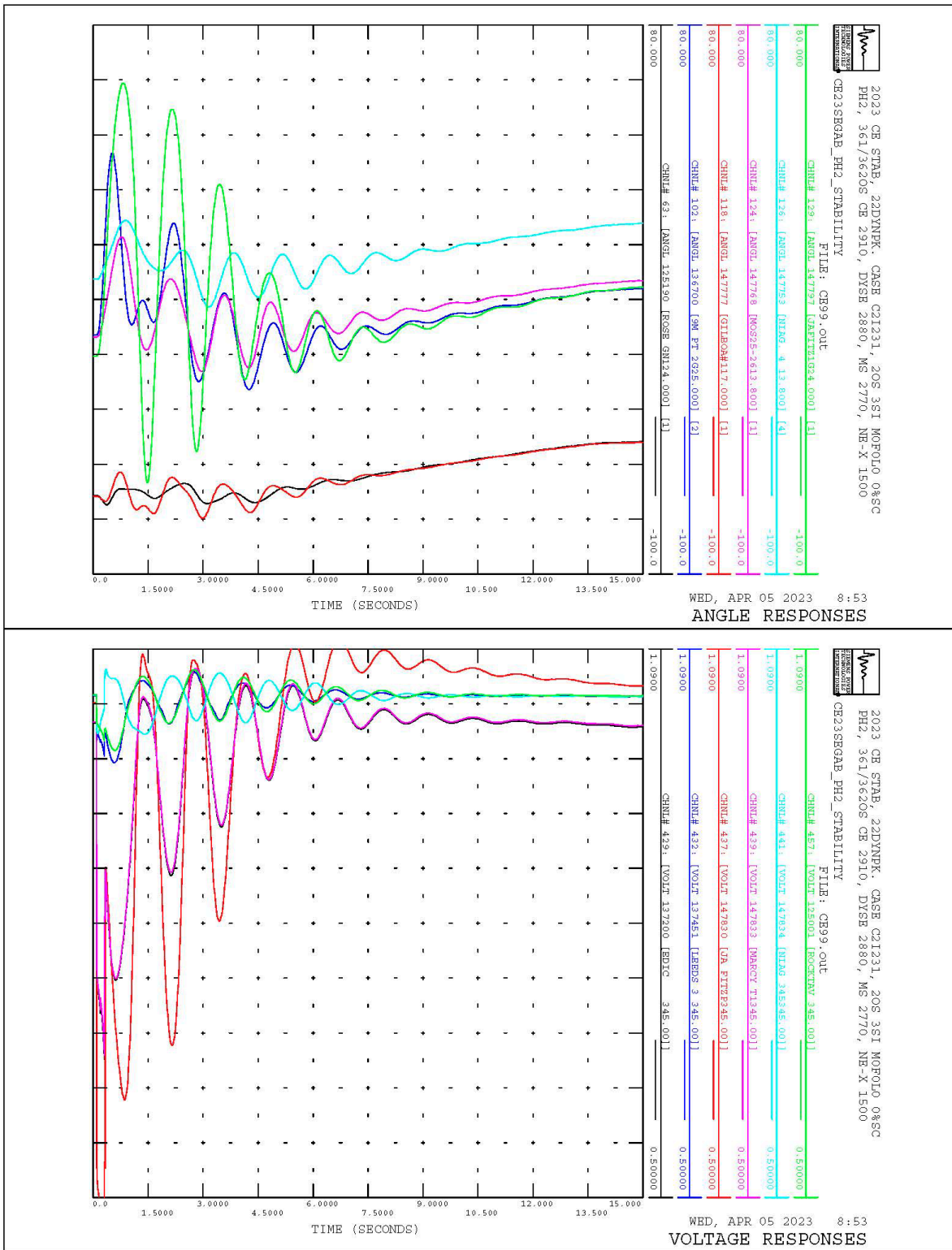


Figure 63: Case 2 Oswego, 3 Sithe, Marcy StatCom 0/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

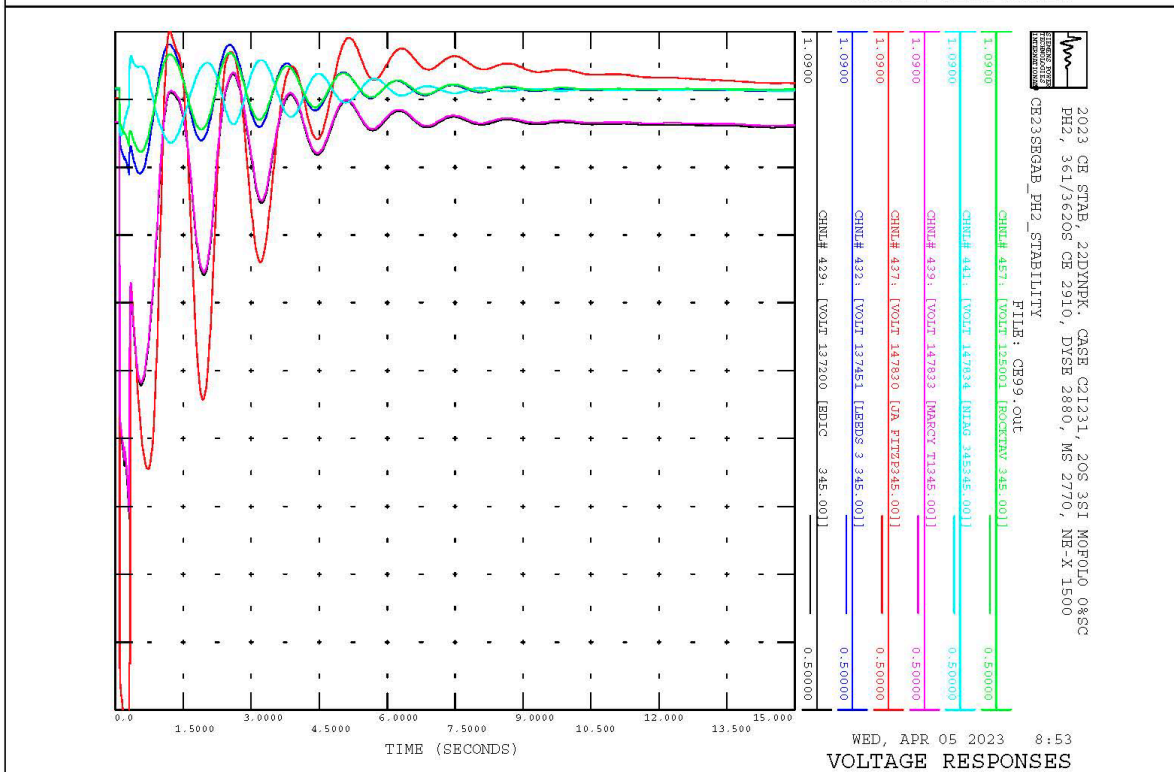
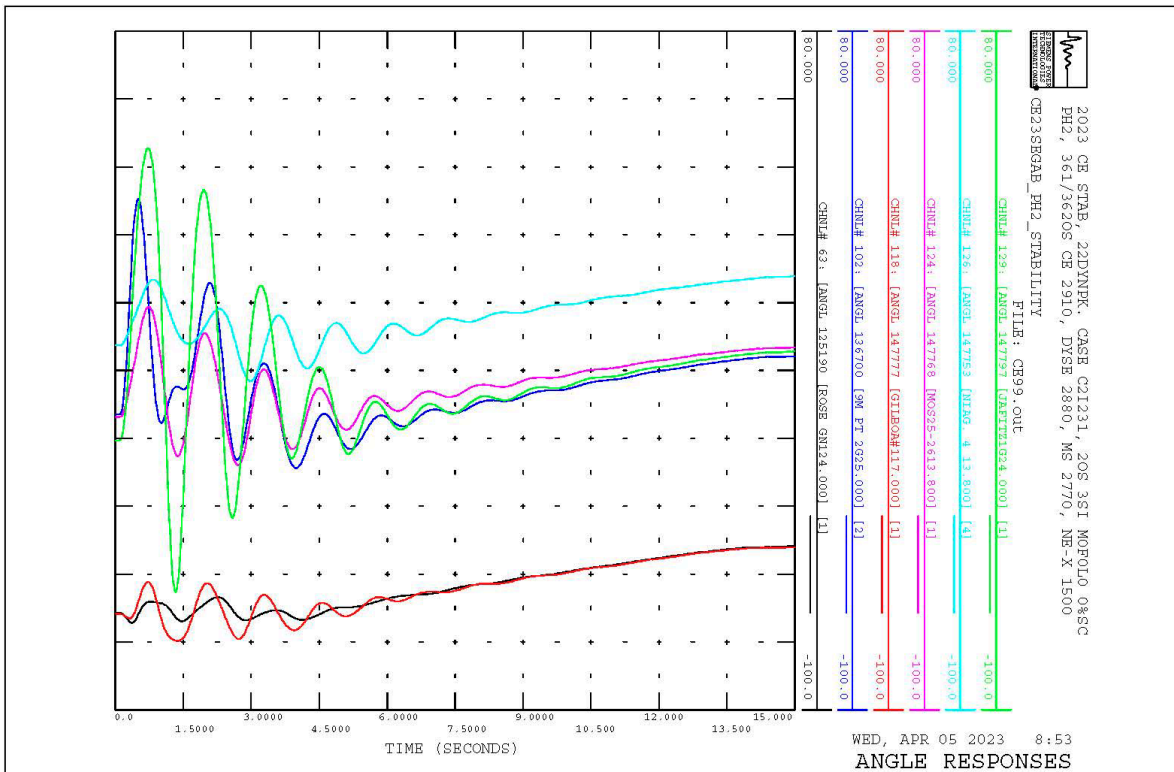


Figure 65: Case 2 Oswego, 3 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

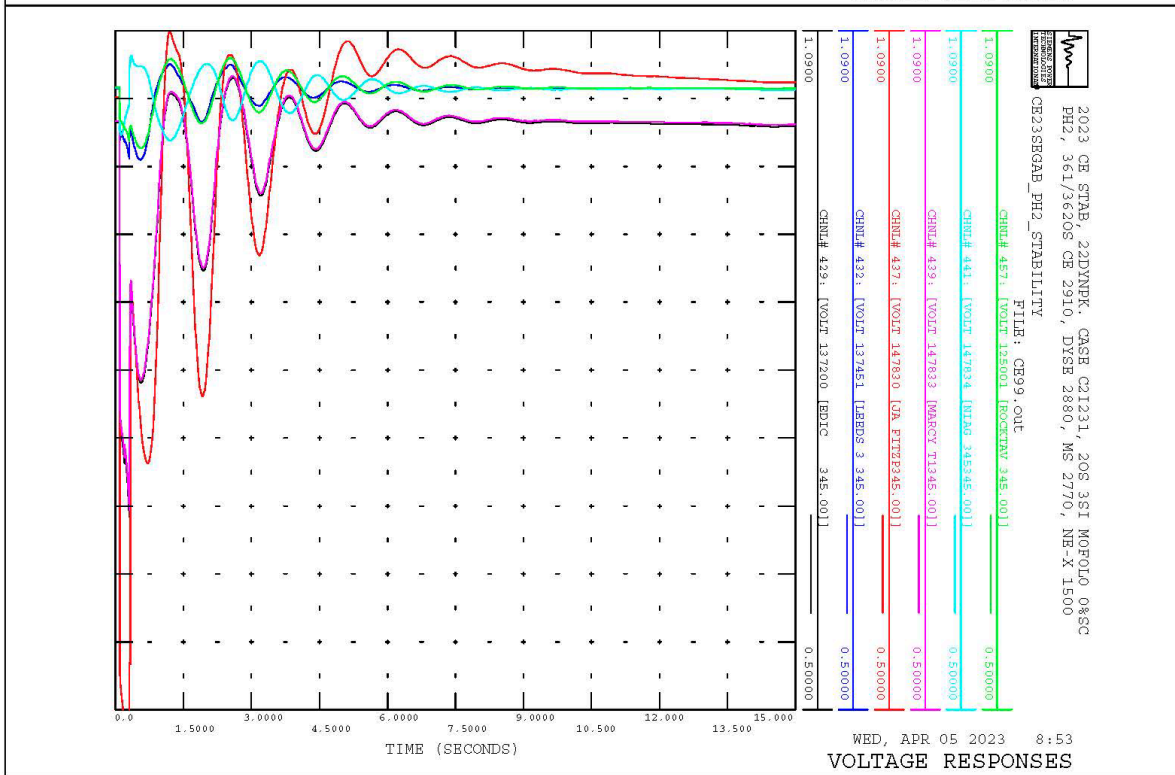
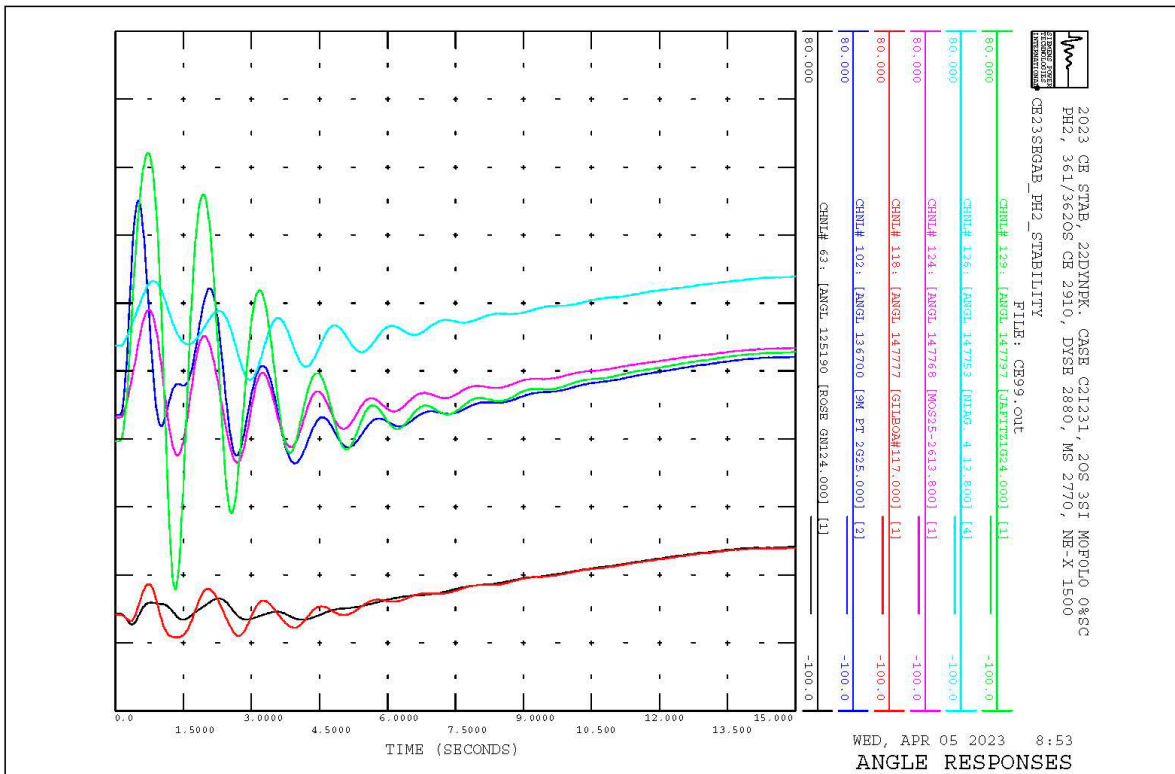


Figure 66: Case 2 Oswego, 3 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

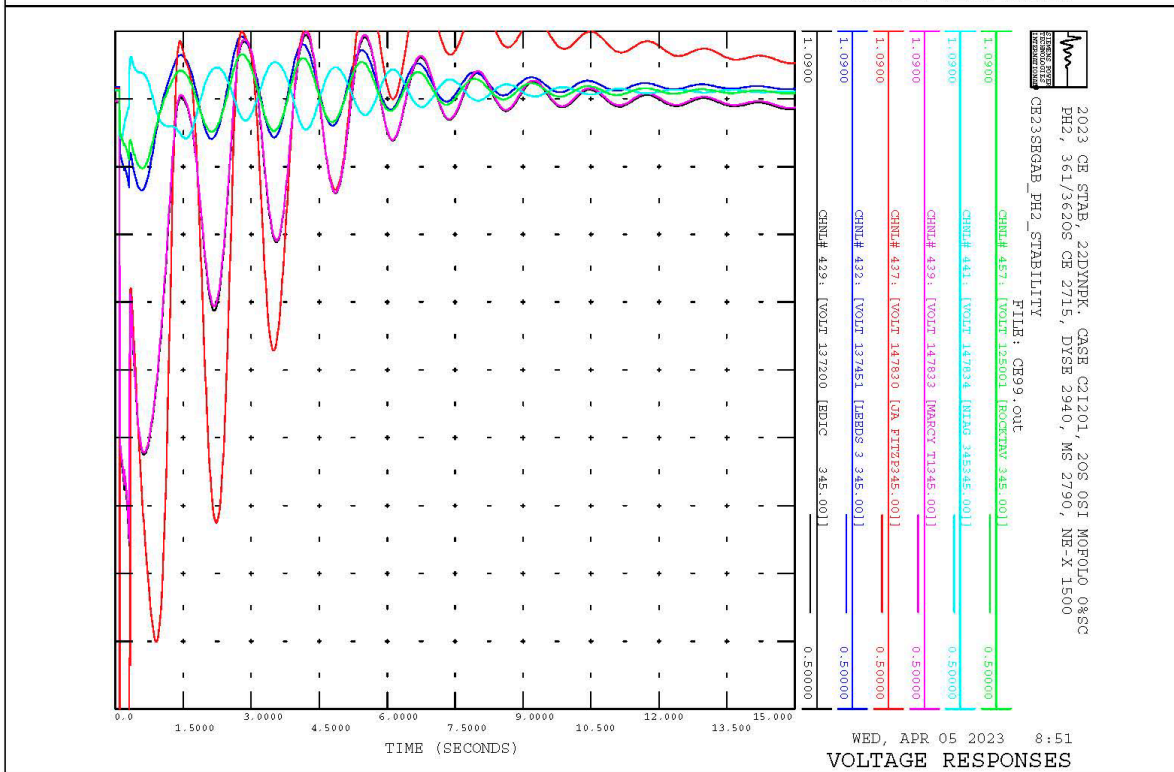
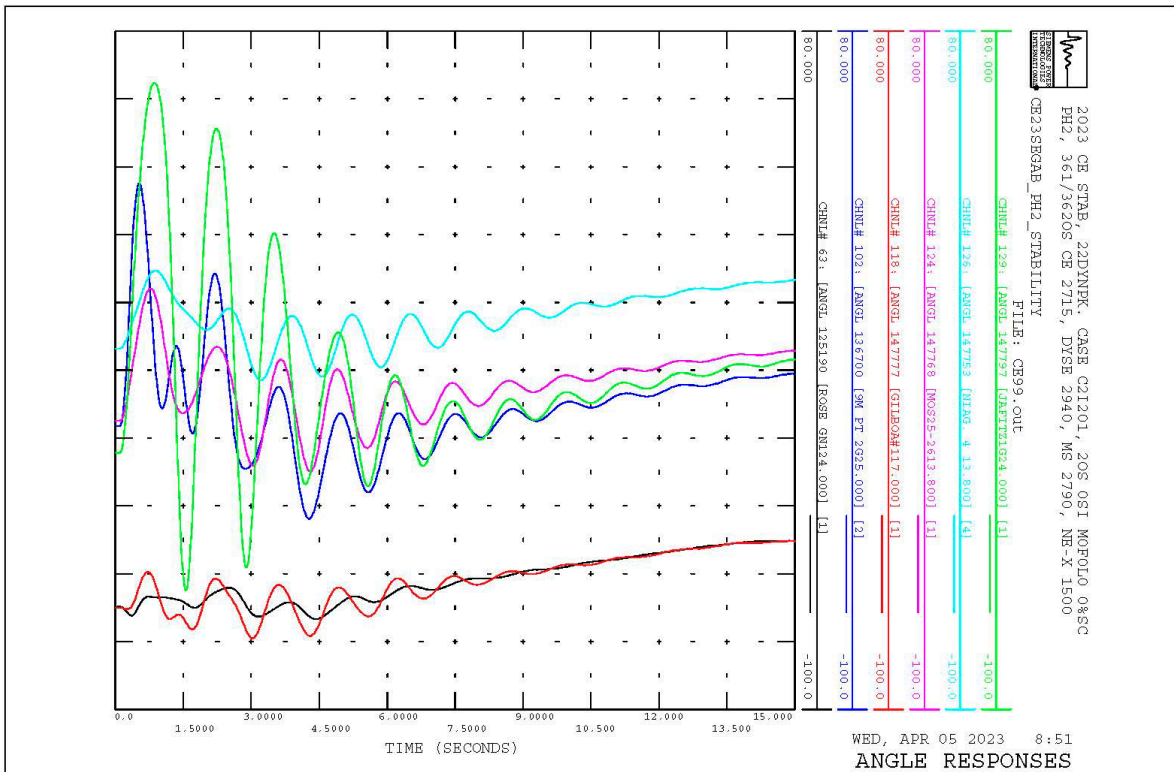


Figure 67: Case 2 Oswego, 0 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

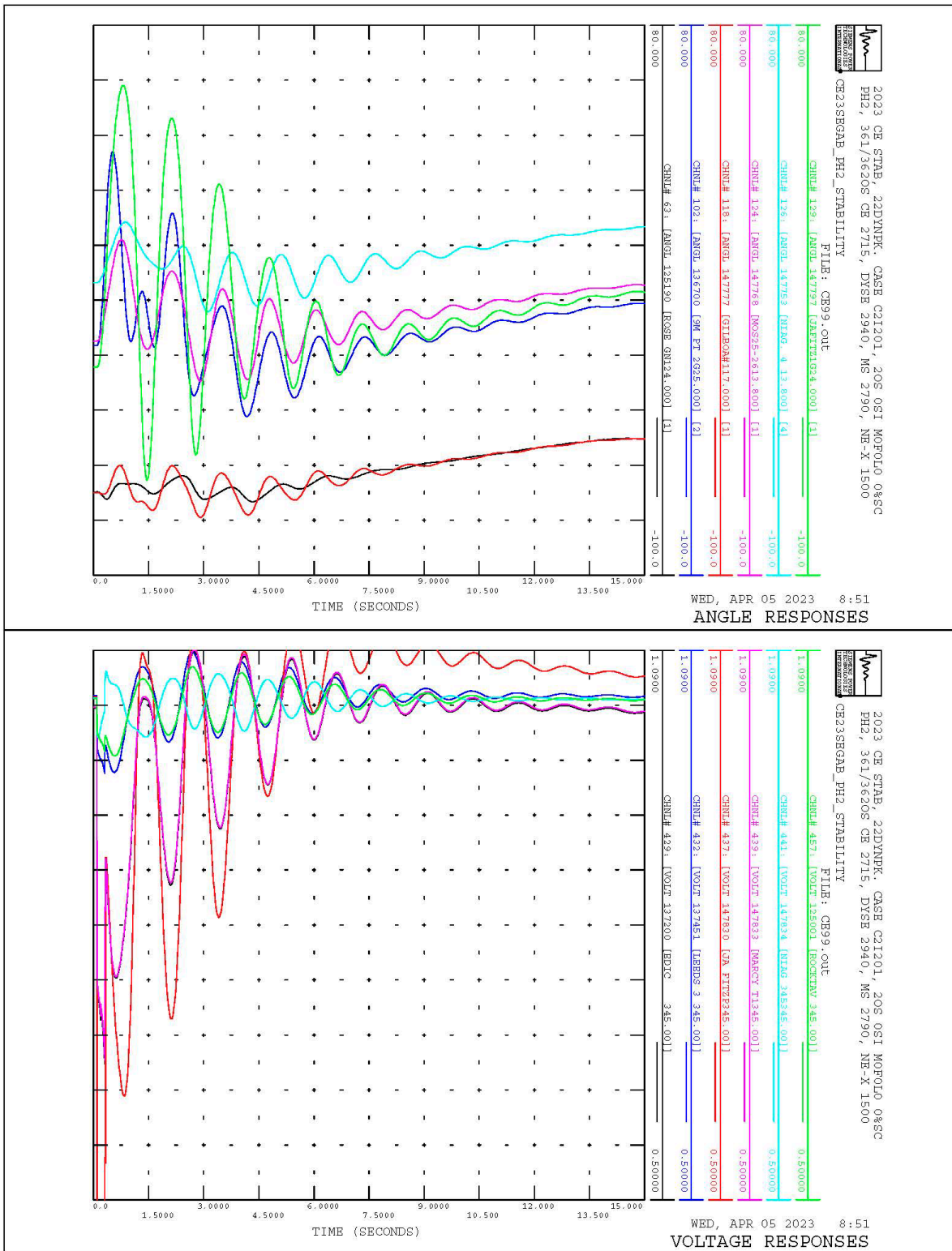


Figure 68: Case 2 Oswego, 0 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

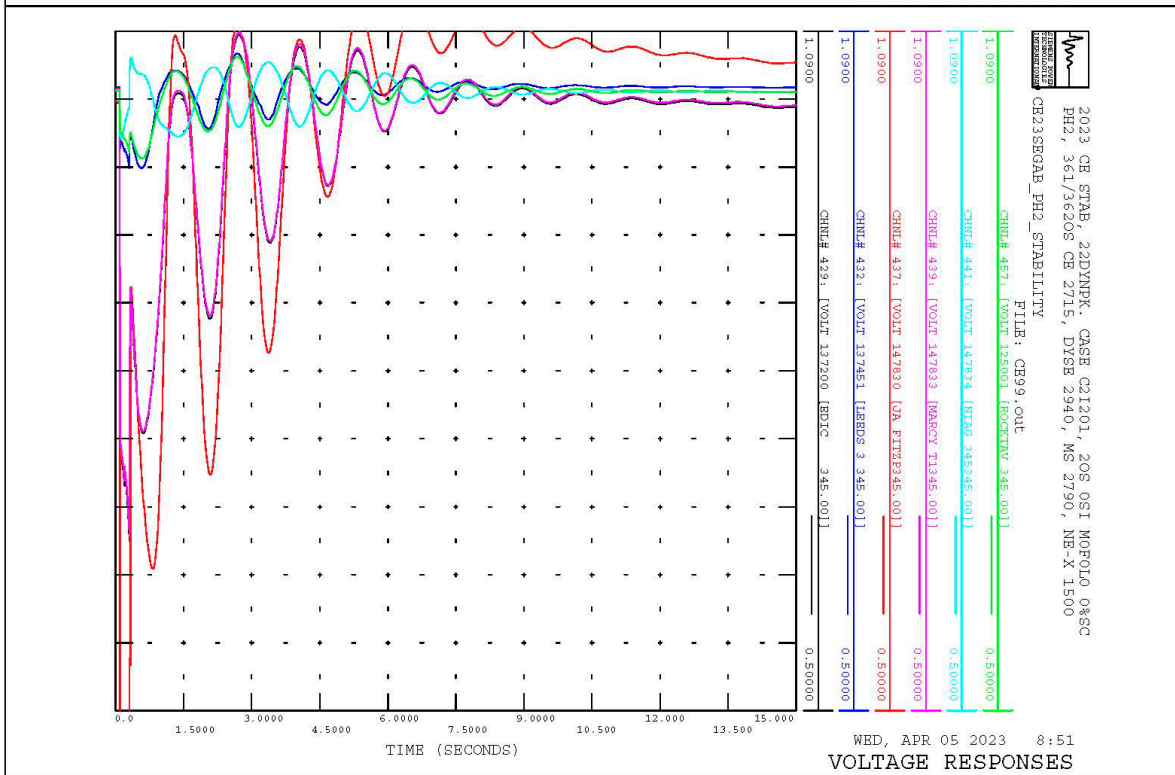
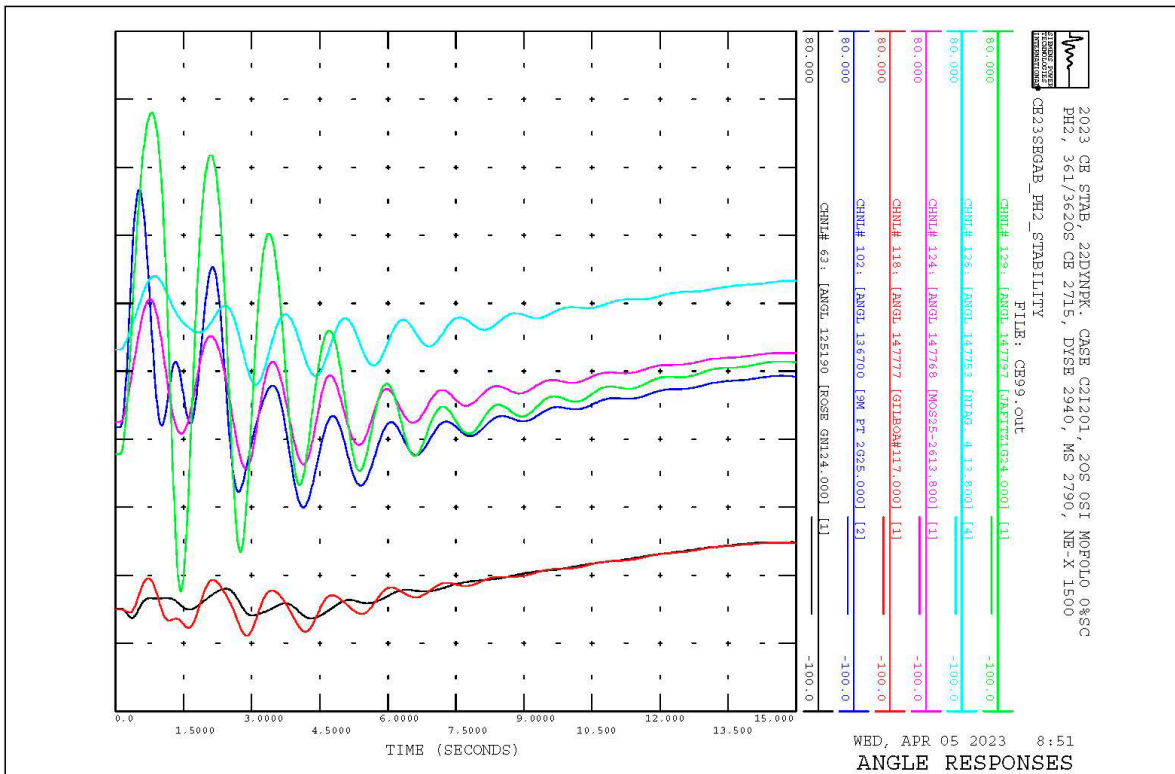


Figure 69: Case 2 Oswego, 0 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

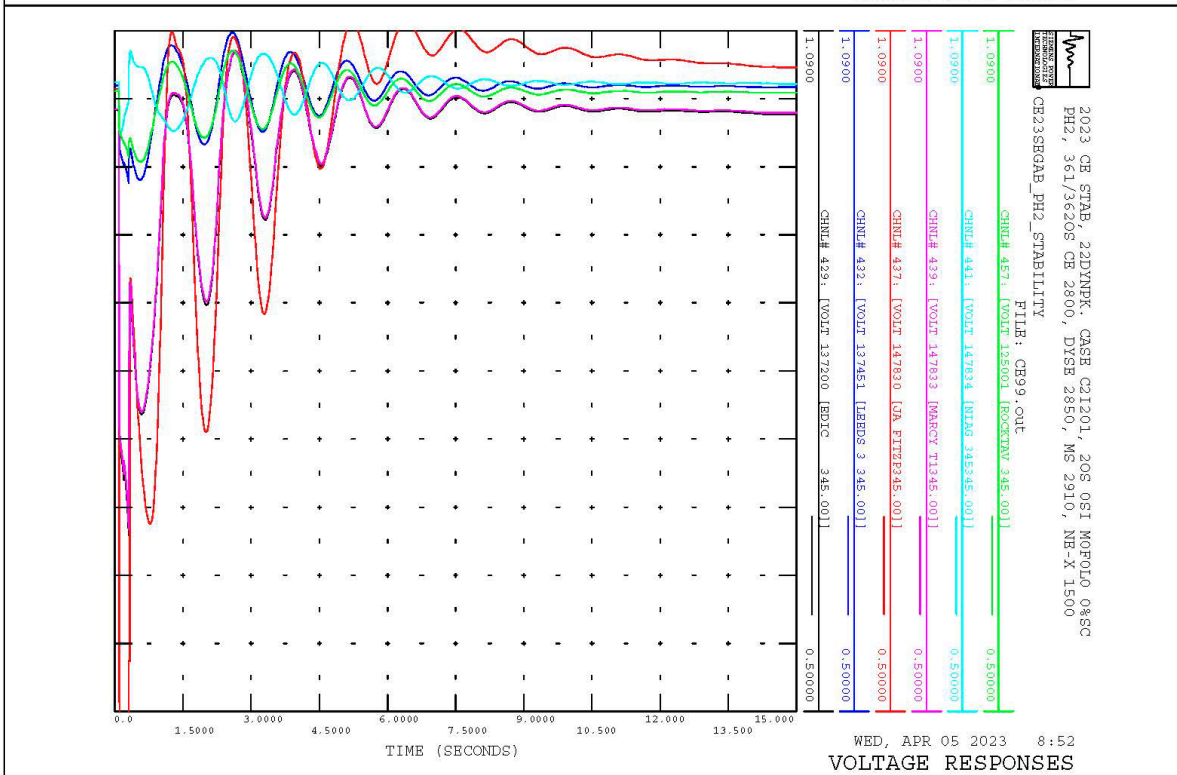
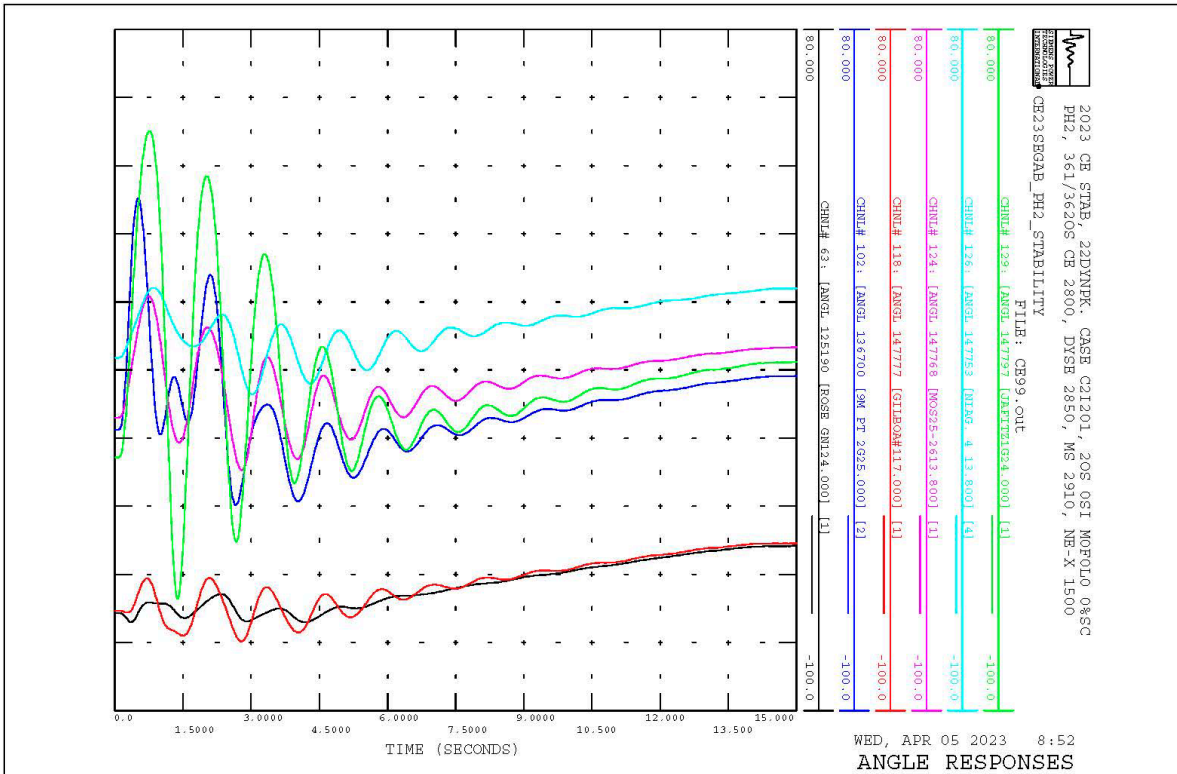


Figure 70: Case 2 Oswego, 0 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

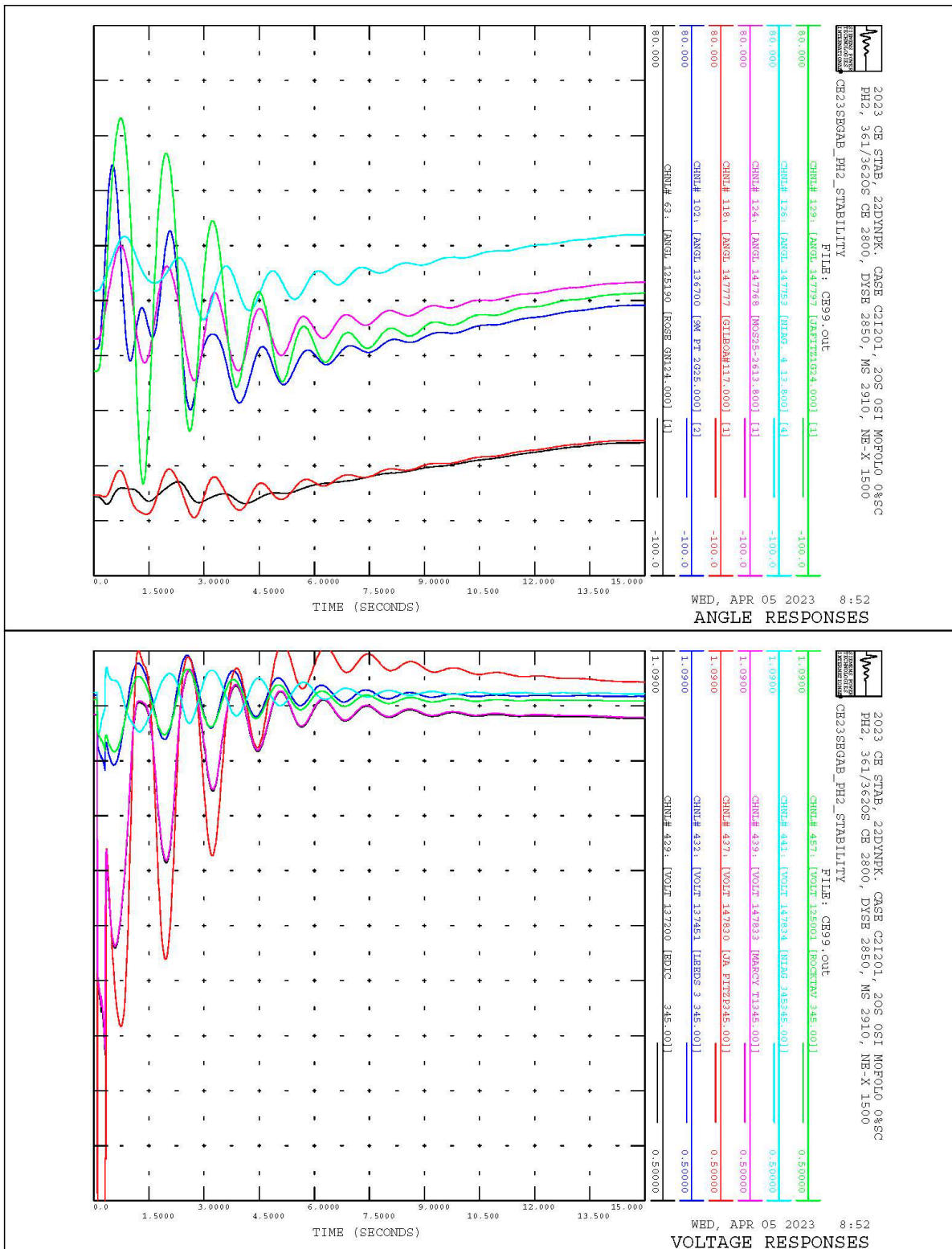


Figure 71: Case 2 Oswego, 0 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

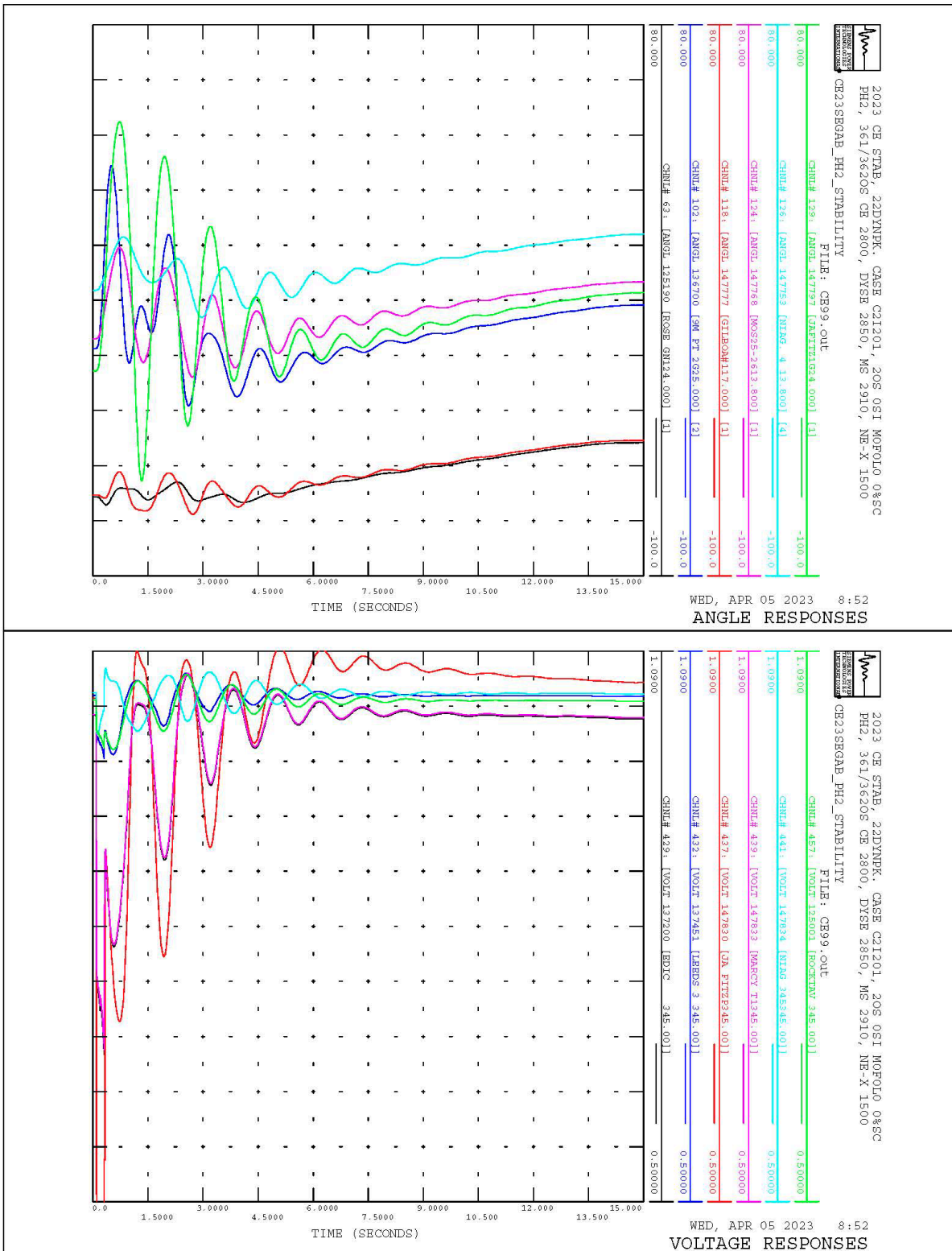


Figure 72: Case 2 Oswego, 0 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

Appendix C: Gordon Road – Princetown (371) 345 kV Outage

ANGLE AND VOLTAGE RESPONSES

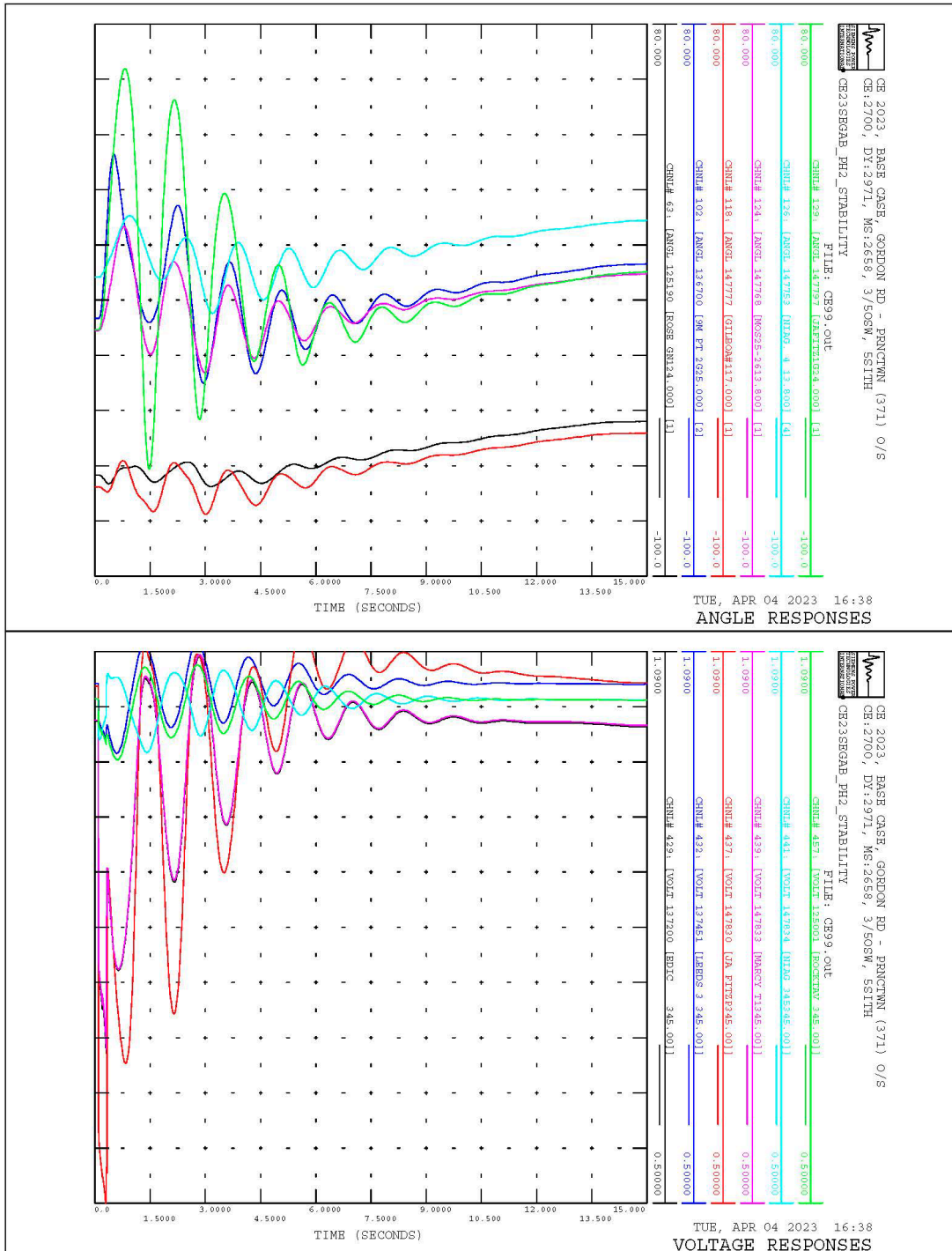


Figure 73: Case 3 Oswego, 5 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

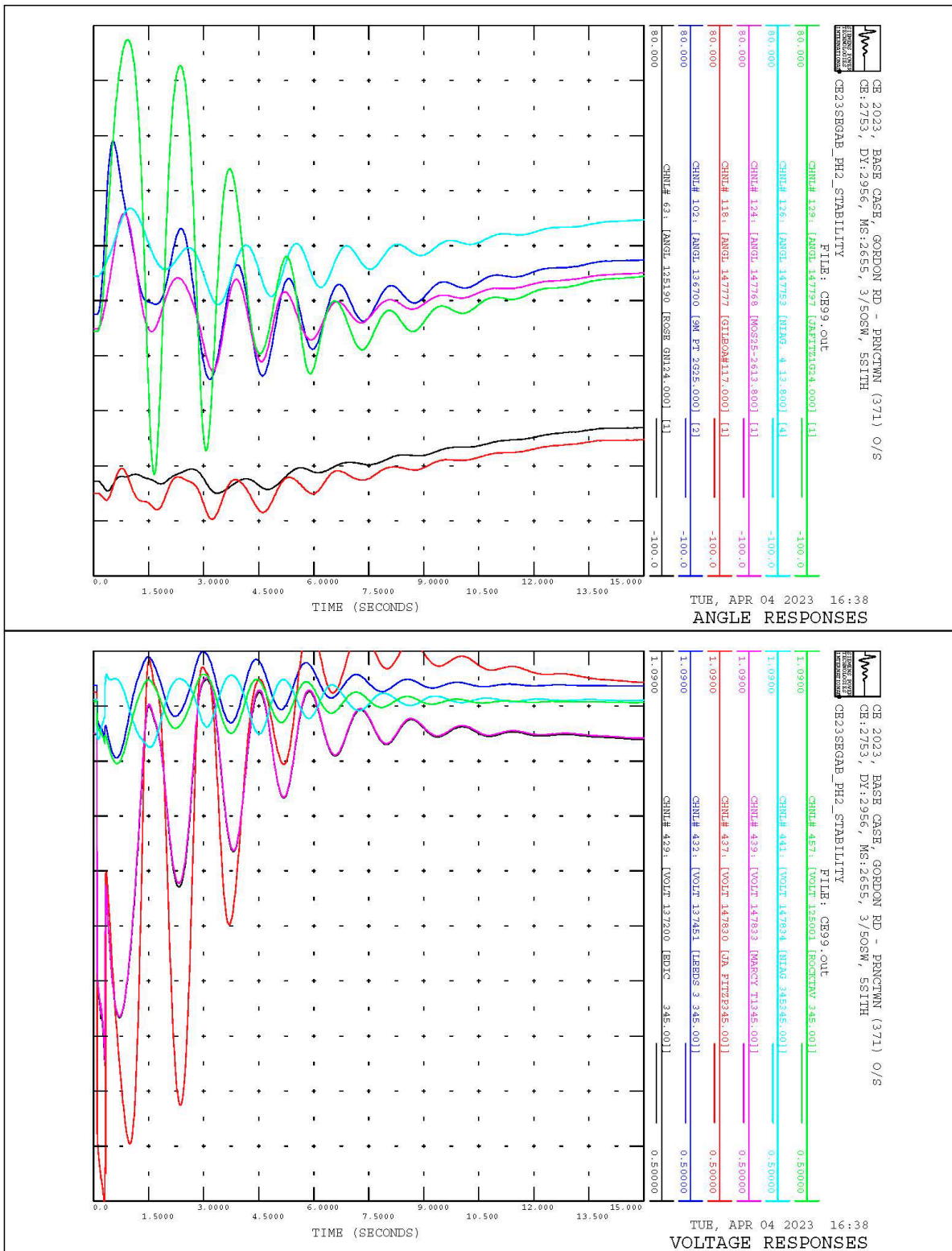


Figure 74: Case 3 Oswego, 5 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

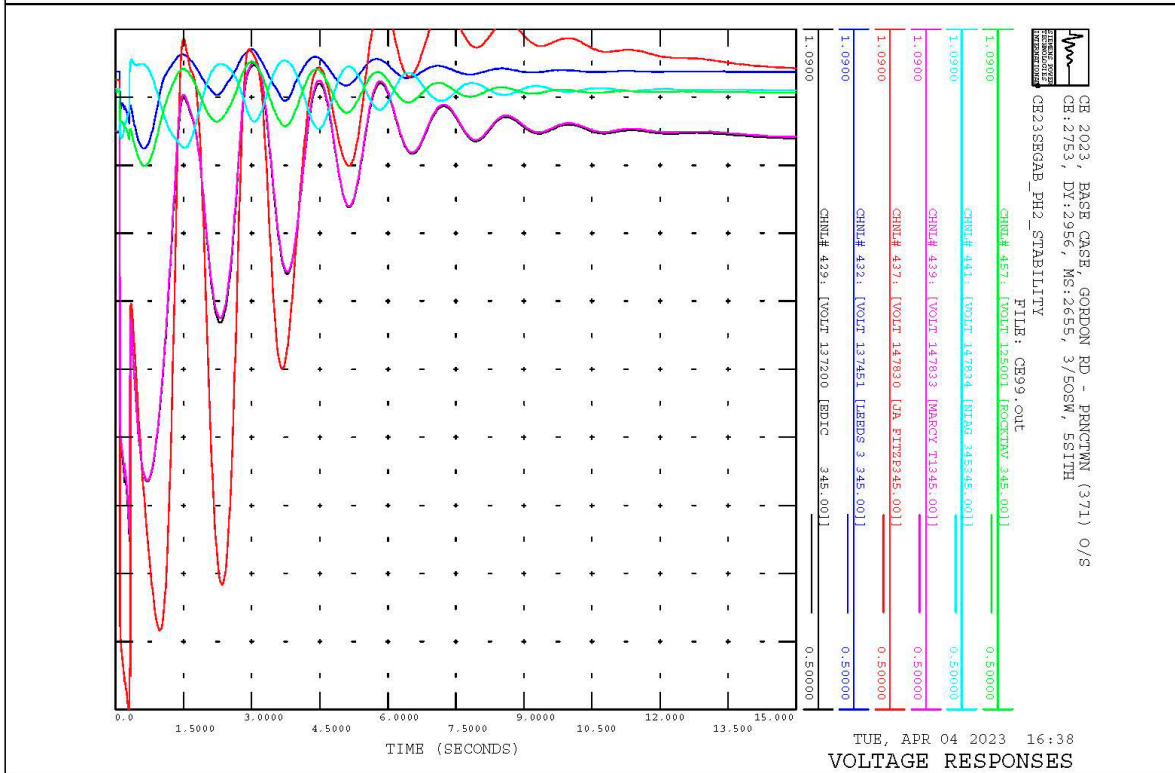
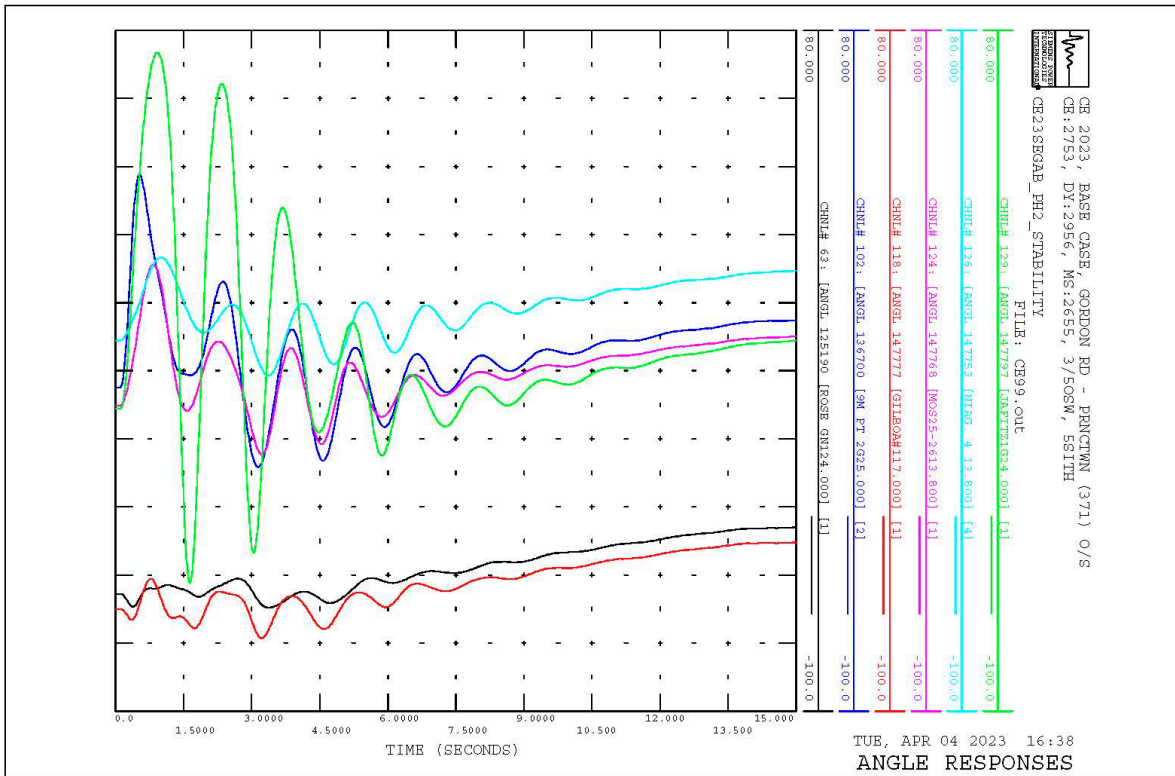


Figure 75: Case 3 Oswego, 5 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

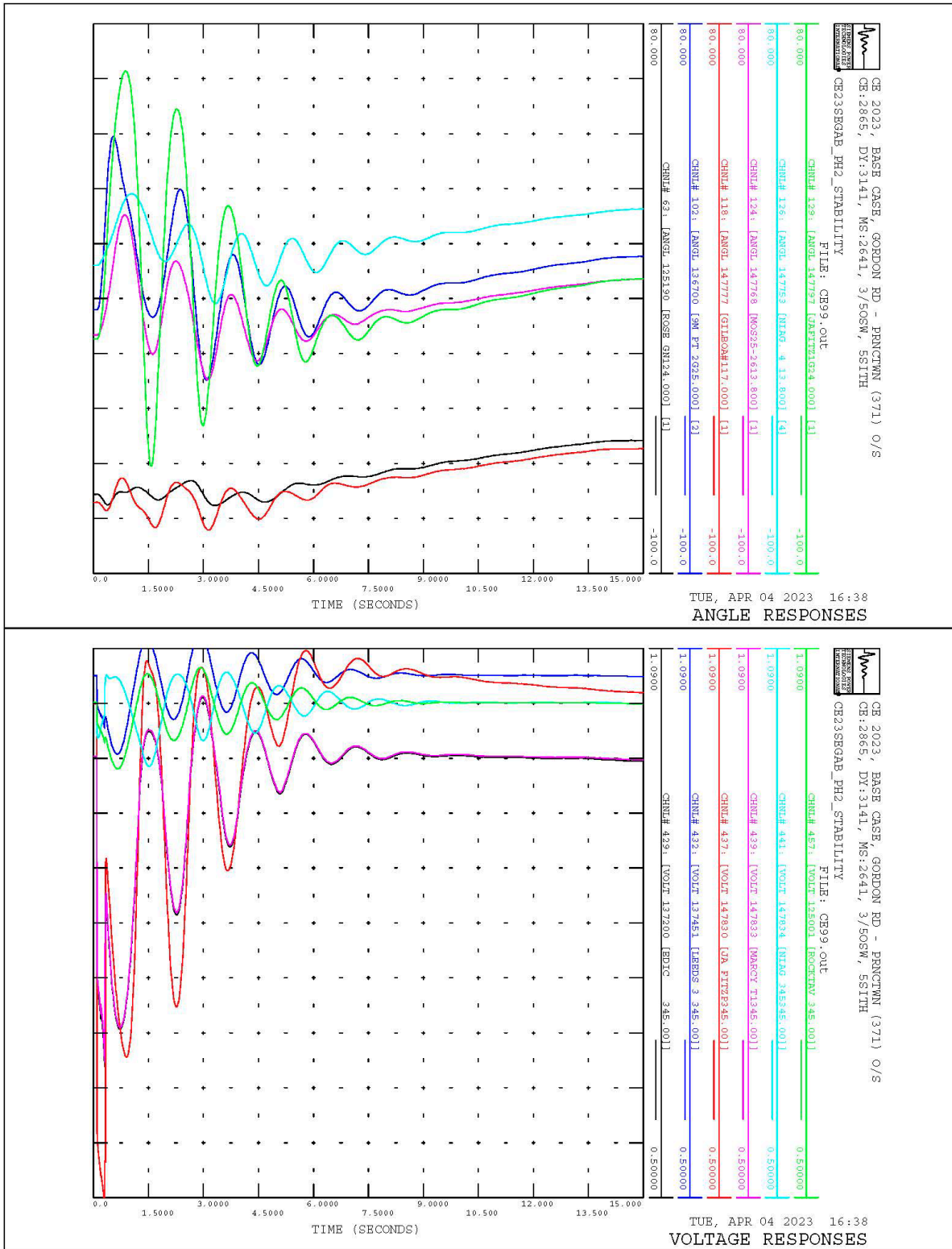


Figure 76: Case 3 Oswego, 5 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

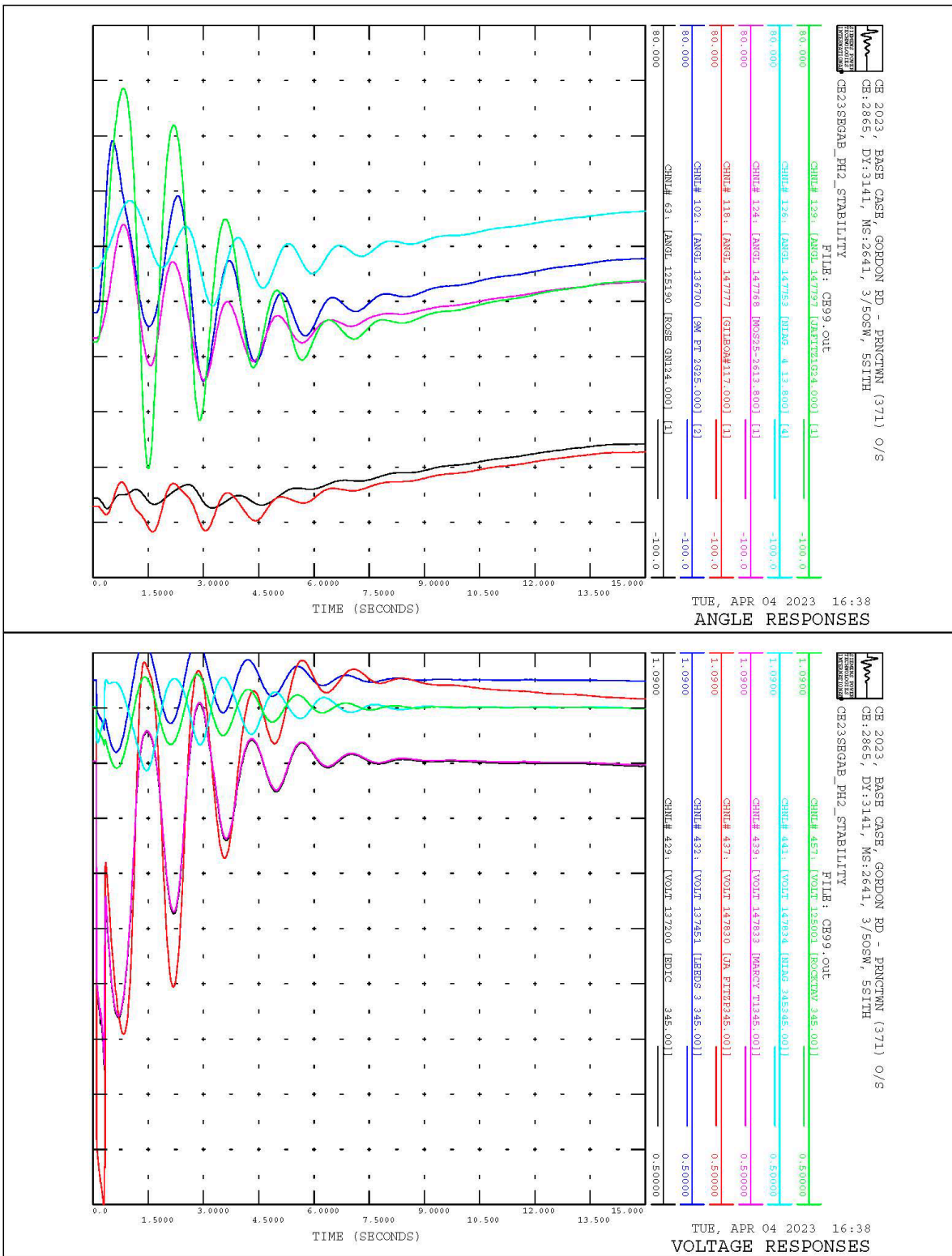


Figure 77: Case 3 Oswego, 5 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

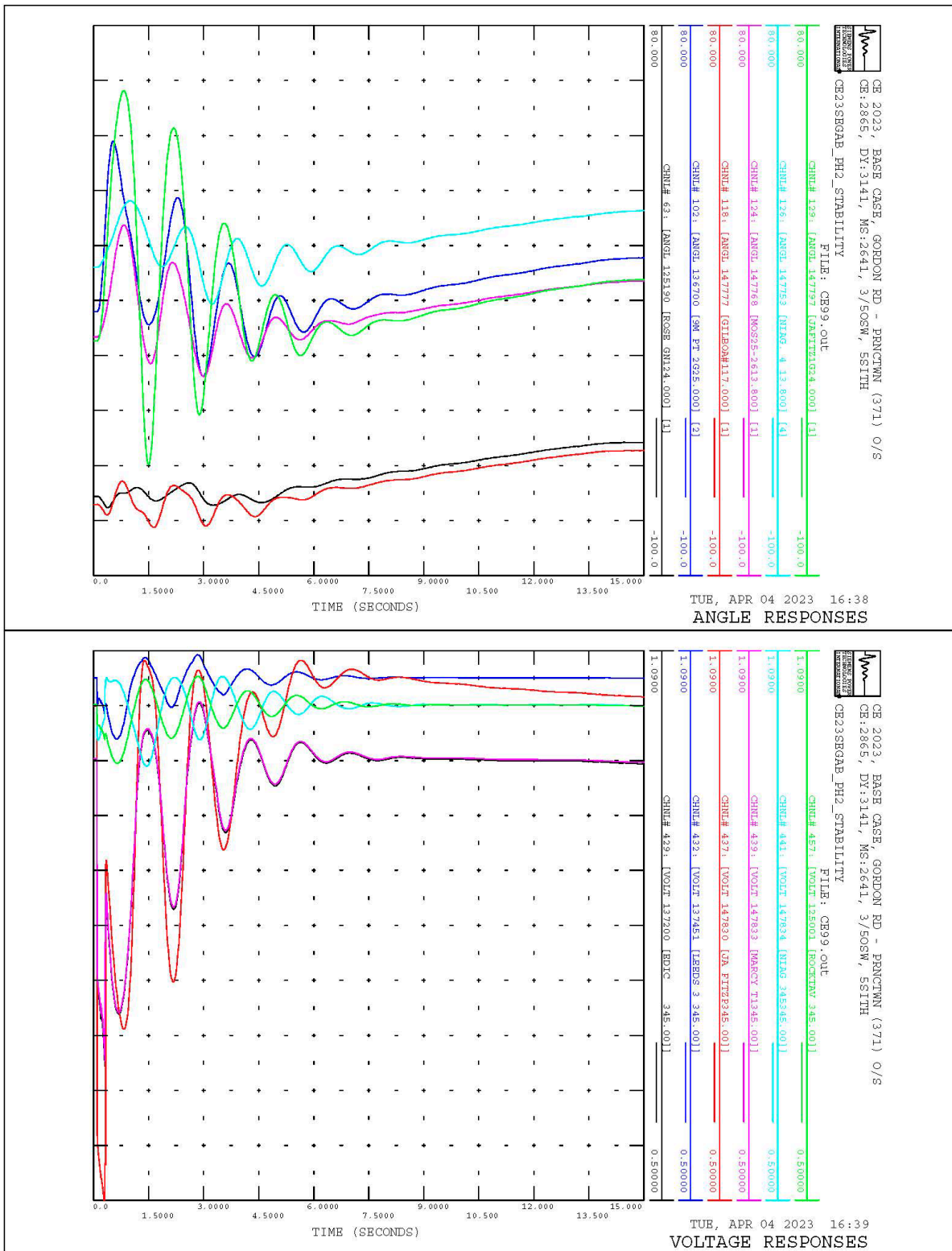


Figure 78: Case 3 Oswego, 5 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

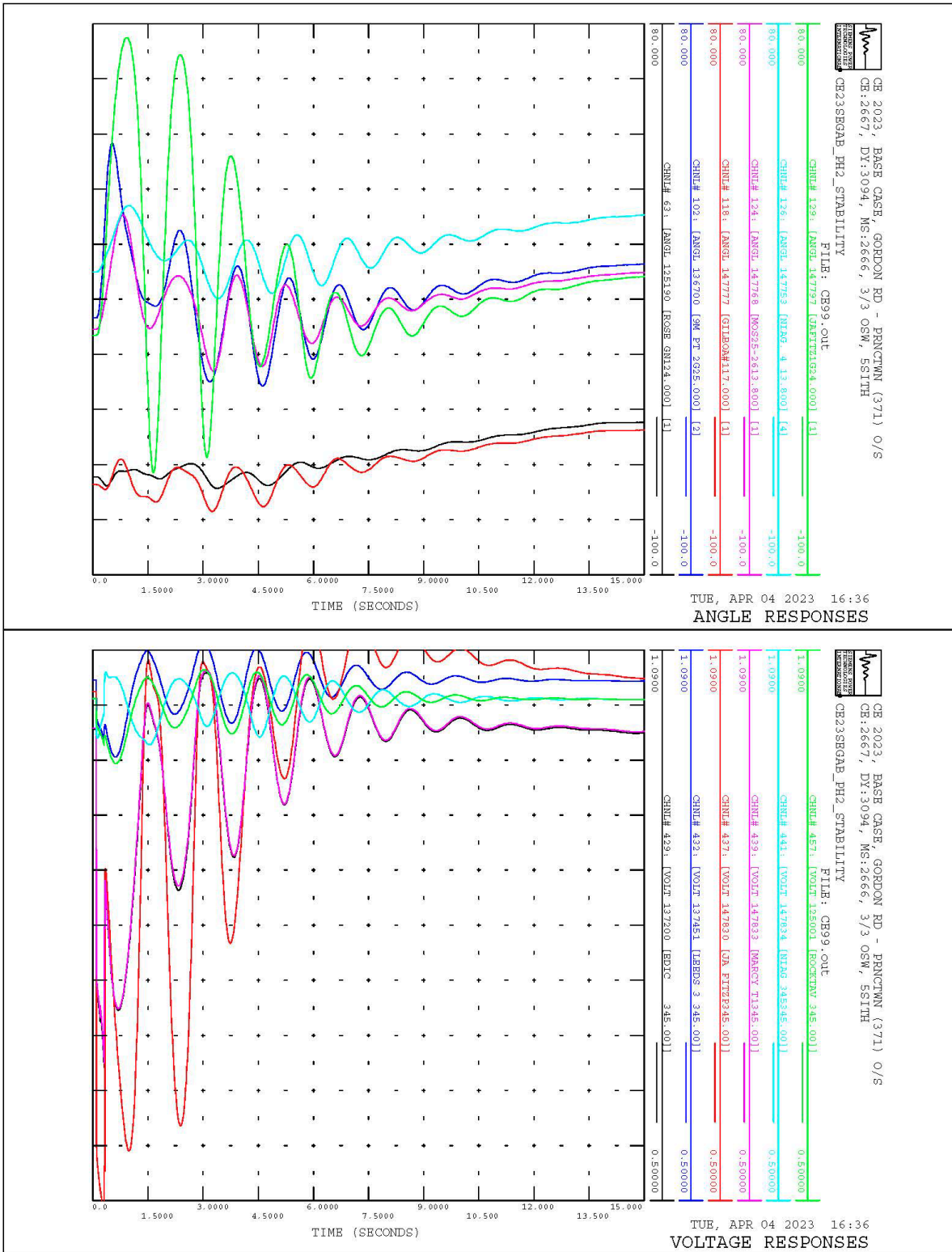


Figure 79: Case 3 Oswego, 3 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

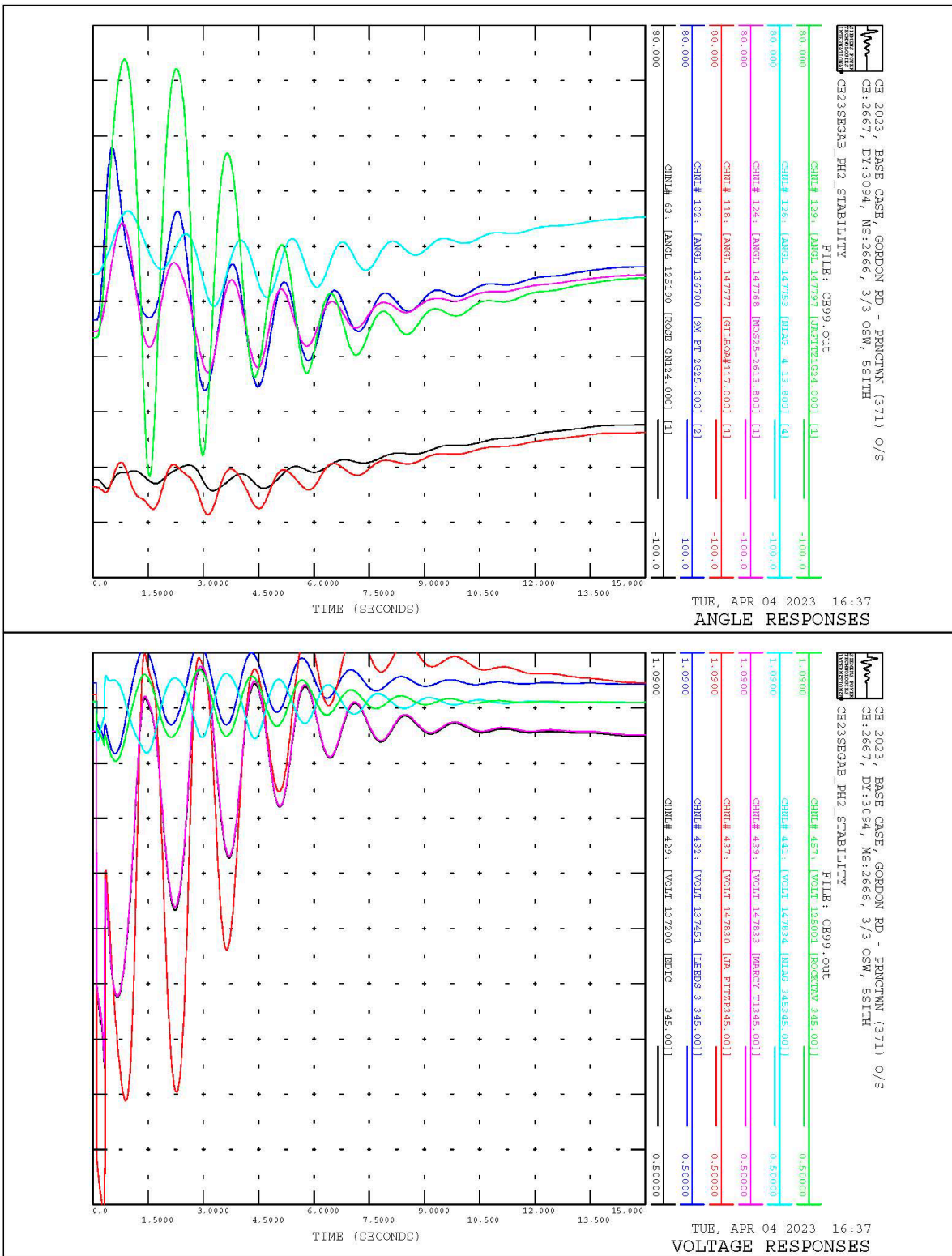


Figure 80: Case 3 Oswego, 3 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

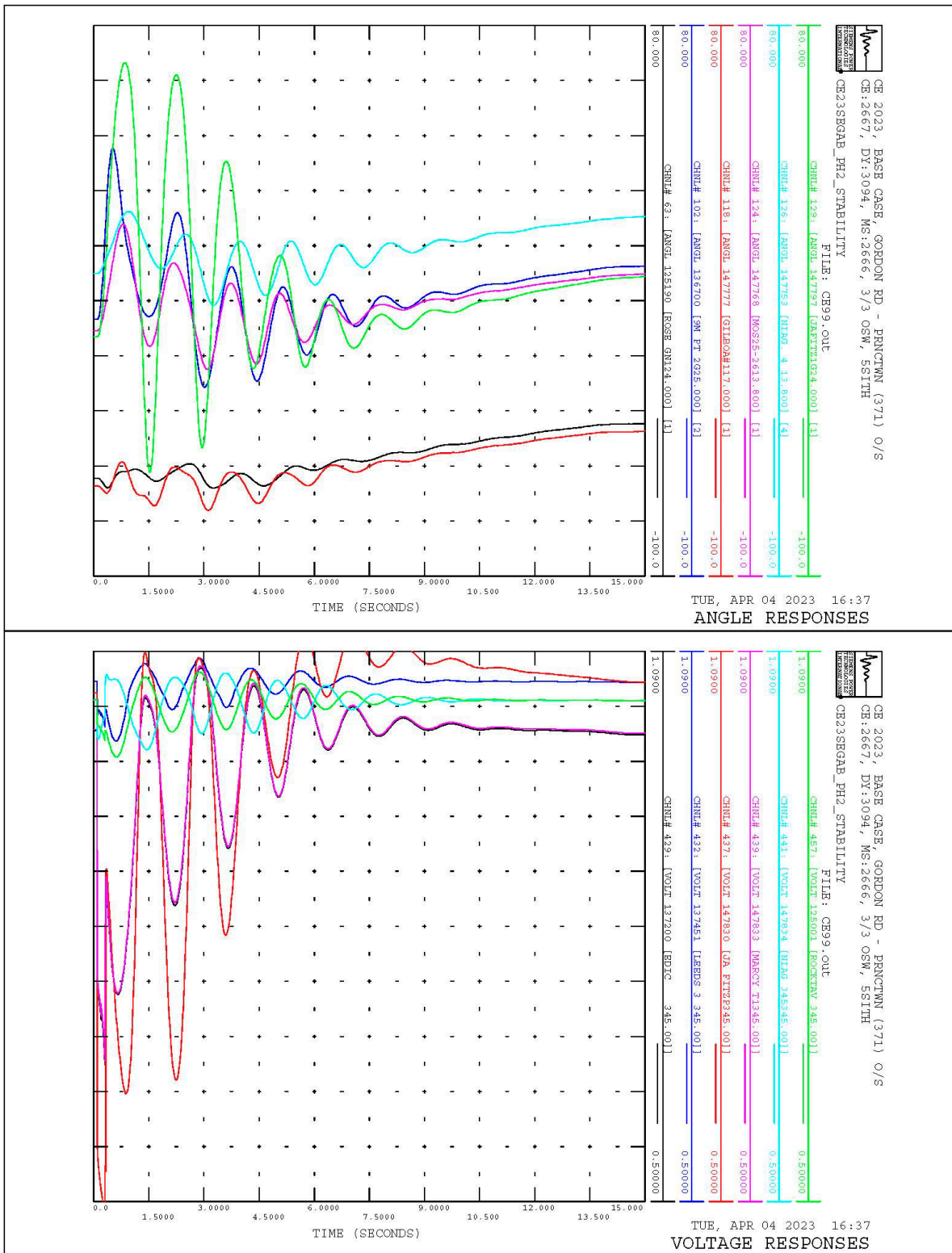


Figure 81: Case 3 Oswego, 3 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

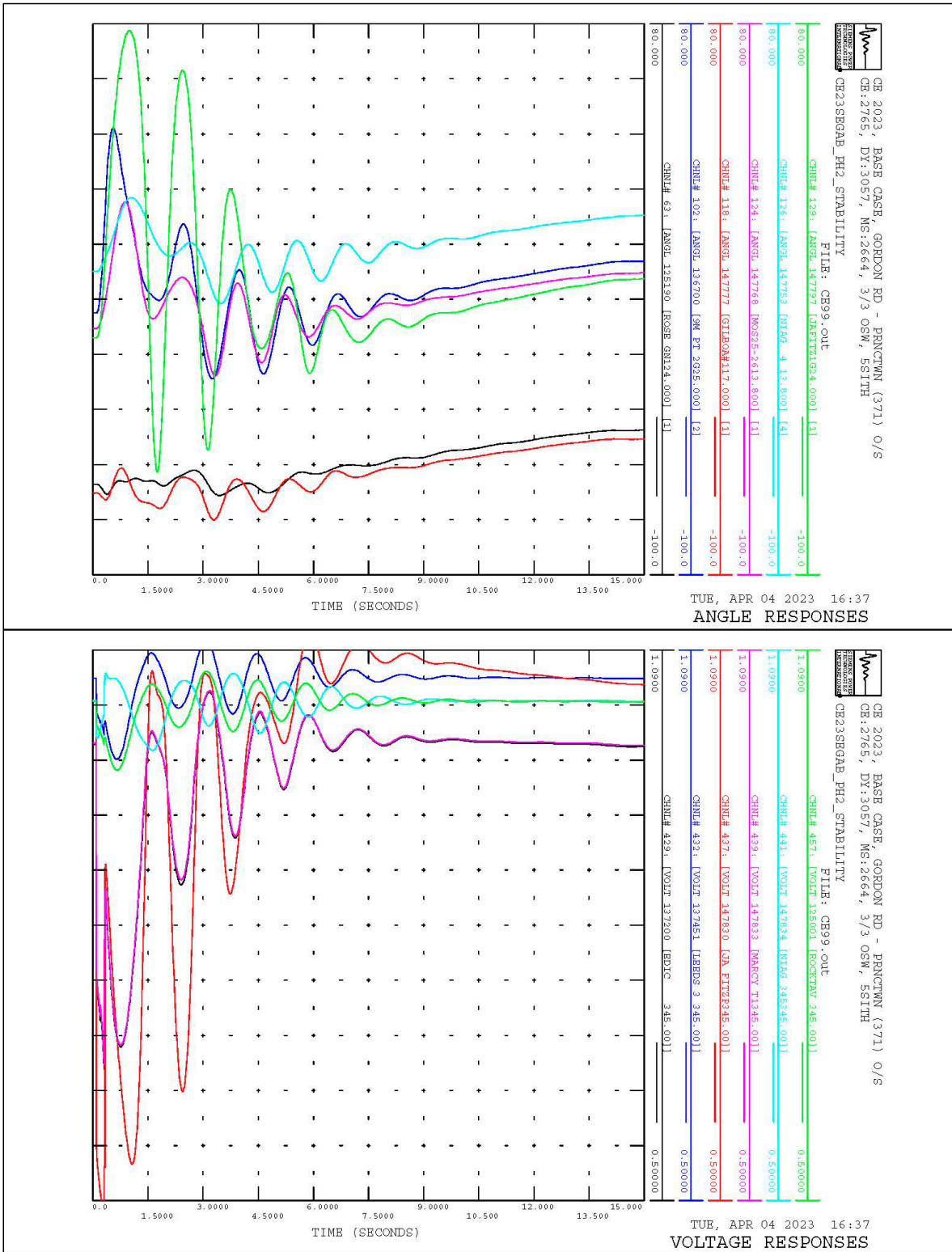


Figure 82: Case 3 Oswego, 3 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

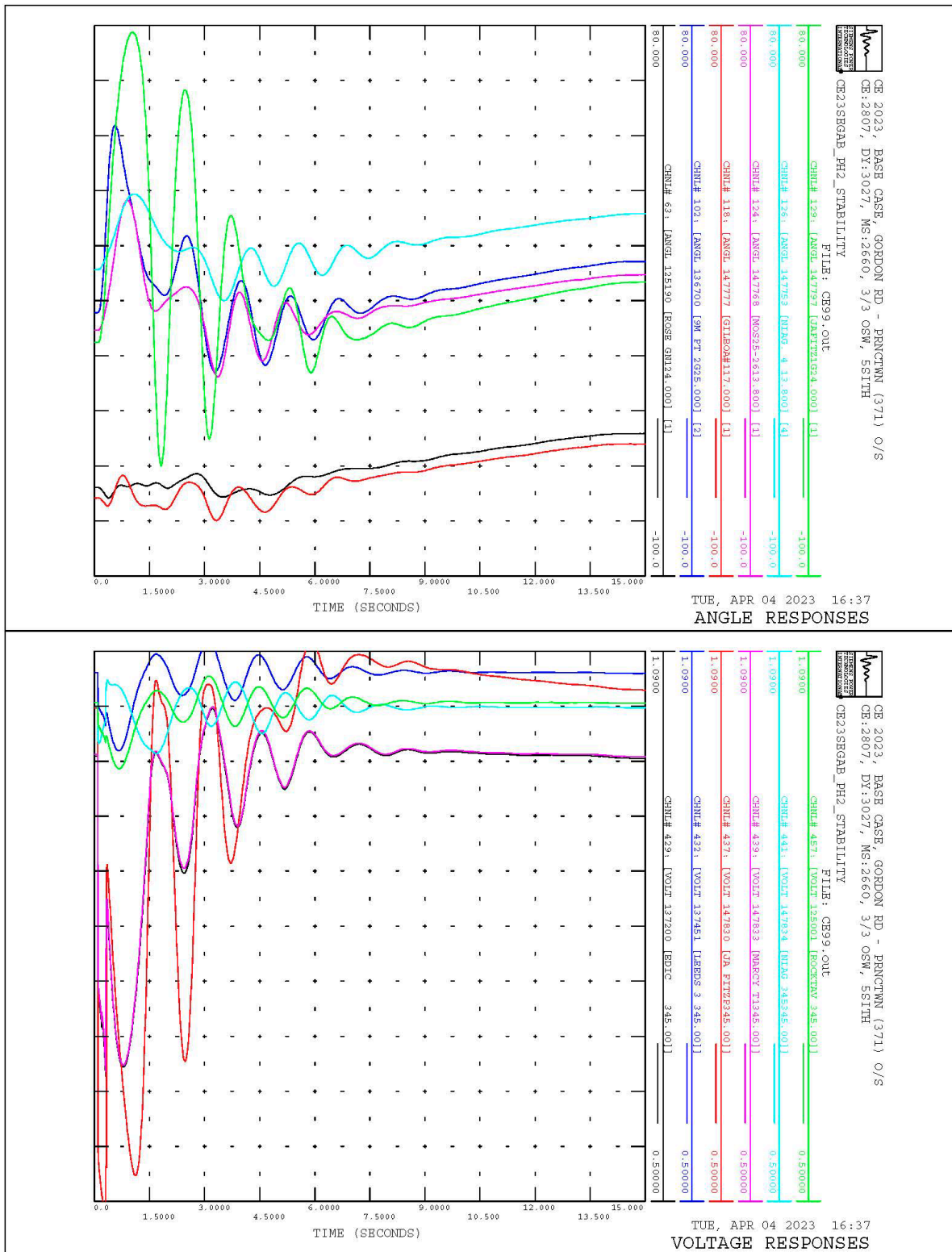


Figure 83: Case 3 Oswego, 3 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

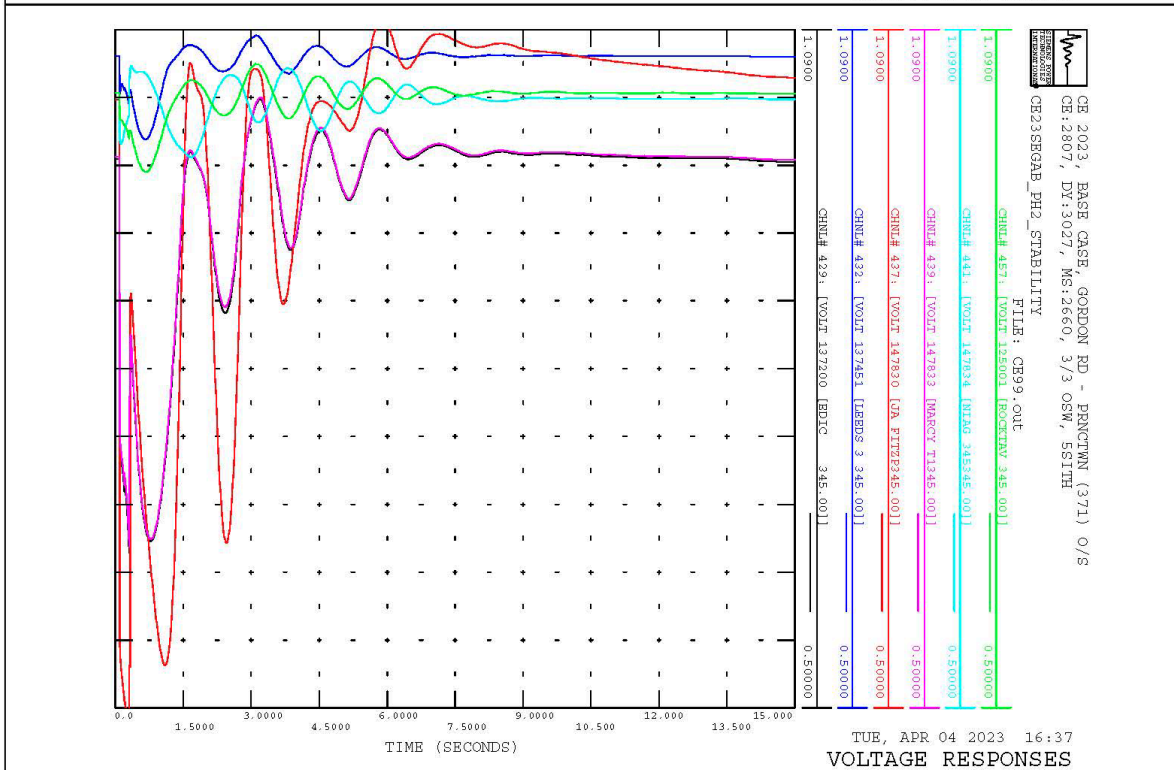
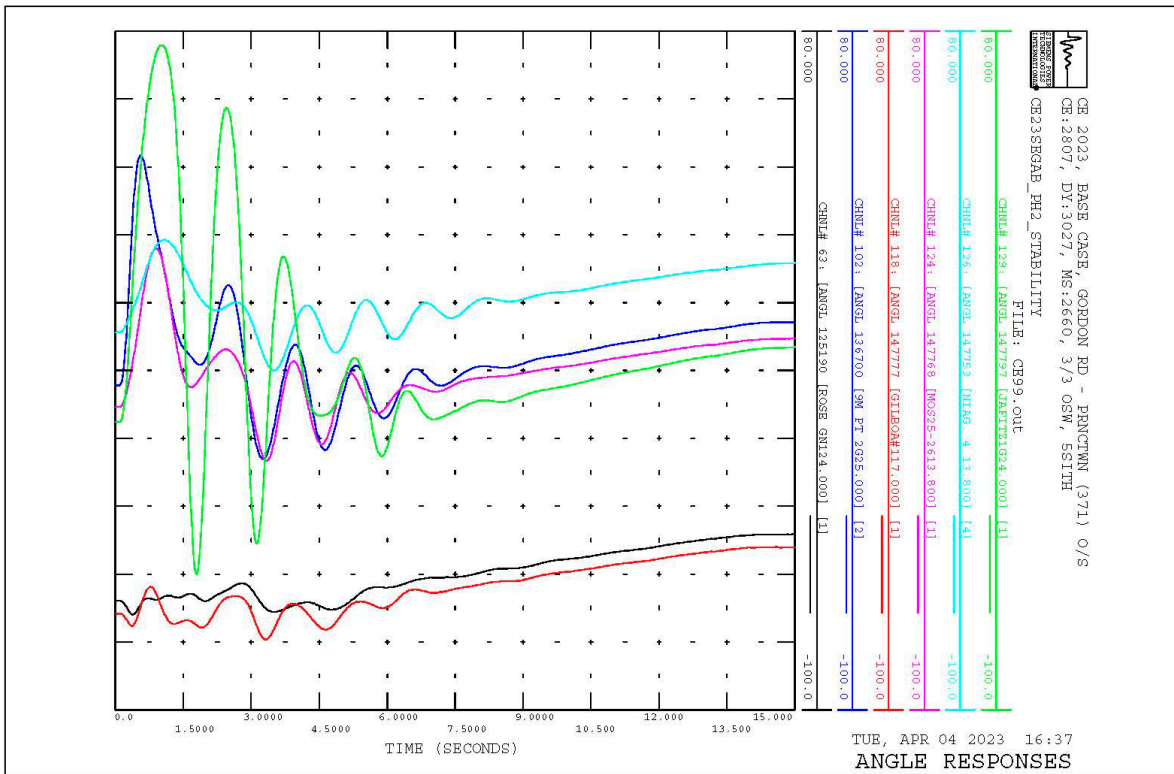


Figure 84: Case 3 Oswego, 3 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

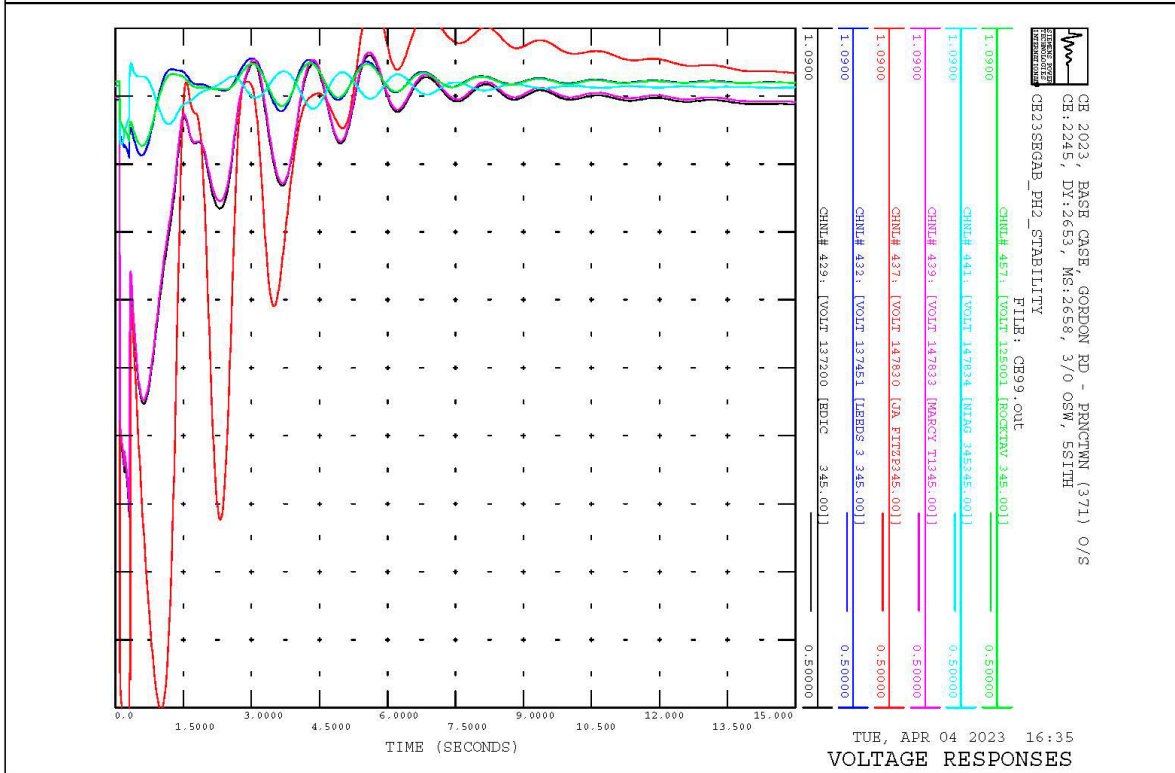
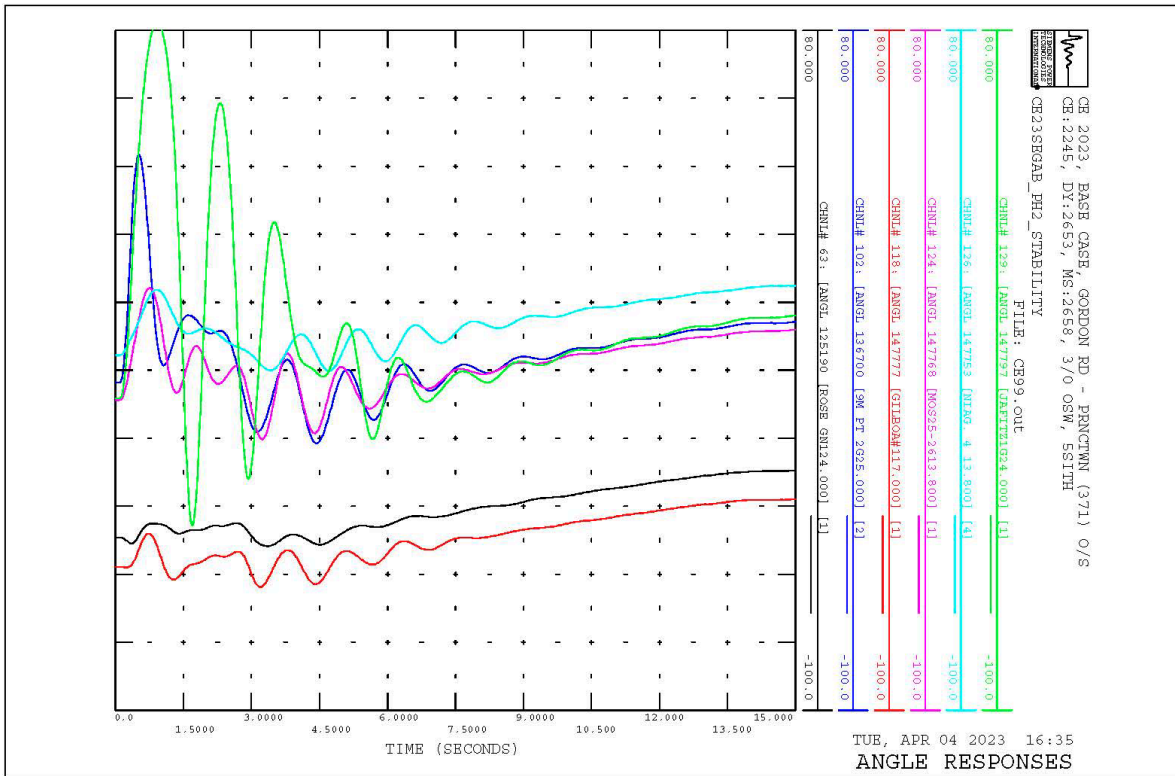


Figure 85: Case 3 Oswego, 0 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

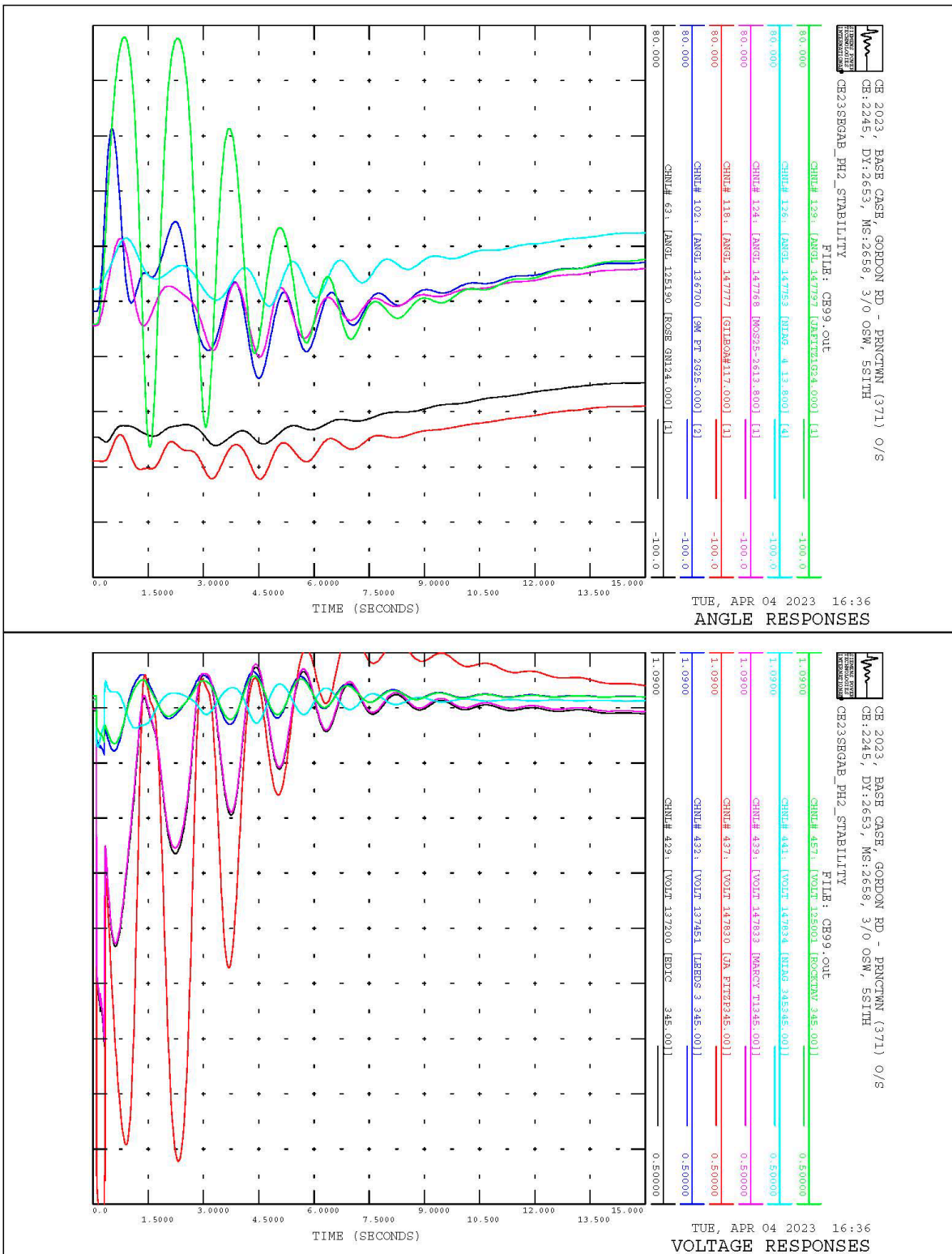


Figure 86: Case 3 Oswego, 0 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

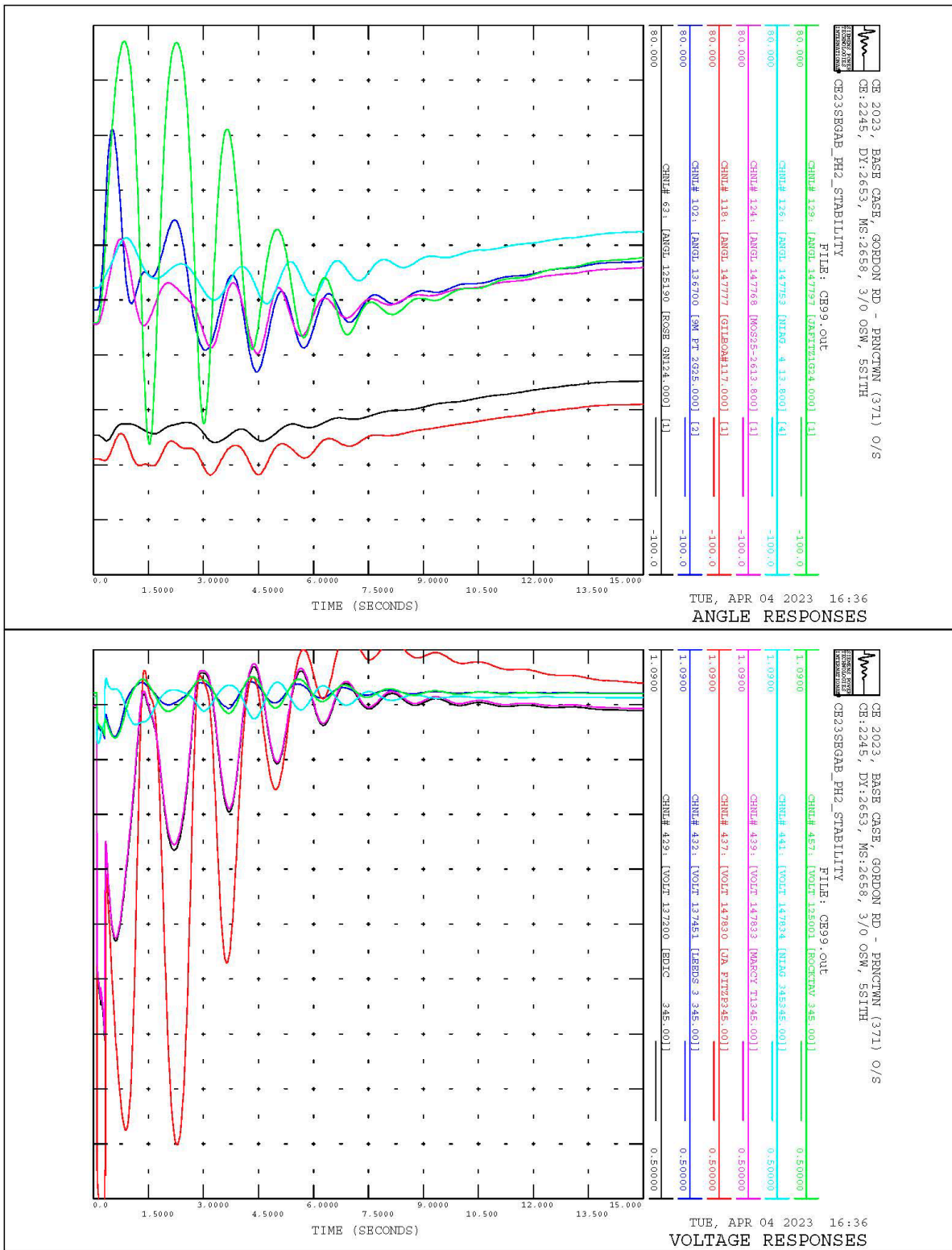


Figure 87: Case 3 Oswego, 0 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

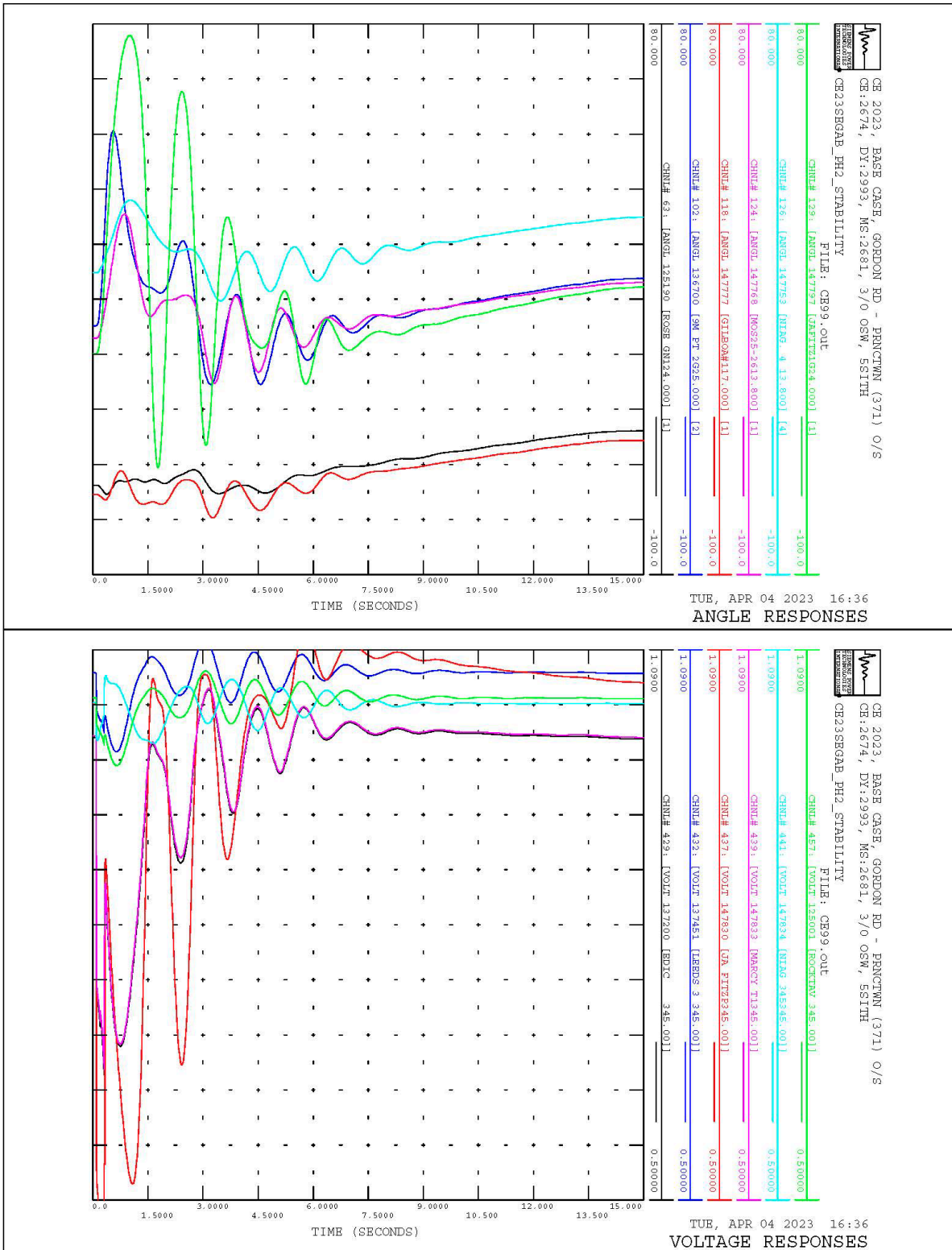


Figure 88: Case 3 Oswego, 0 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

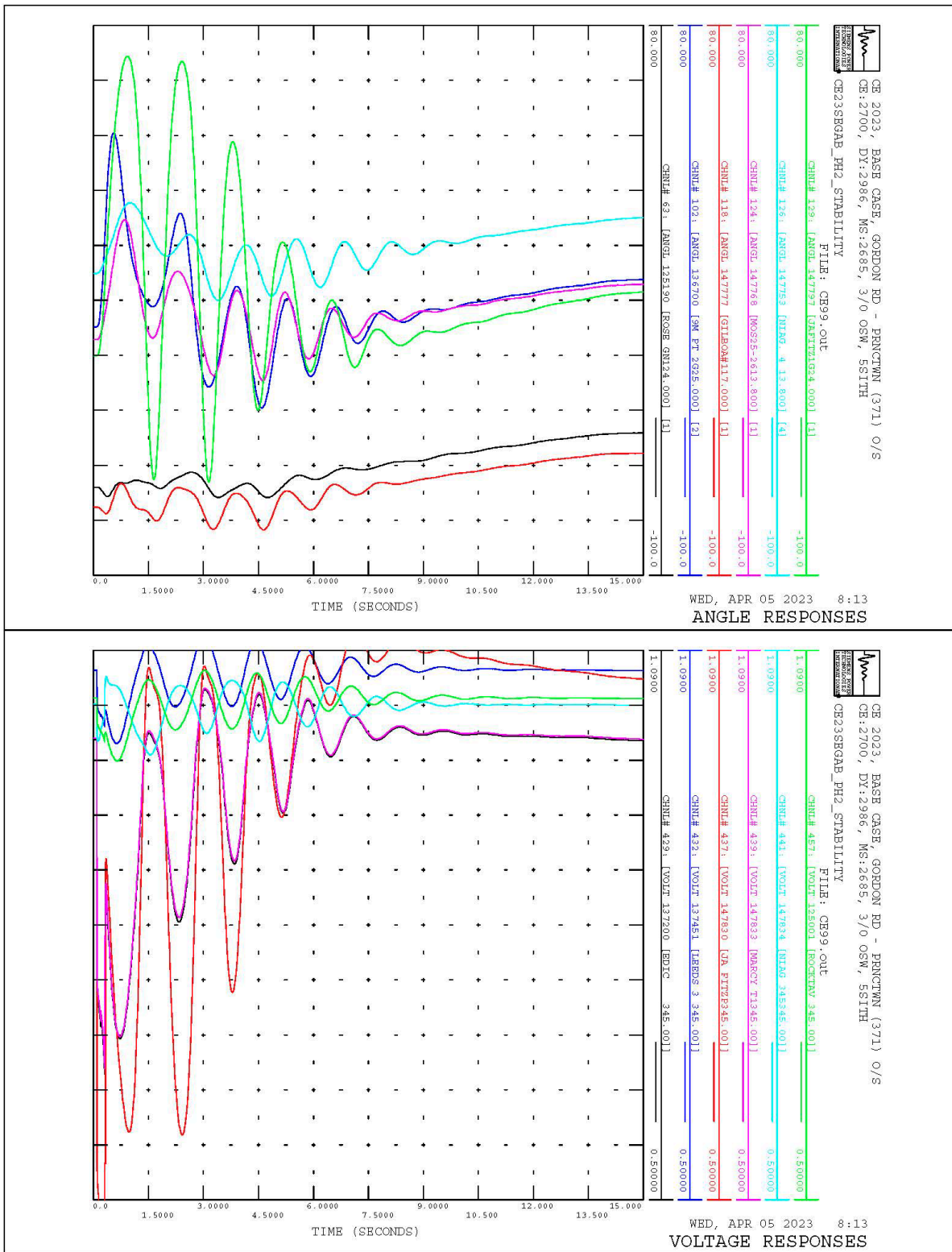


Figure 89: Case 3 Oswego, 0 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

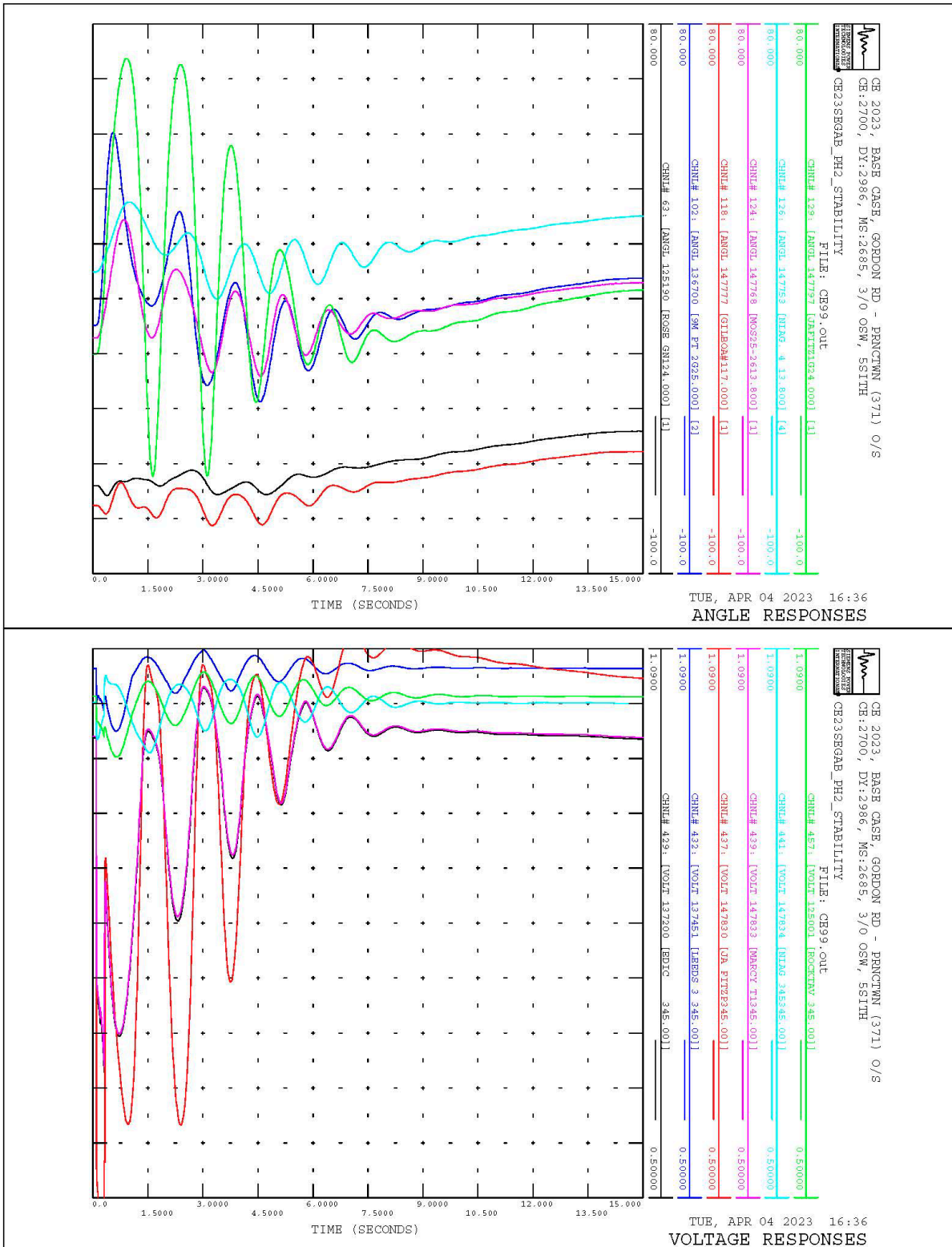


Figure 90: Case 3 Oswego, 0 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

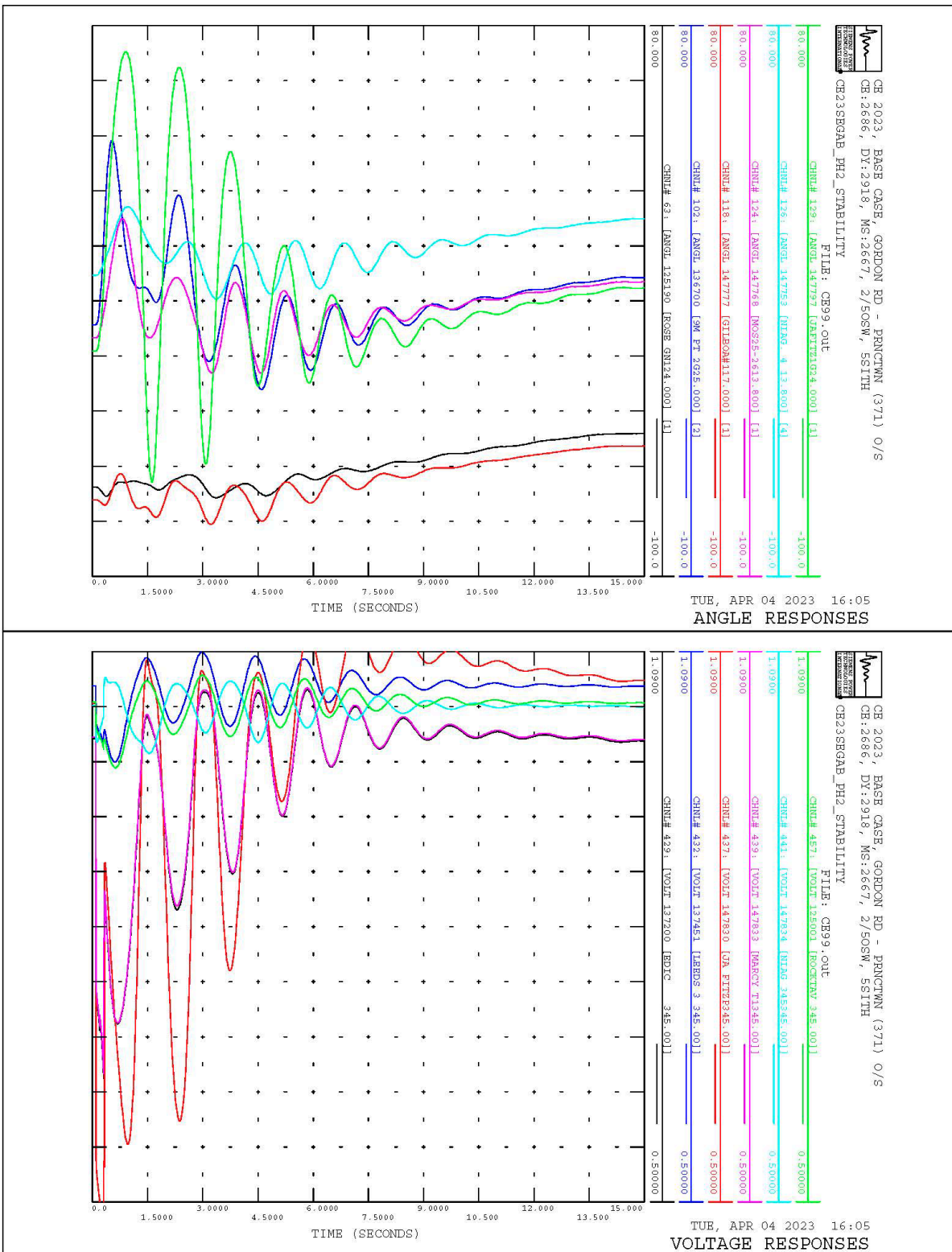


Figure 91: Case 2 Oswego, 5 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

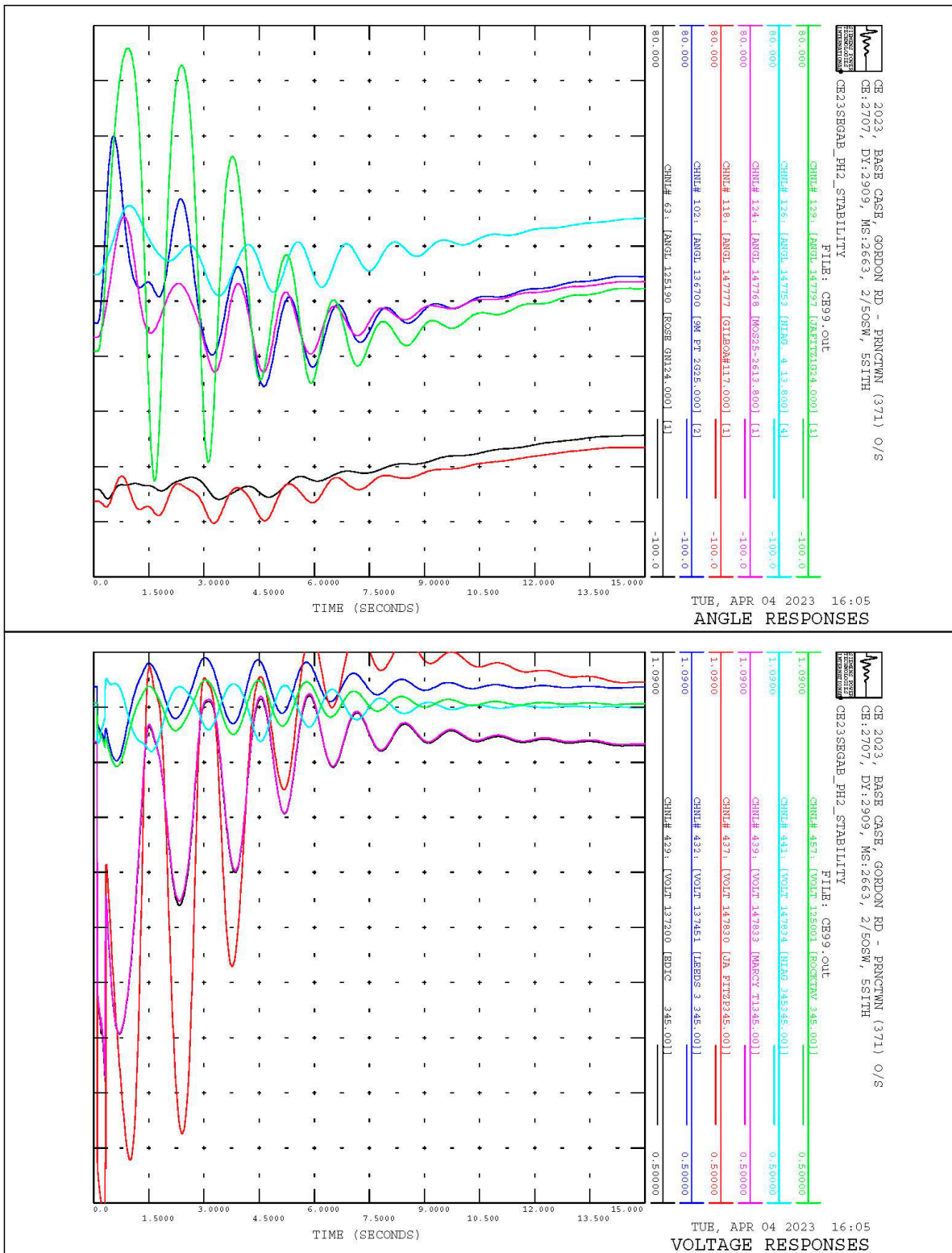


Figure 92: Case 2 Oswego, 5 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

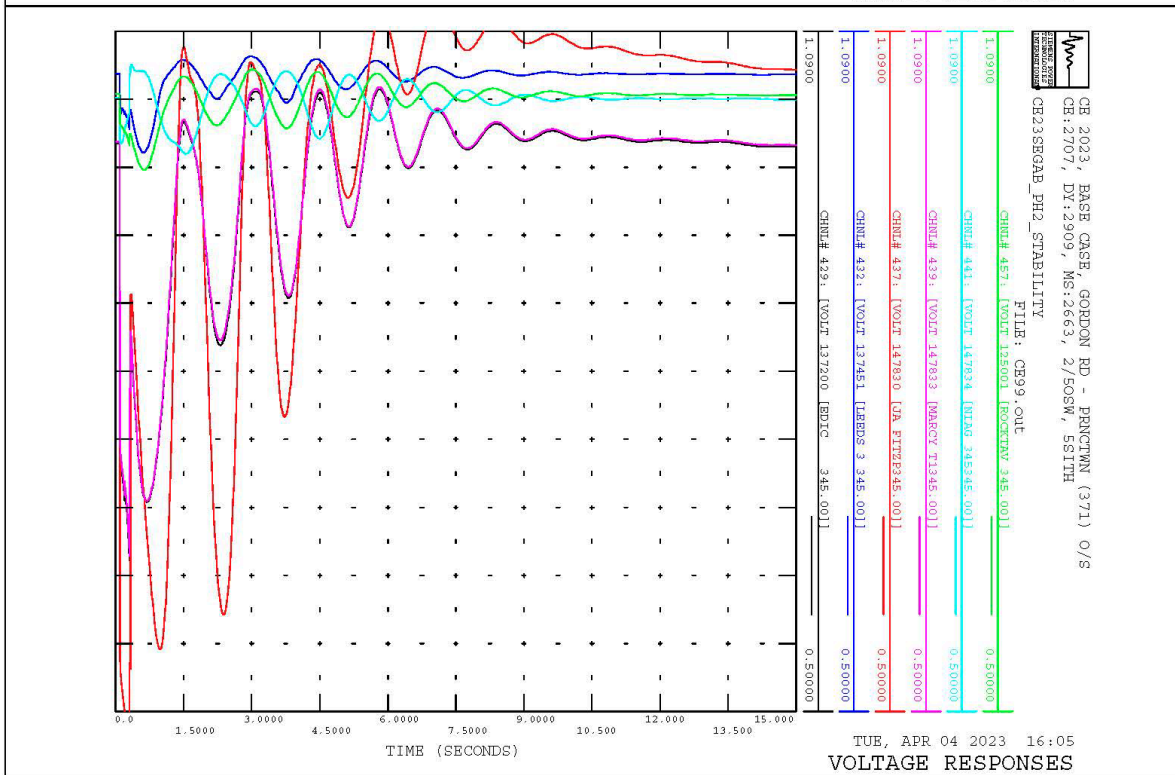
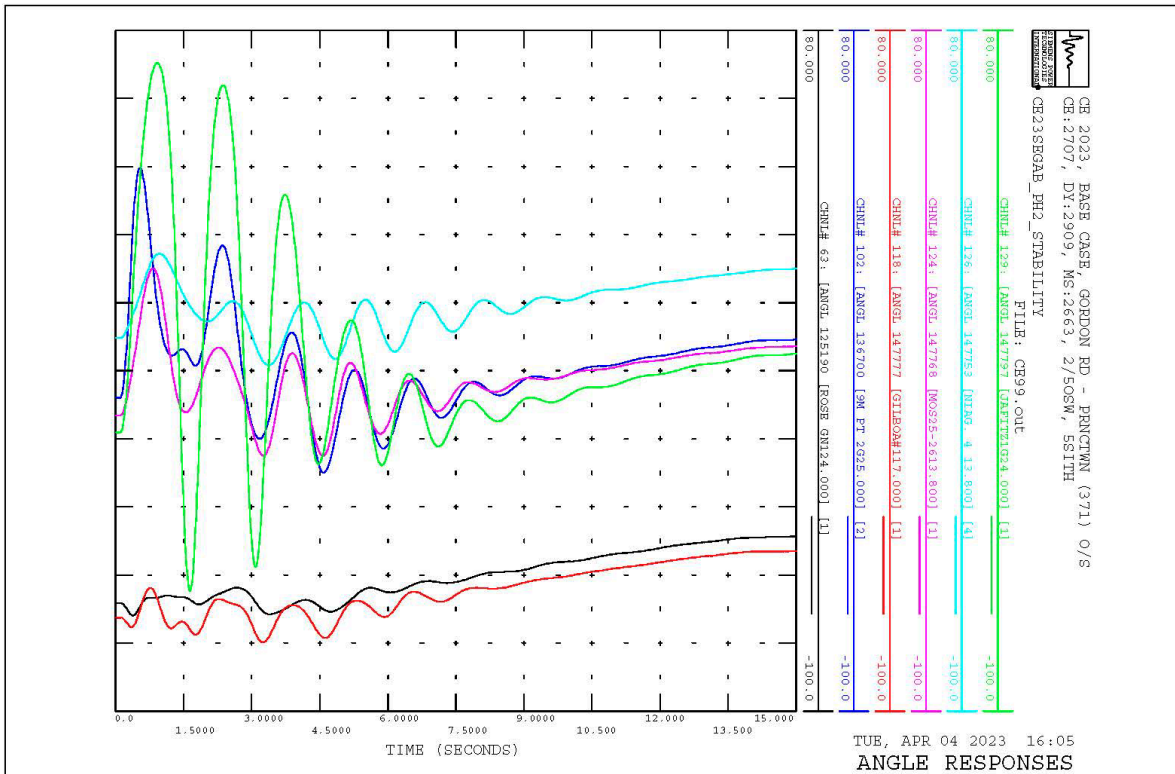


Figure 93: Case 2 Oswego, 5 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

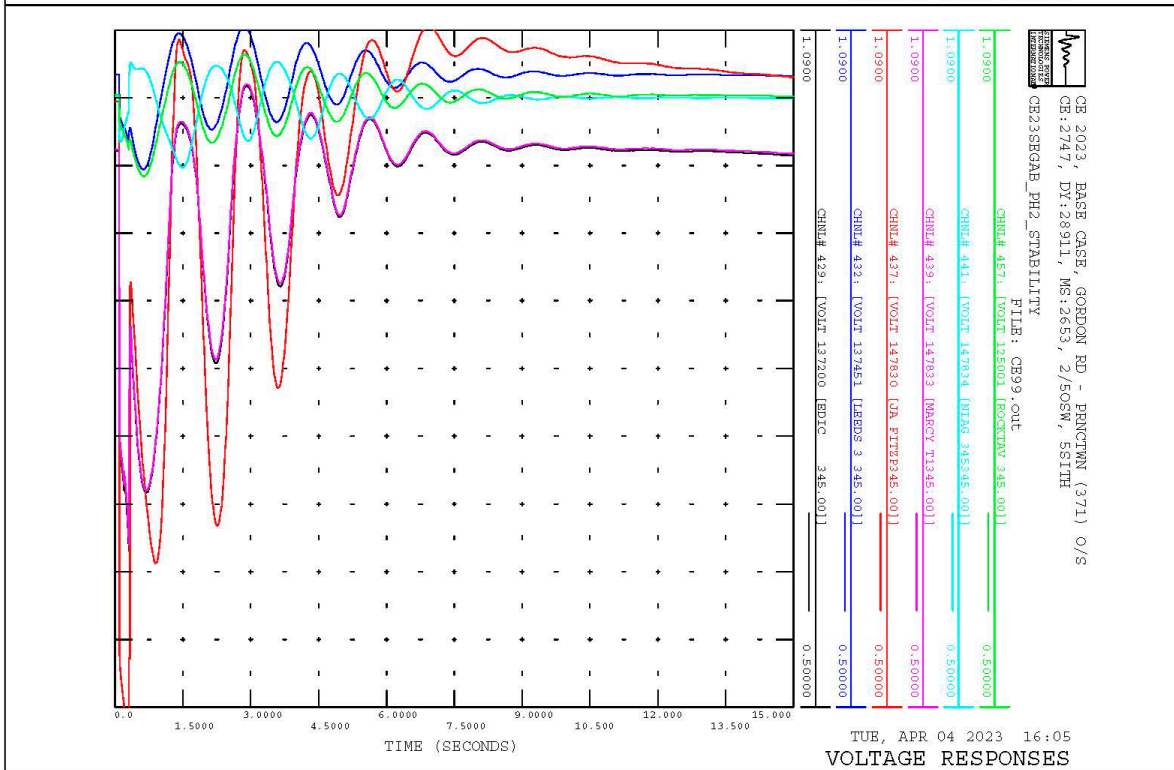
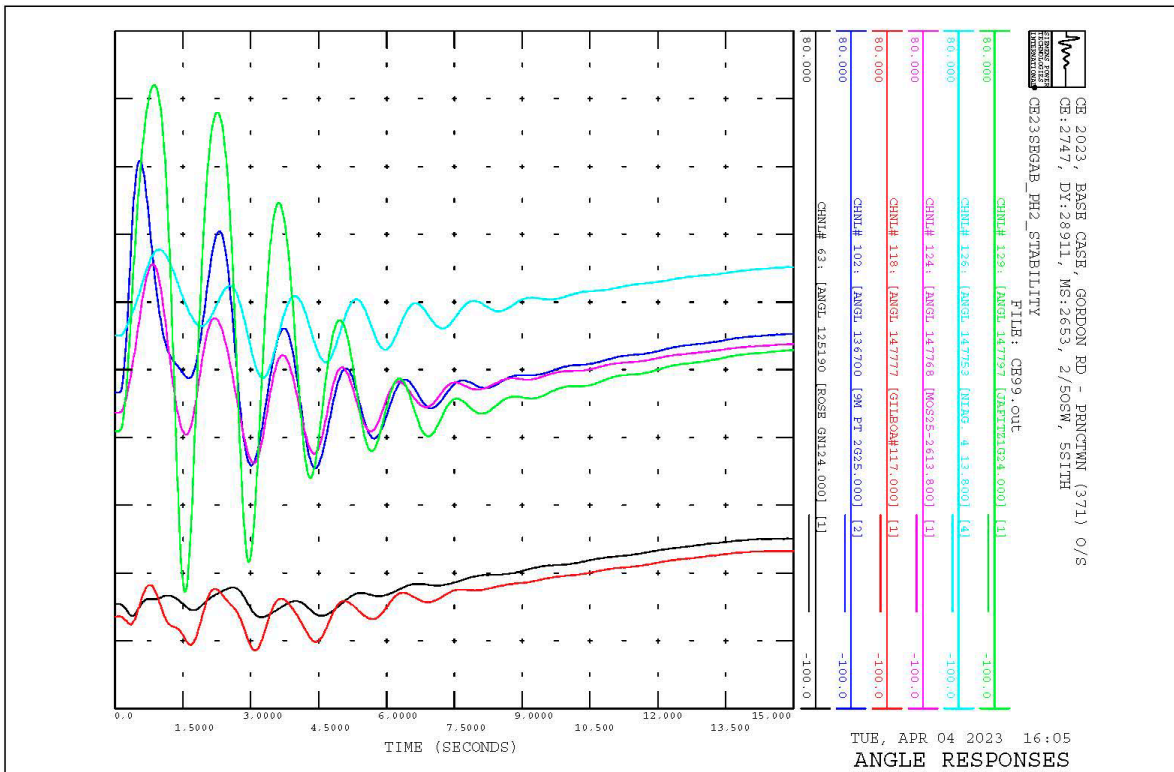


Figure 94: Case 2 Oswego, 5 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

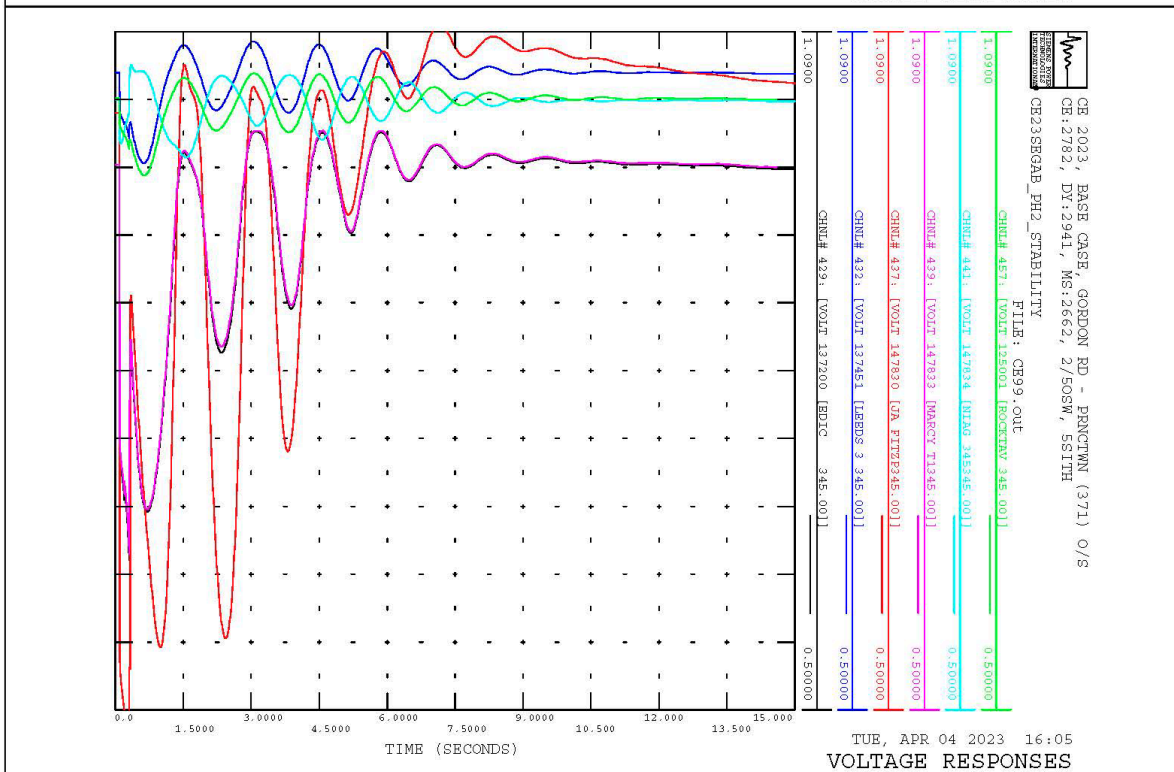
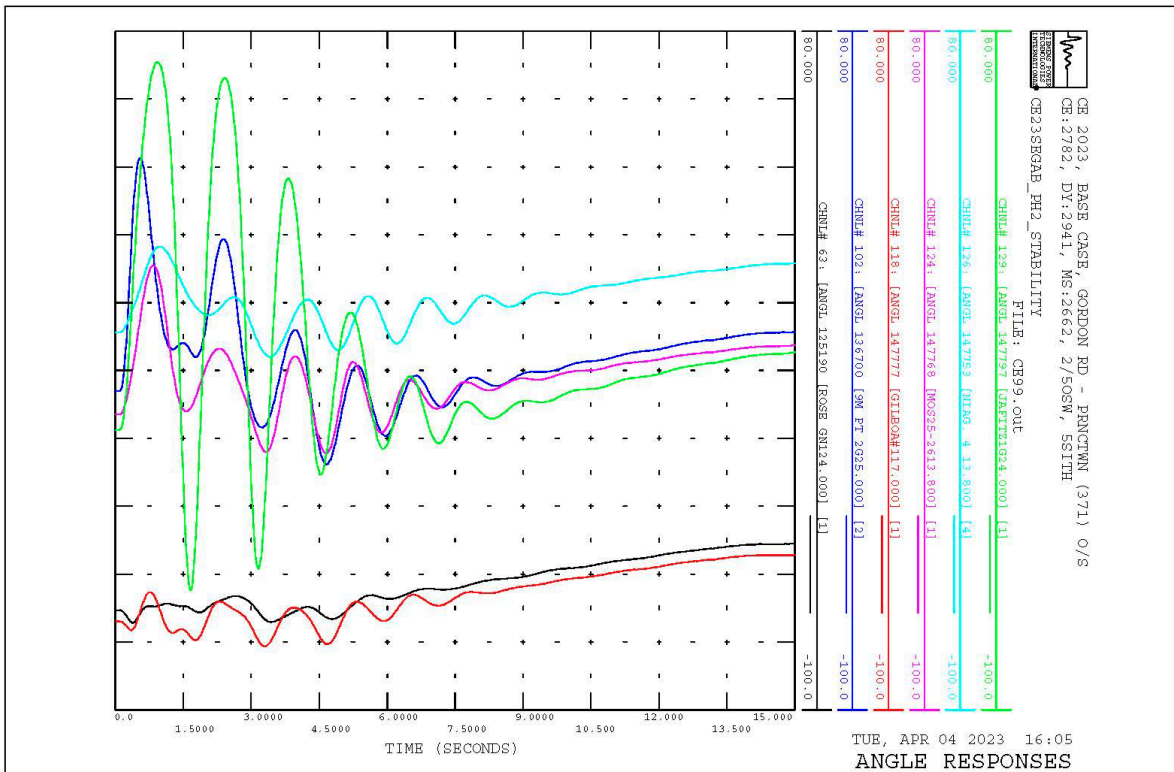


Figure 95: Case 2 Oswego, 5 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

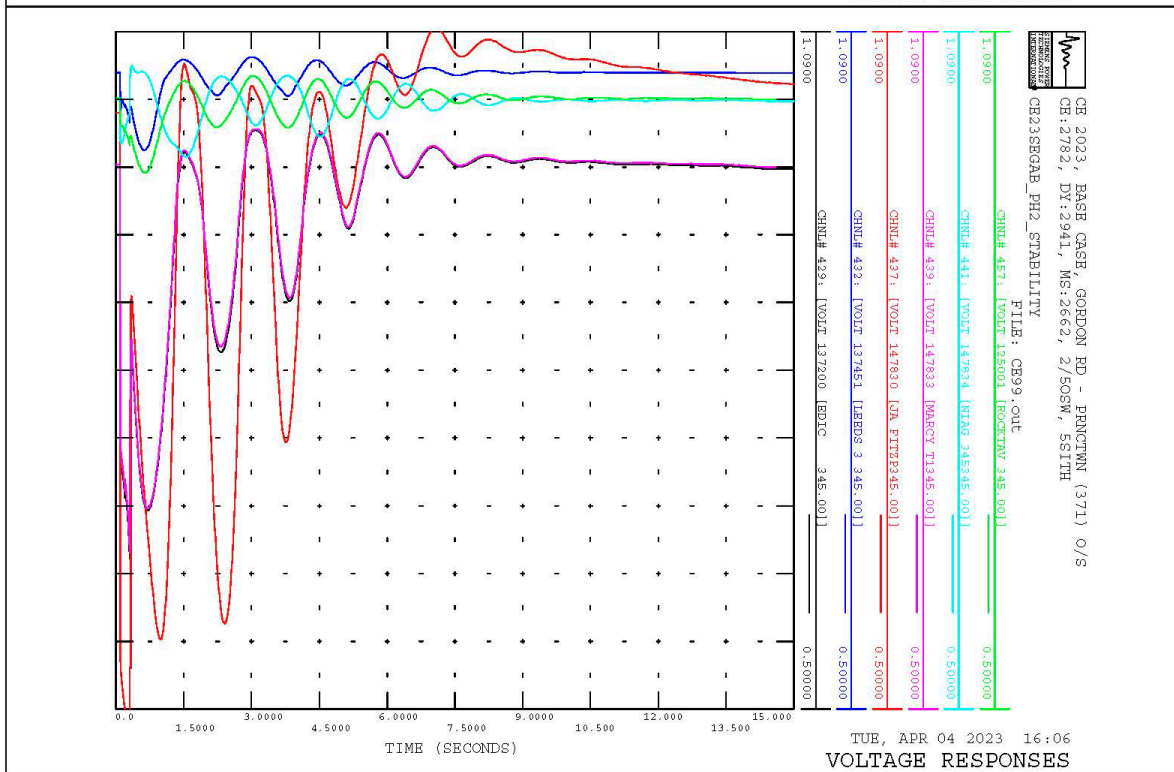
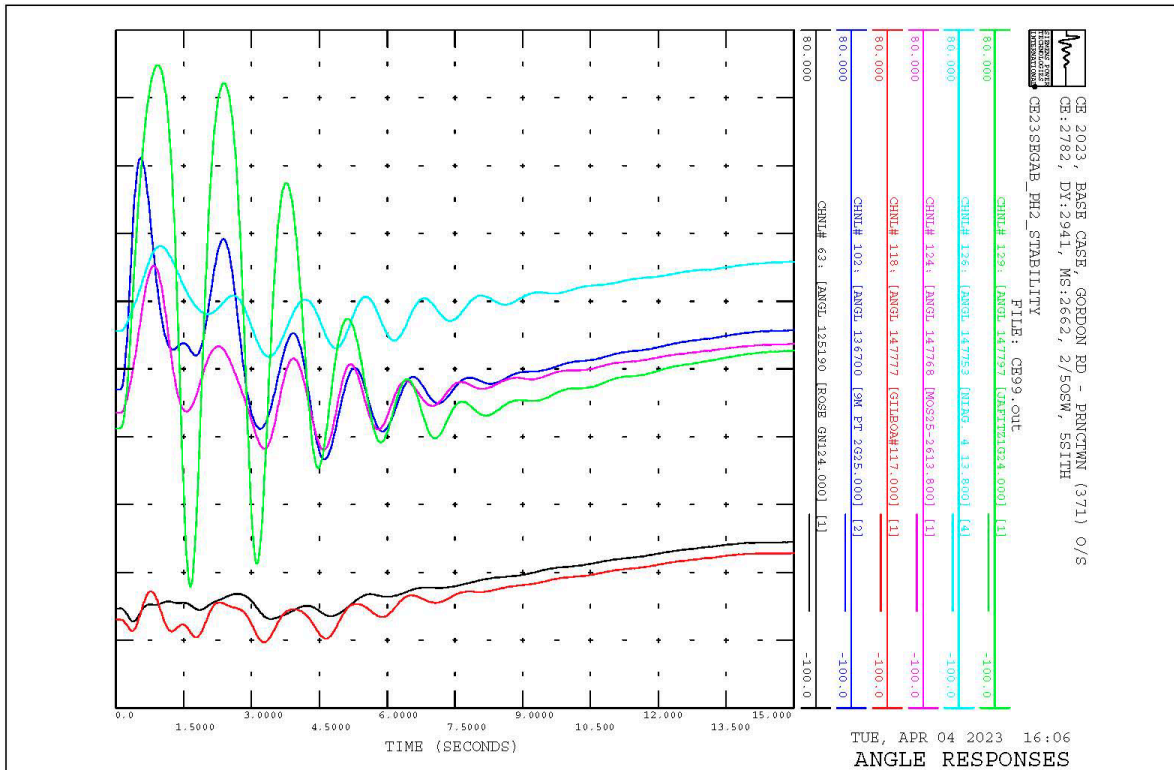


Figure 96: Case 2 Oswego, 5 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

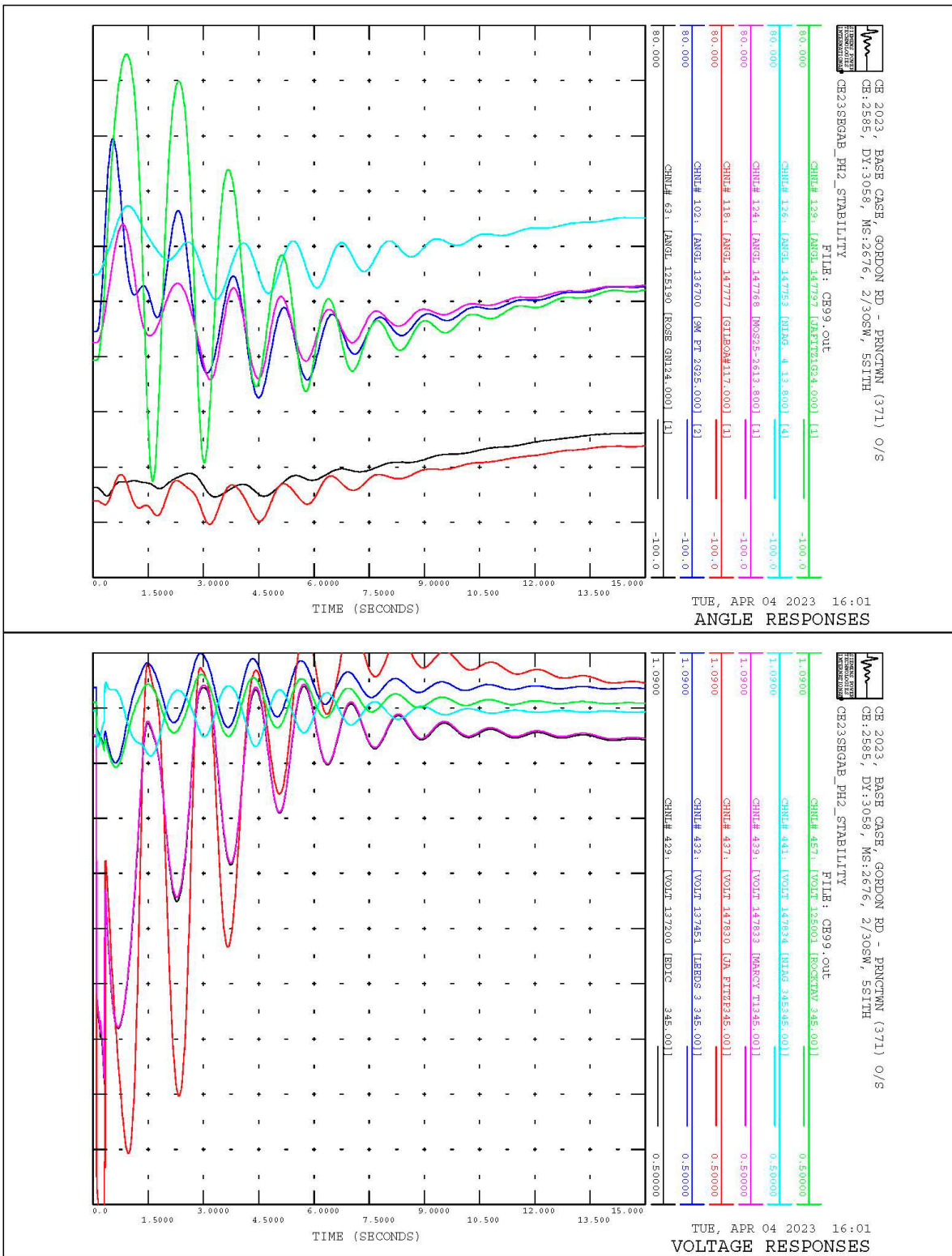


Figure 97: Case 2 Oswego, 3 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

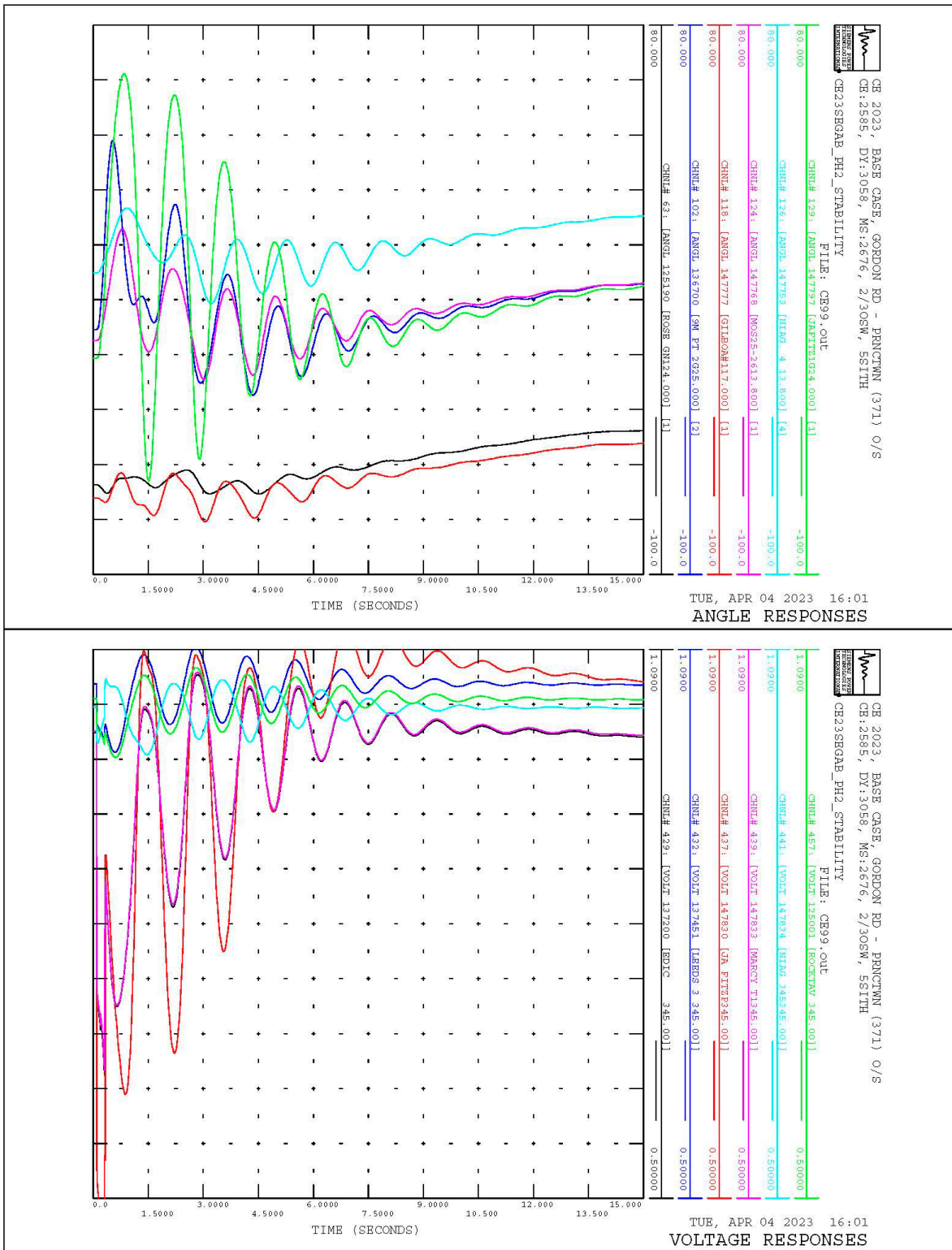


Figure 98: Case 2 Oswego, 3 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

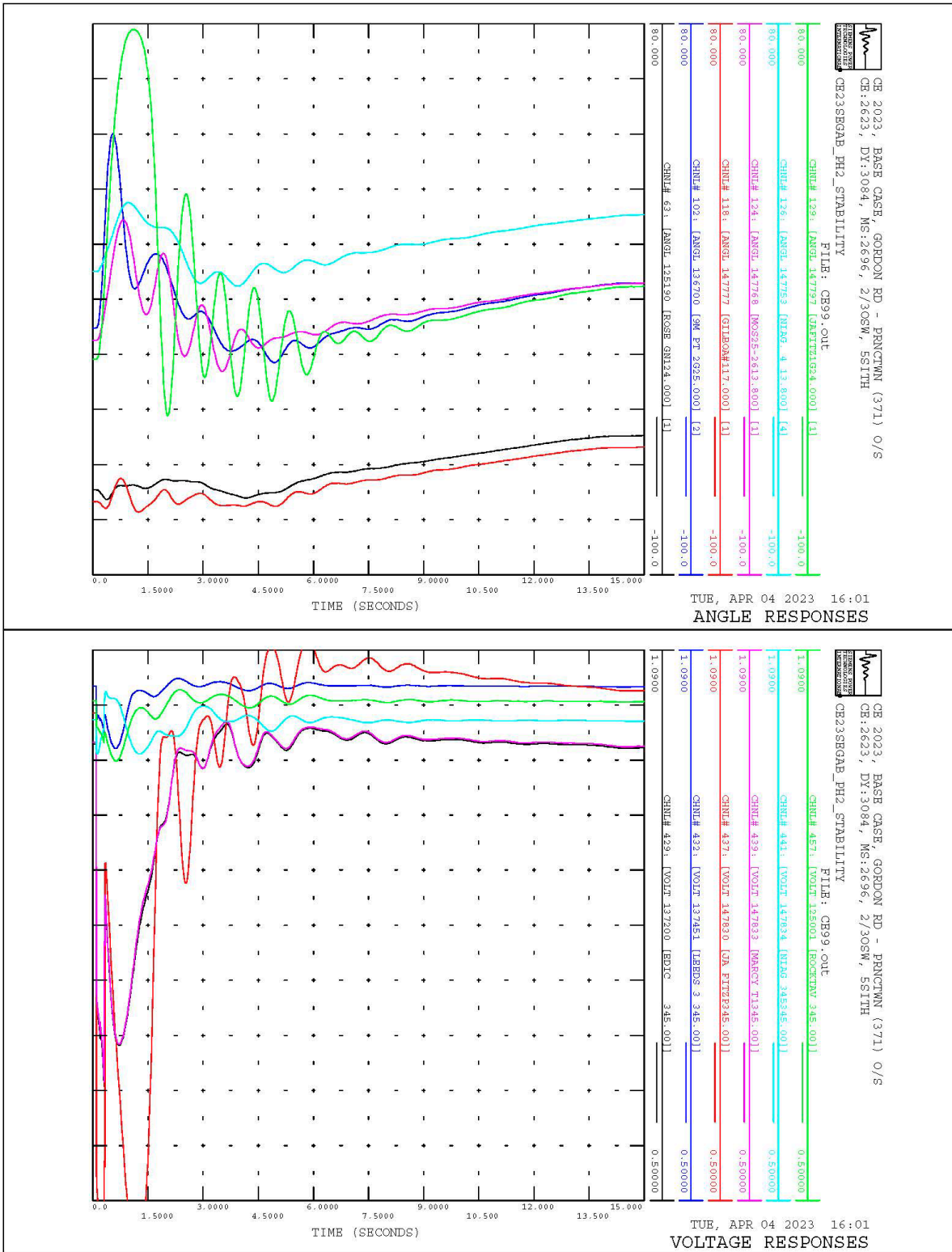


Figure 99: Case 2 Oswego, 3 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

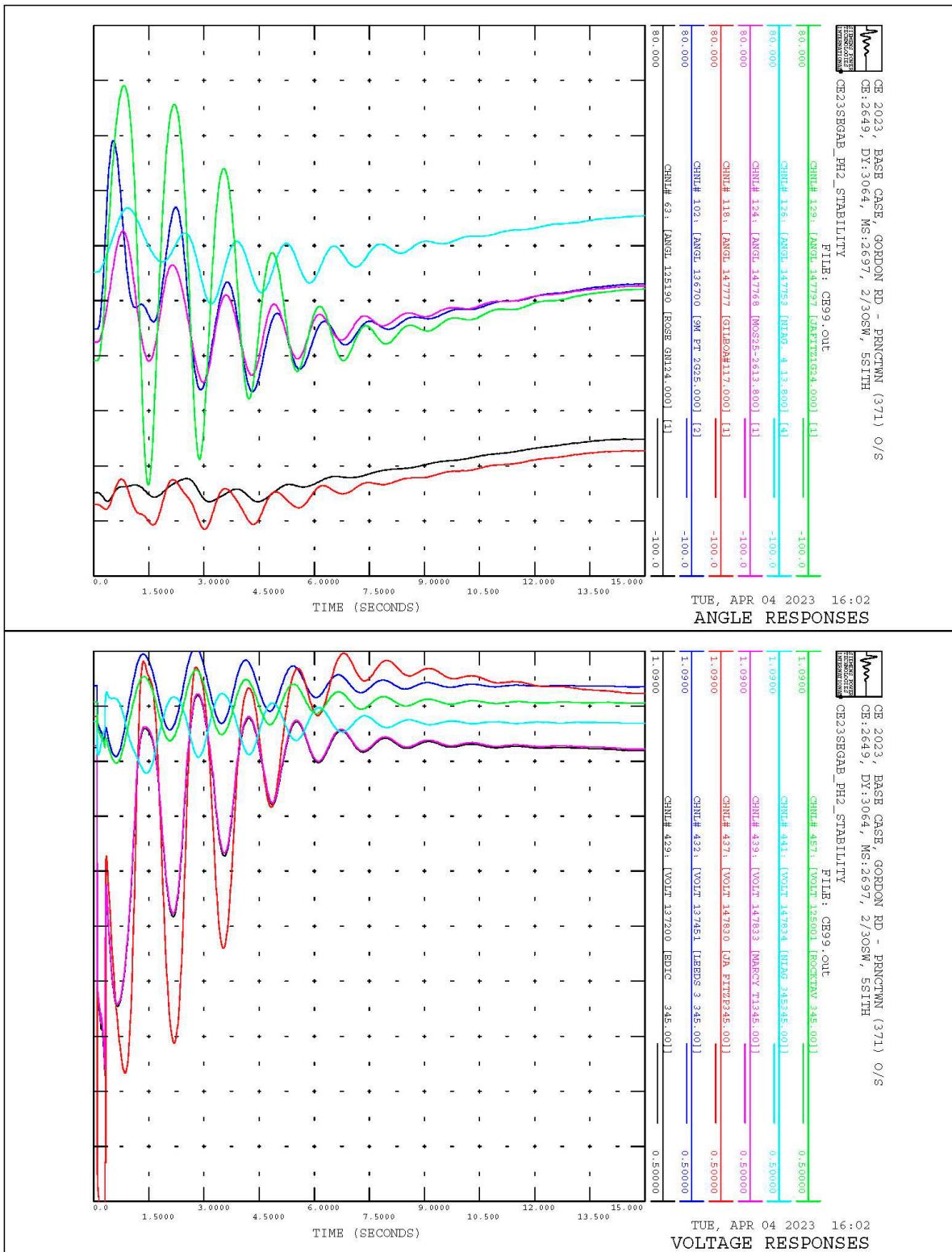


Figure 100: Case 2 Oswego, 3 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

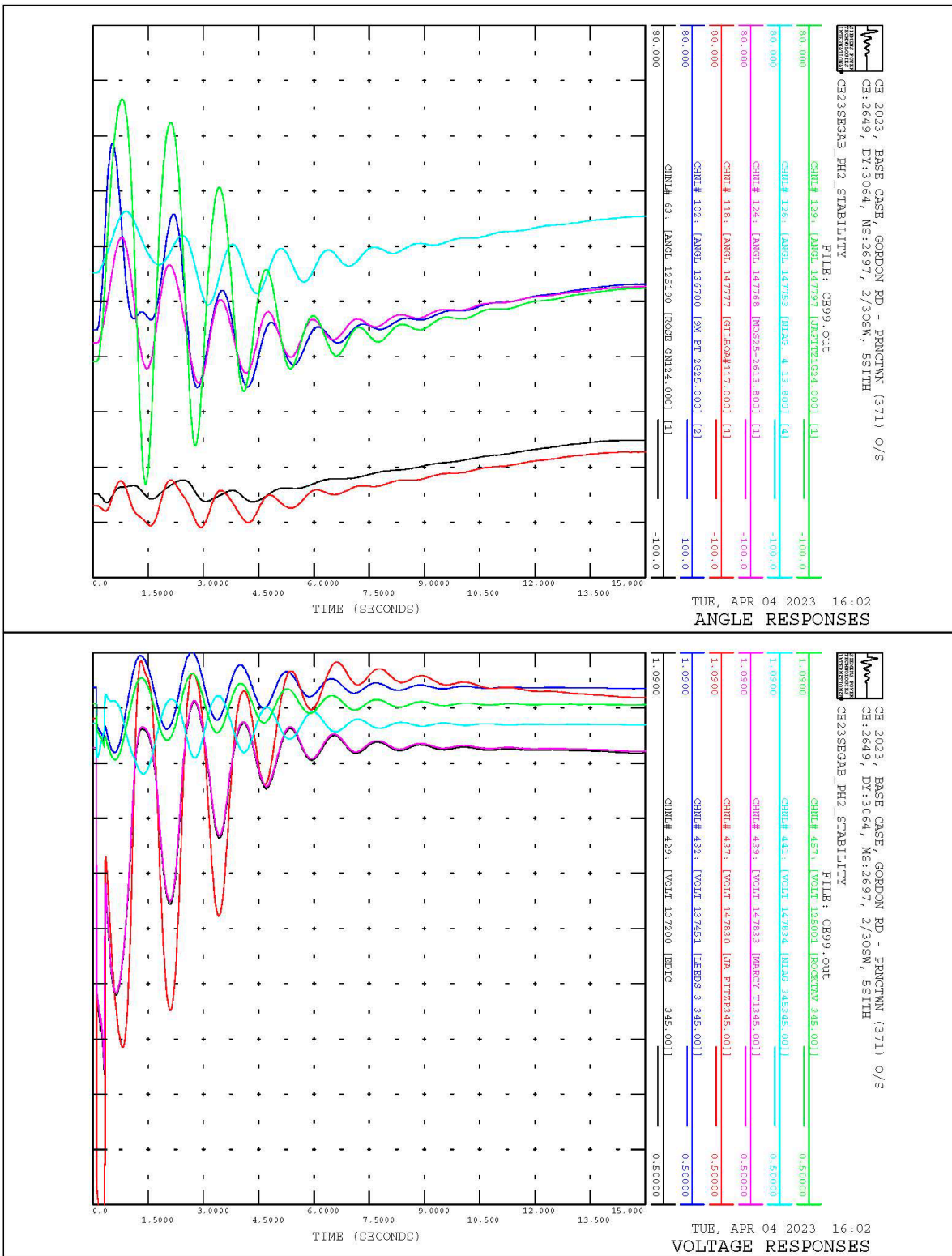


Figure 101: Case 2 Oswego, 3 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

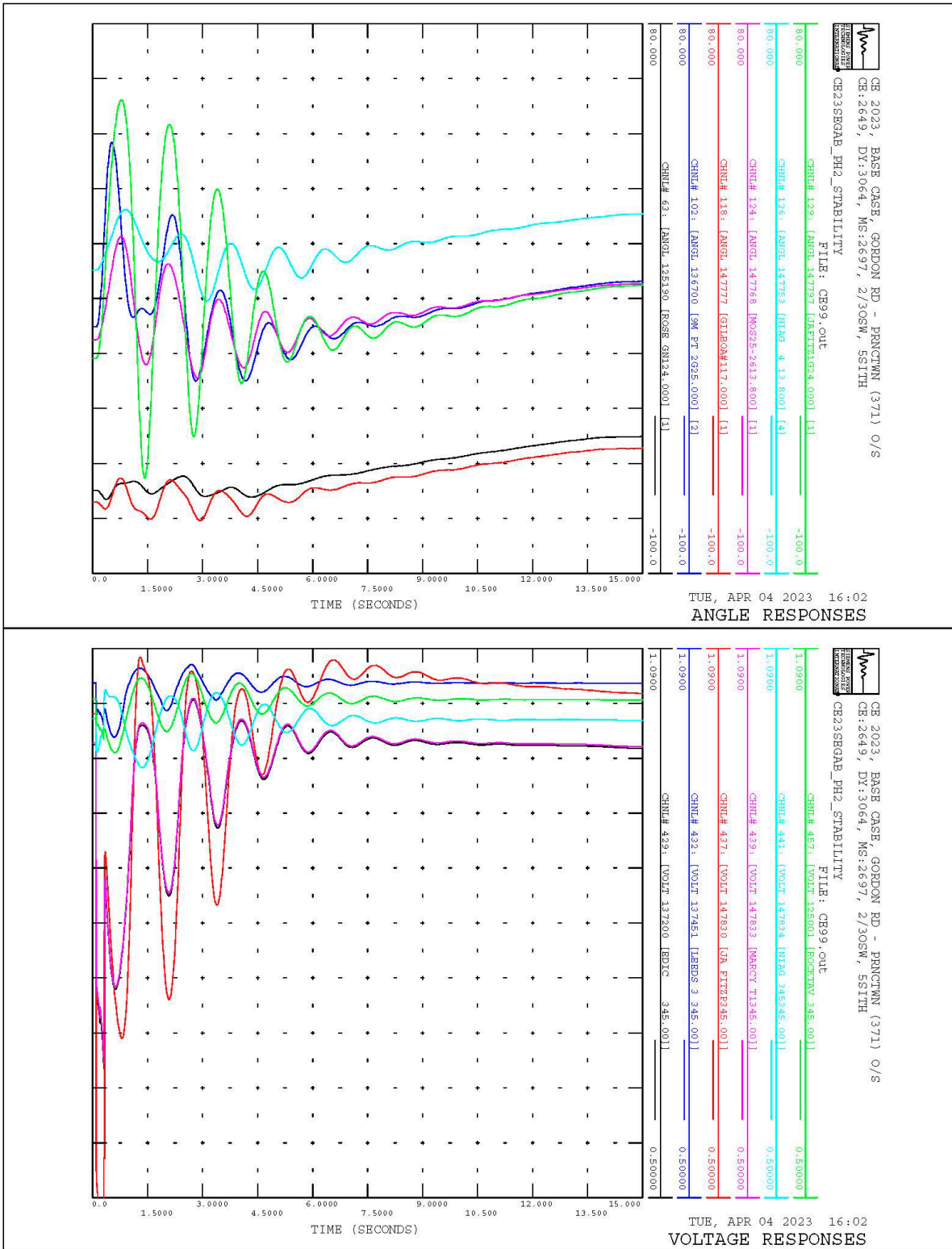


Figure 102: Case 2 Oswego, 3 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots

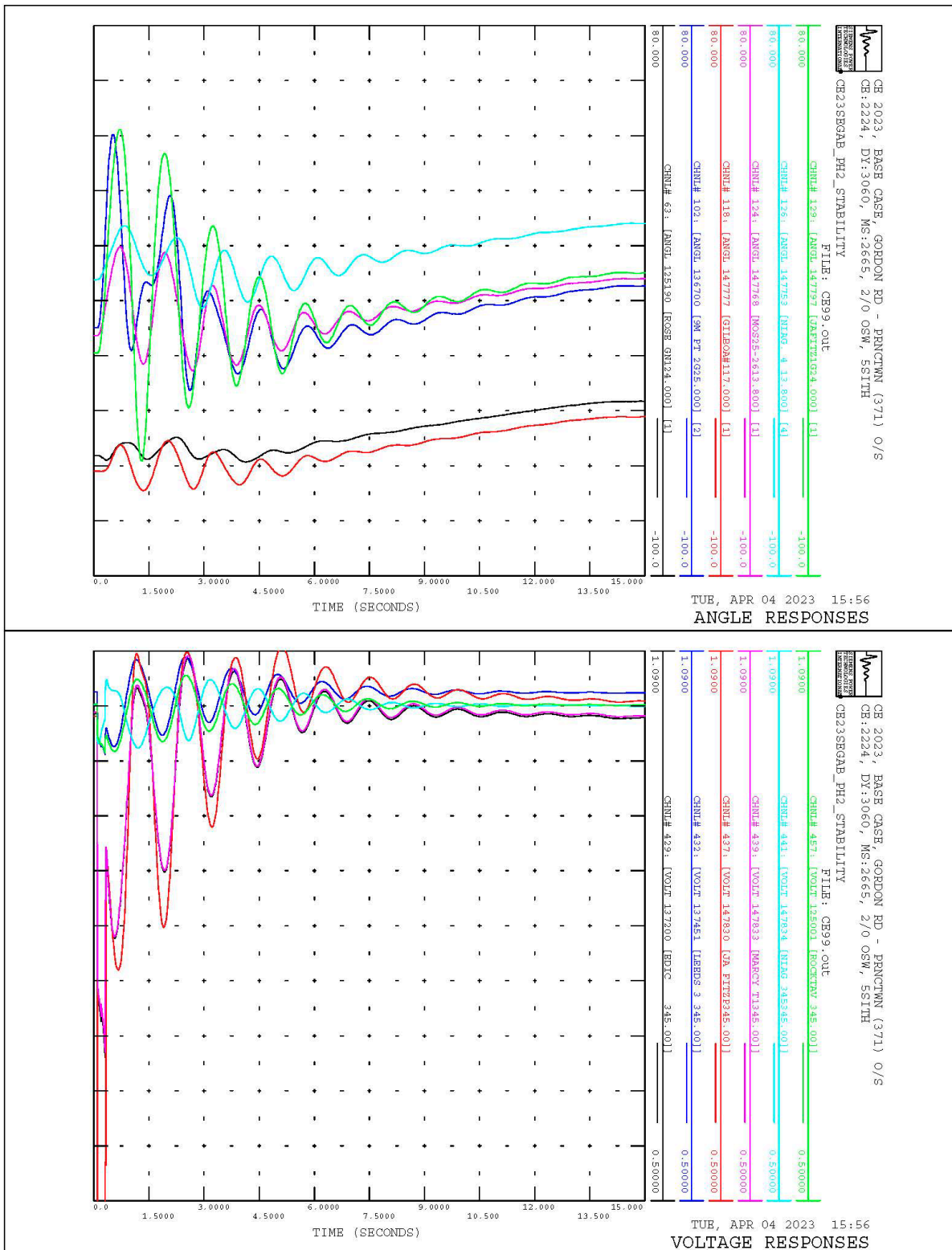


Figure 103: Case 2 Oswego, 0 Sithe, Marcy StatCom and SVCs O/S (1) with Contingency CE99 Angle/Voltage Plots

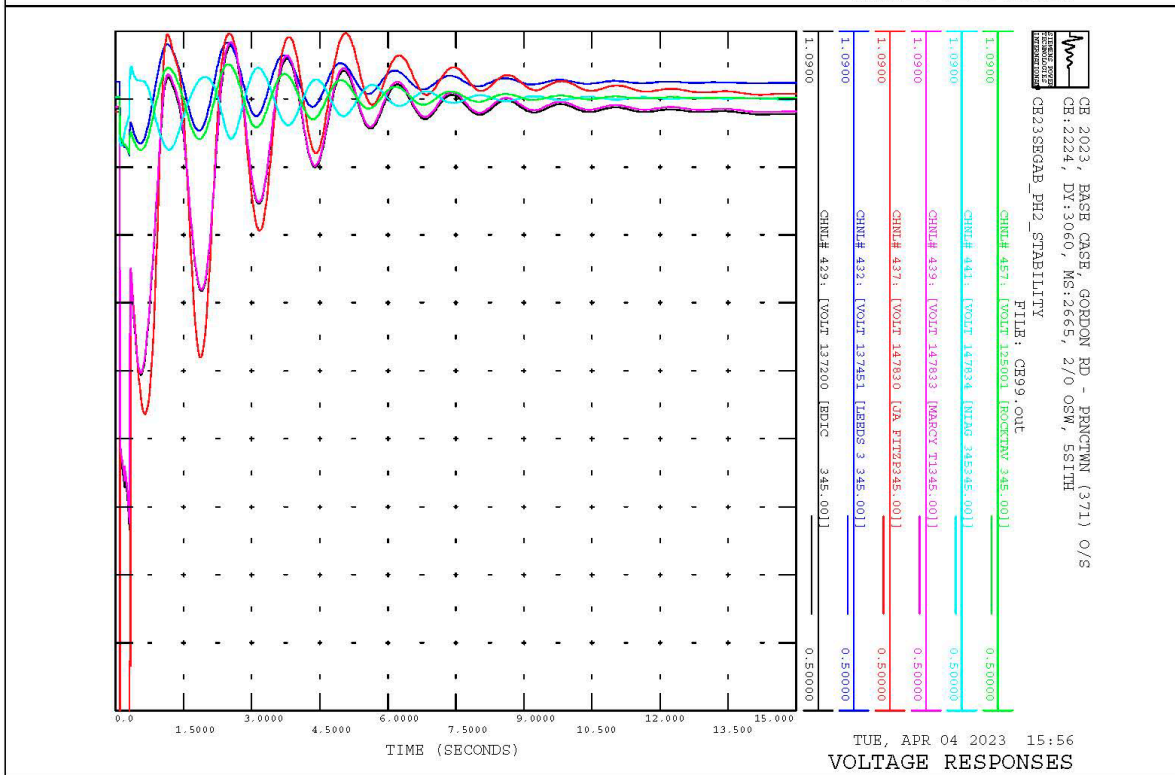
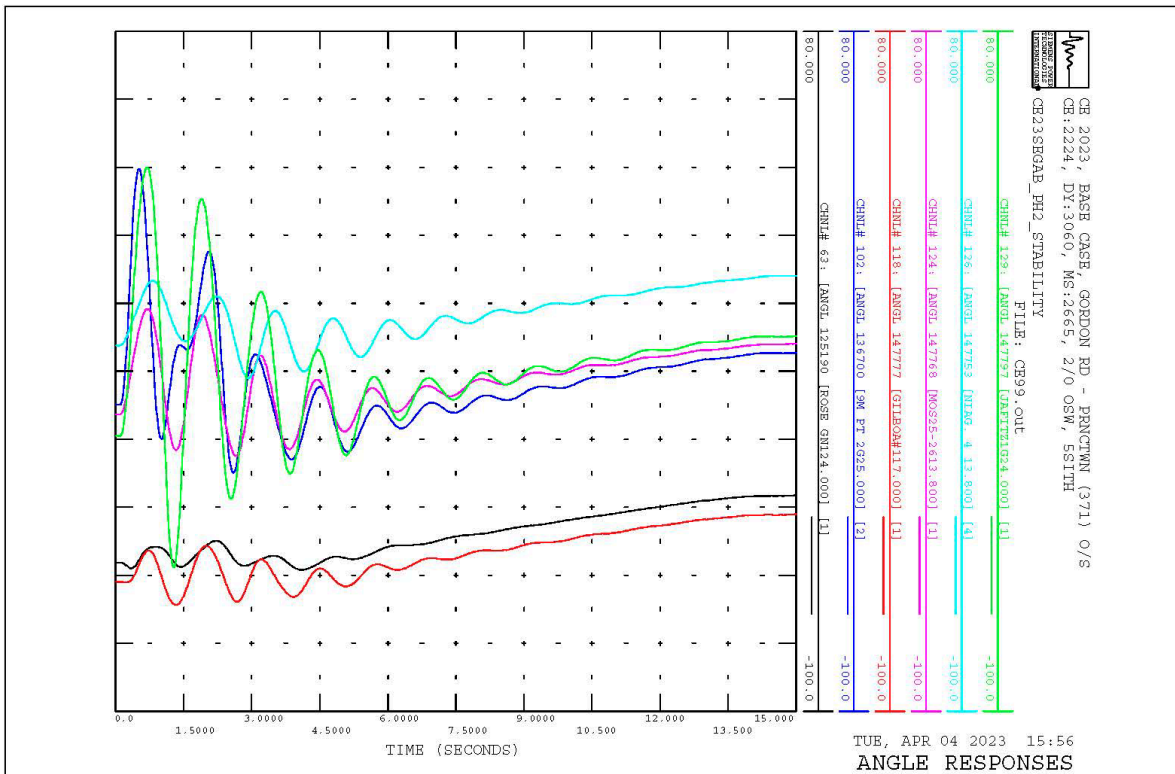


Figure 104: Case 2 Oswego, 0 Sithe, Marcy StatCom O/S and Fraser SVC I/S (2) with Contingency CE99 Angle/Voltage Plots

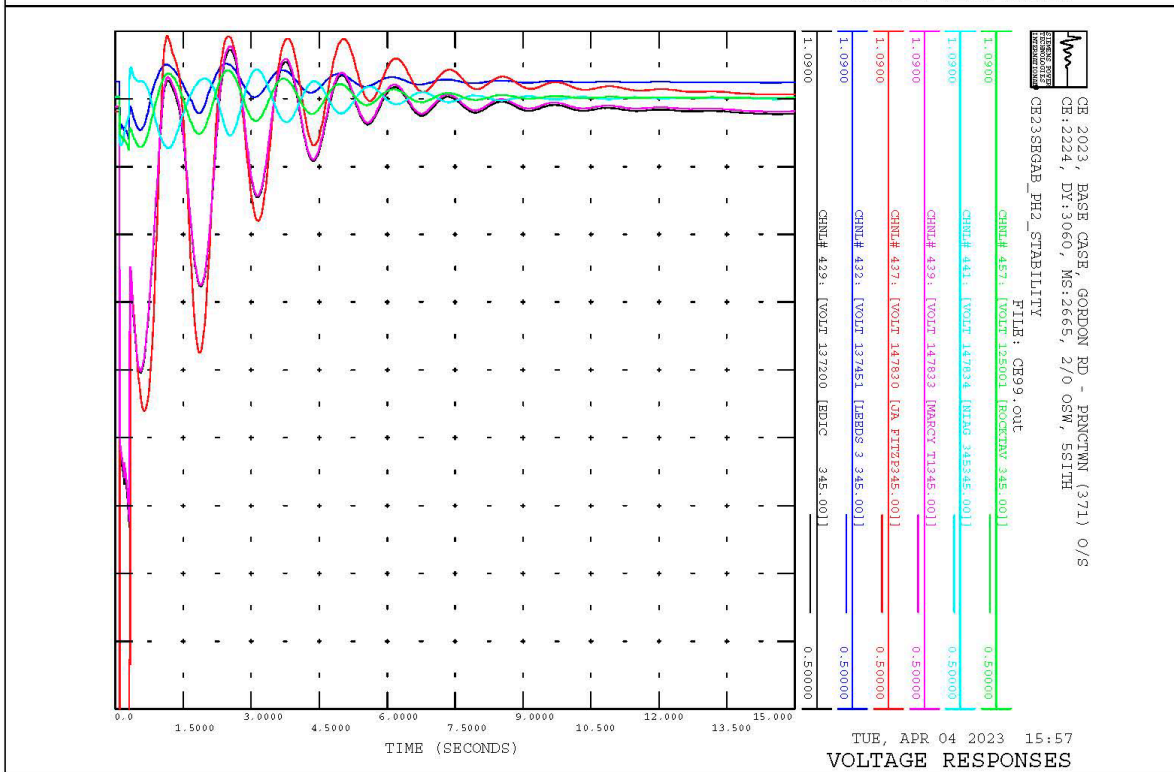
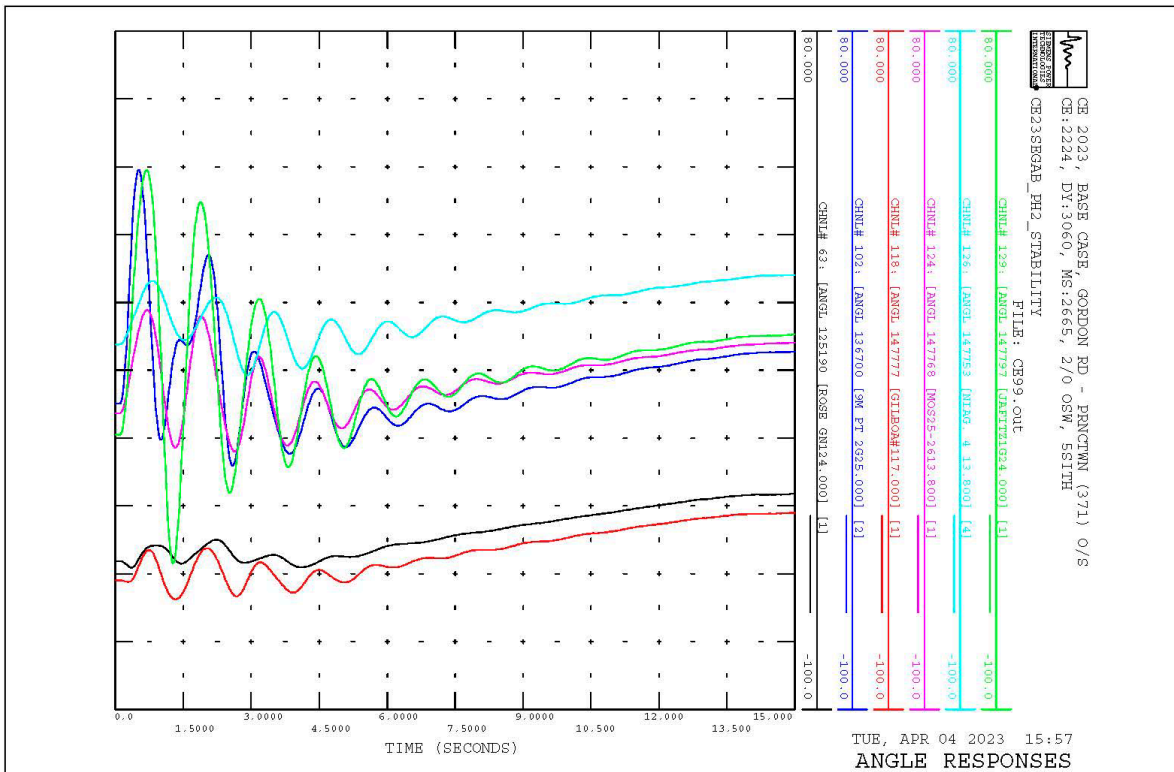


Figure 105: Case 2 Oswego, 0 Sithe, Marcy StatCom O/S, Fraser & Leeds I/S (3) with Contingency CE99 Angle/Voltage Plots

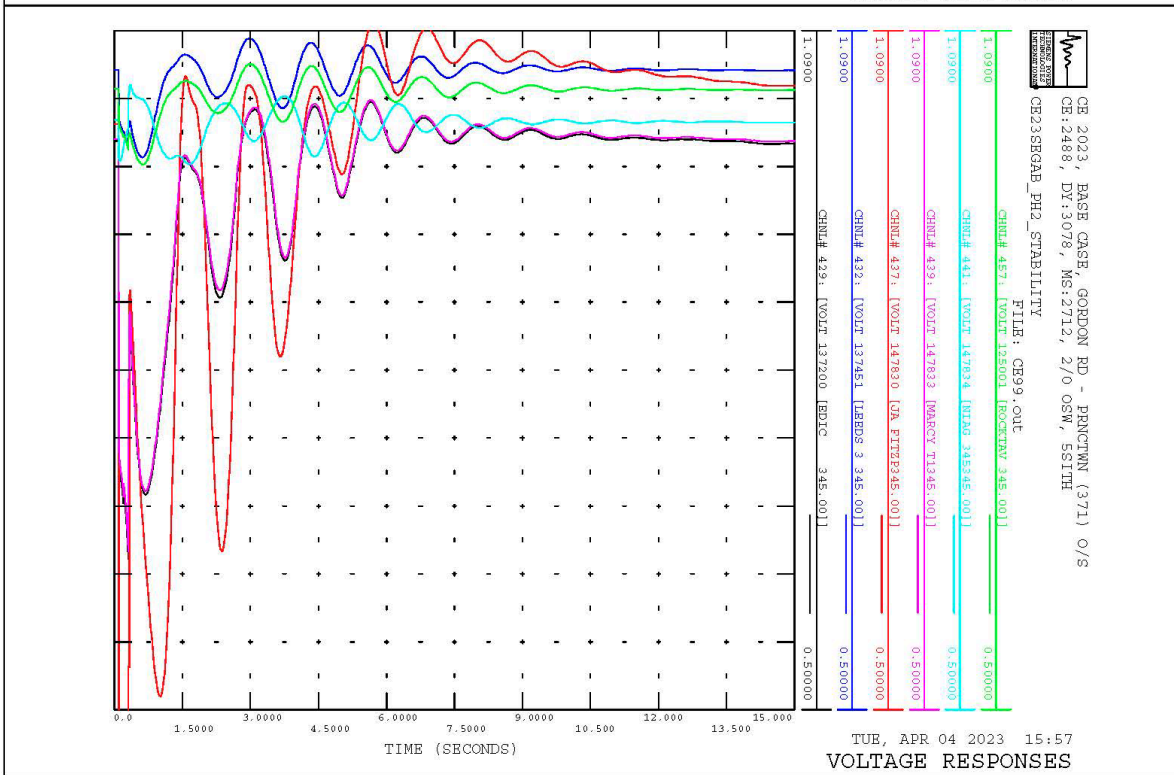
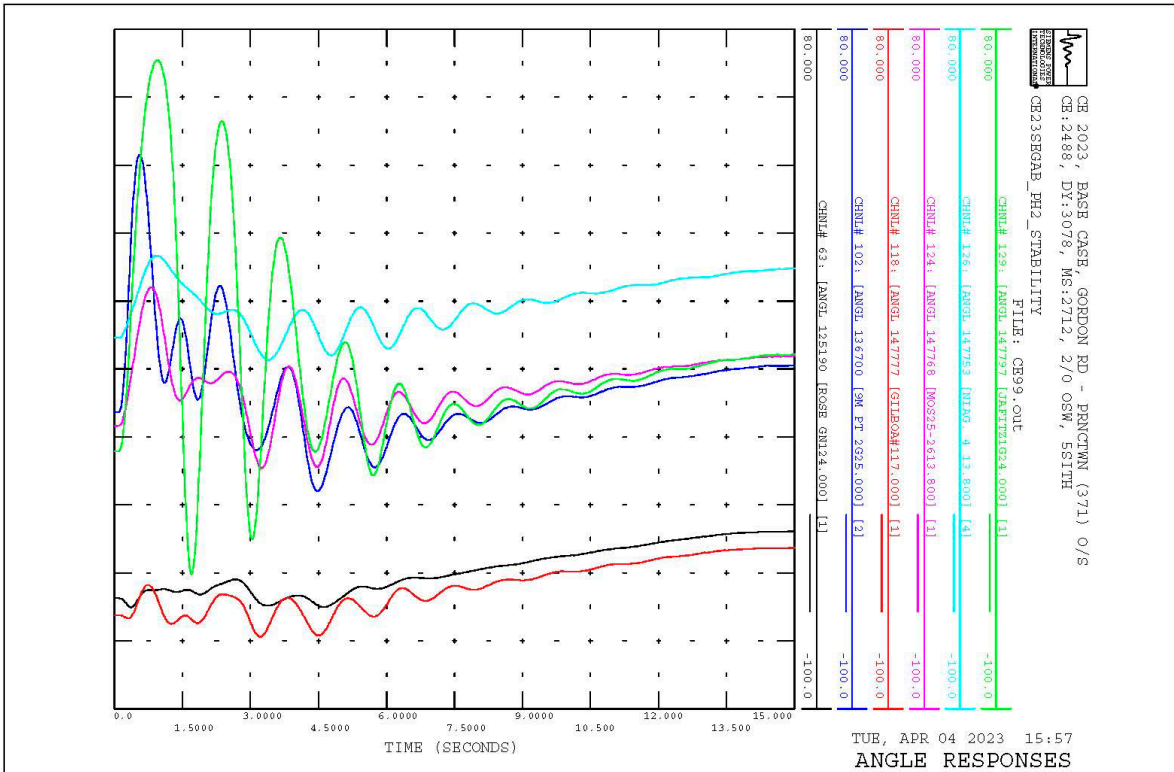


Figure 106: Case 2 Oswego, 0 Sithe, Marcy StatCom I/S (4) with Contingency CE99 Angle/Voltage Plots

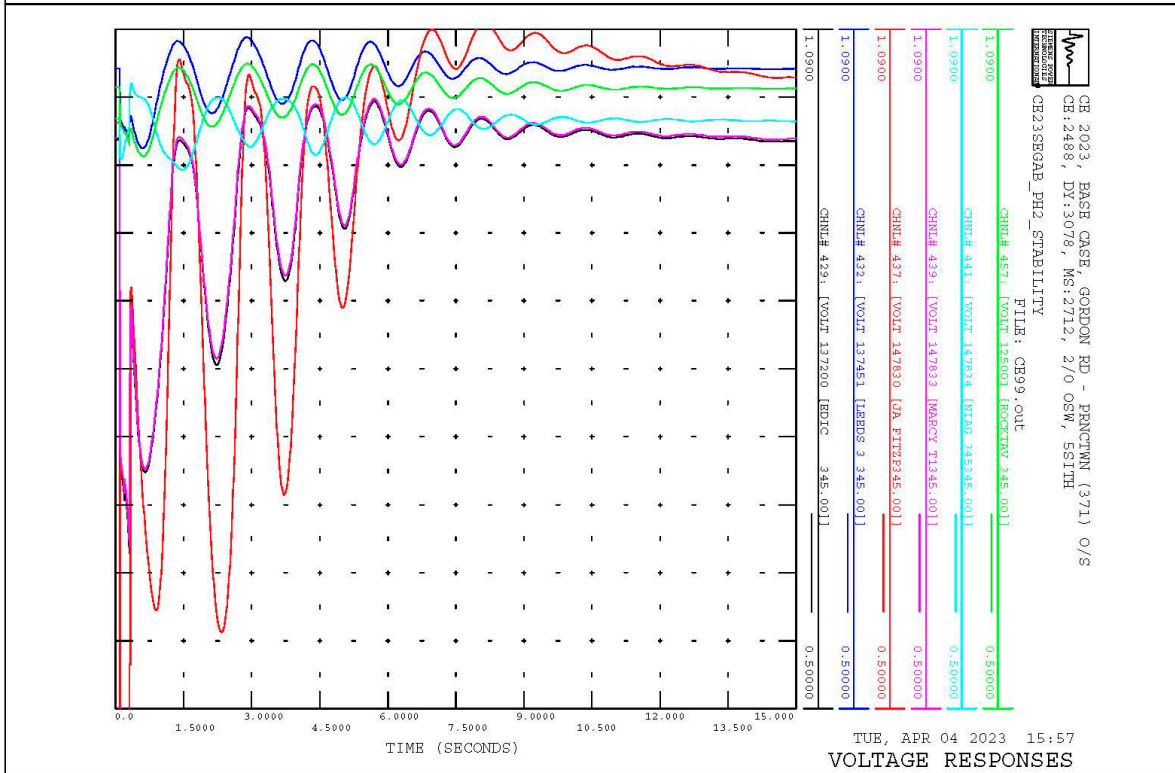
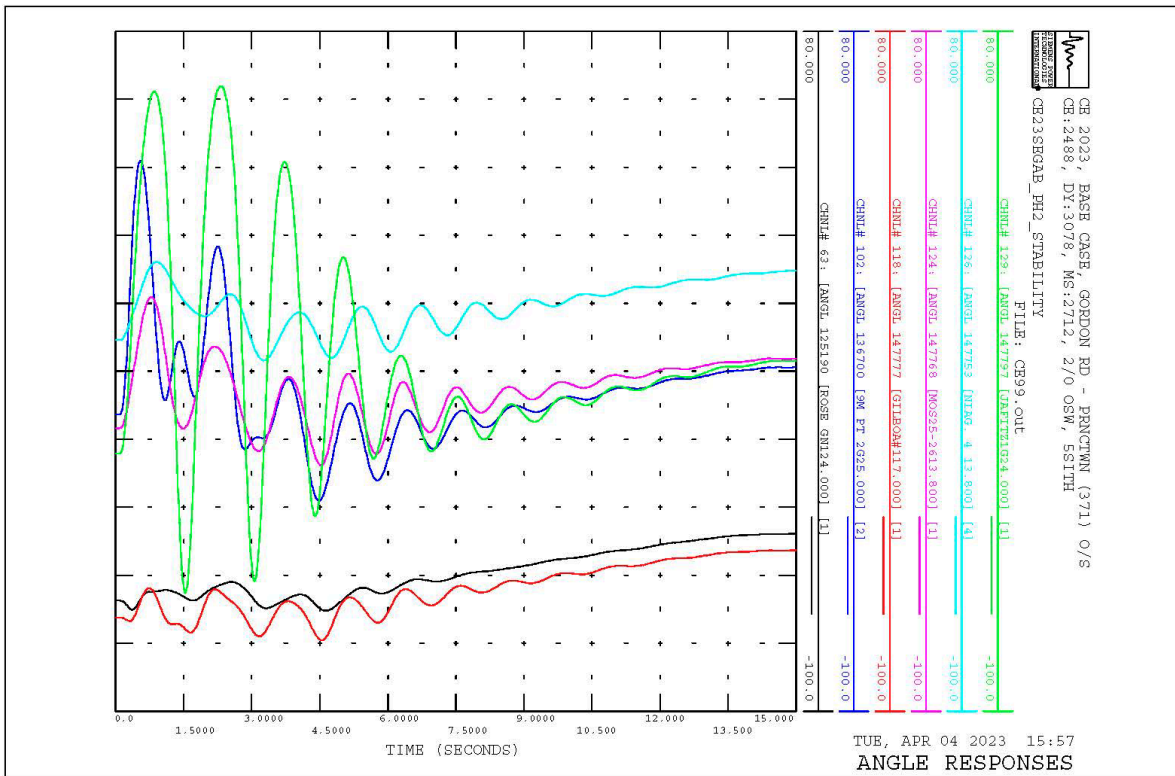


Figure 107: Case 2 Oswego, 0 Sithe, Marcy StatCom I/S and Fraser SVC I/S (5) with Contingency CE99 Angle/Voltage Plots

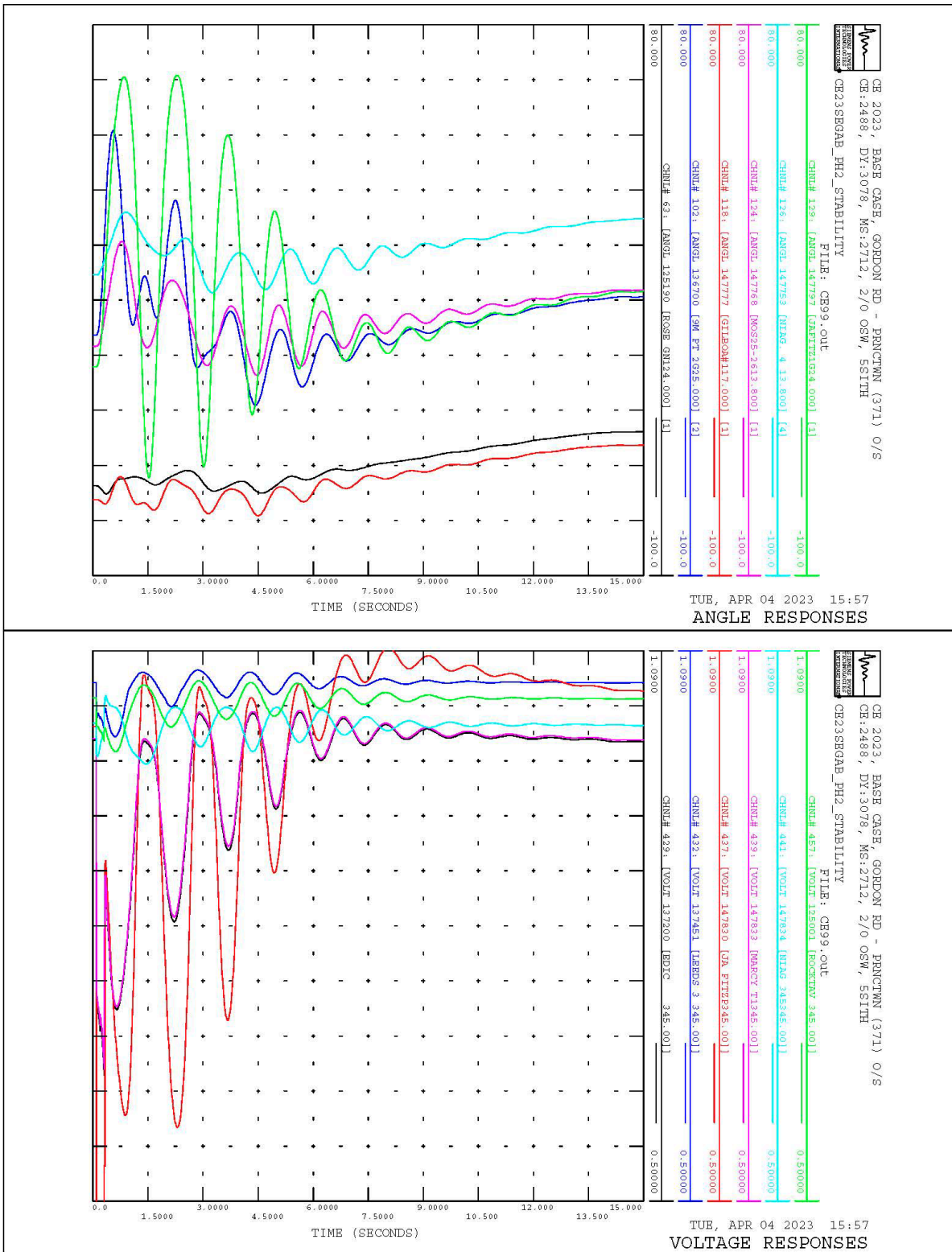


Figure 108: Case 2 Oswego, 0 Sithe, Marcy StatCom and SVCs I/S (6) with Contingency CE99 Angle/Voltage Plots