99-F-1164

Exhibits 80-86

NEW YORK STATE BOARD ON ELECTRIC GENERATION SITING AND THE ENVIRONMENT

EXHIBITS

Case 99-F-1164: In the Matter of the Application of Mirant (formerly Southern Energy) Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need to Construct and Operate a Nominal 750 Megawatt Combined Cycle Combustion Turbine Electric Generating Plant in Haverstraw, Rockland County, New York

Volume XIII

Exhibits 80-86

MIRANT℠

EXHIBIT LIST
(REV. JULY 31, 2001)

1. Article X Application - Volumes I - VI (March 20, 2000)[1]

2. Motion for Declaratory Ruling that the facility has been selected pursuant to approved procurement process (March 20, 2000)

3. Supplement to the Article X Application: Information demonstrating compliance with Clause 1 of Stipulation No. 1: Air Quality and Meteorology, as well as Clause 5(a) of Stipulation No. 13: Visual Resources and Aesthetics (April 3, 2000)

4. Supplement to the Article X Application: "Bowline Combined Cycle Plant: Stability, Relay Coordination and Auto-Reclosing Analysis", which supplements Appendix 3D of the Article X Application (April 4, 2000)

5. Supplement to the Article X Application:

   (a) Site Assessment of Electric and Magnetic Field (EMF) in accordance with Clause 20 in Stipulation No. 4: Electric Transmission Facilities;

   (b) Multipathway Risk Assessment, in accordance with Clause 6(g) of Stipulation No. 1: Air Quality and Meteorology;

   (c) An analysis demonstrating that with the construction of the facilities that are the subject of Case 99-T-1814, Application of Southern Energy Bowline L.L.C. Pursuant to Subpart 85-1.3 of the Public Service Commission's Rules of Procedure to Construct a Fuel Gas Transmission Line Which is Less Than 10 Miles Long there will be sufficient gas supply and interstate and intrastate gas transmission capacity to support the requirements of Bowline Unit 3 in accordance with Clause 5 of Stipulation No. 5: Gas Transmission Facilities. (April 19, 2000)

6. Supplement to the Article X Application: Southern Energy Bowline's Response to the New York State Department of Public Services May 3, 2000 letter (May 15, 2000).

7. Supplement to the Article X Application: Southern Energy Bowline's Responses to the New York State Department of Public Services May 2, 2000 letter (May 26, 2000).

8. Supplement to the Article X Application: SPDES Permit Application which replaces

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[1] The dates in parentheses are the date on which the documents were filed.

Appendix 7E of the Article X Application (June 13, 2000)

9. Supplement to the Article X Application: Southern Energy's Responses to the New York State Department of Environmental Conservation's November 16, 1999 letter (June 22, 2000)

10. Supplement to the Article X Application: Southern Energy's Responses to the New York State Department of Environmental Conservation's June 20, 2000 letter (June 23, 2000)

11. Letter to Meghan Purvee re MACT requirement under 40 CFR Subpart 63 (July 25, 2000)

12. Letter to Meghan Purvee re: MACT requirement under 40 CFR Subpart 63 (July 28, 2000)

13. Compliance Letter from Siting Board Chairman Maureen Helmer (August 10, 2000)

14. Applicant's Responses to Information Request No. 1(DOH-1) through 37(DOH-37)(August 14, 2000): Supplemental Responses to Information Requests No. 2(DOH-2); 12(DOH-12); 14(DOH-14); 26(DOH-26); 30(DOH-30); 31(DOH-31); 32(DOH-32); 34(DOH-34) and 36(DOH-36) September 12, 2000

15. Applicant's Responses to Information Request No. 38(DEC-1) through 42(DEC-5)(August 23, 2000)

16. Applicant's Responses to Information Request No. 43(DPS(ECS))-1) through 58(DPS(ACD)-16) (August 31, 2000); Supplemental Responses to 44(DPS(ECS)- 2) through 48(DPS(ECS) -6) (October 5, 2000); Supplemental Responses to 44(DPS(ECS)-2), 45(DPS(ECS)-3), 47(DPS(ECS)-5), and 48(DPS(ECS) 6) (October 24, 2000)

17. Applicant's Responses to Information Request No. 59(DEC-1) through 63(DEC-5) (September 15, 2000)

18. Applicant's Responses to Information Request No. 64(DPS(AJD)-17) through 74(DPS(ESC)-27) (September 28, 2000)

19. Applicant's Responses to Information Request No. 74(DPS(ECS)-28) through 79(DPS(ECS)-32) (October 16, 2000) Supplemental Response to 77(DPS(ECS)-30) and 78(DPS(ECS)-31) (October 23, 2000) (Response to Information Request No. 75 intentionally deleted)

20. Applicant's Responses to Information Request No. 80(DPS(PS)-33) through 90(DPS(BEA)-43) (October 25, 2000); Supplemental Response to 80(DPS(PS)-33) (November 6, 2000)

21. Applicant's Responses to Information Request No. 91(DEC-1) through 107(DEC-17) (October 26, 2000)

22. Applicant's Response to Information Request No. 108(DPS(PDE)-44) (November 8, 2000)

23. Applicant's Response to Information Request No. 109(UWNY-1) (November 7, 2000)

24. Applicant's Responses to Information Request No. 110(DPS(CCP)-45) through 125(DPS(DGD)-60) (November 14, 2000); Supplemental Responses to 113(DPS(CCP)-48), 115(DPS(CCP)-50), 116(DPS(ACD)-51), 121(DPS(DGD)-56), 122(DPS(DGD)-57) (November 21, 2000)

25. Applicant's Responses to Information Request No. 126(DOH-38) through 138(DOH-50) (November 14, 2000); Supplemental Response to 133(DOH-45) (December 1, 2000)

26. Applicant's Responses to Information Request No. 139(CR-1) through 205(CR-67) (November 14, 2000); Supplemental Responses to Information Request No. 142(CR-4), 175(CR-37), 194(CR-56) (November 21, 2000); Supplemental Response to 185(CR-47) (February 6, 2000)

27. Applicant's Responses to Information Request No. 206(DEC-18) through 208(DEC-20) (November 17, 2000)

28. Applicant's Responses to DEC First Set of Gunderboom Information Requests (DEC(Gunderboom I)-1) through (DEC(Gunderboom I)-17) (December 14, 2000)

29. Applicant's Responses to DEC Second Set of Gunderboom Information Requests (DEC(Gunderboom II)-1) through (DEC(Gunderboom II)-16) (January 3, 2001)

30. Applicant's Responses to Information Request No. 209(RK-1) through 217(RK-9) (January 5, 2001)

31. Applicant's Responses to Information Request No. 218(RK-10) through 223(RK-15) (February 2, 2001)

32. Applicant's Responses to Information Request No. 224(VH-1) through 234(VH-11)

(February 5, 2001)

33. Applicant's Responses to Information Request No. 235(DEC-21) and 236(DEC-22) (February 21, 2001)

34. Applicant's Responses to Information Request No. 237(VH-12) through 290(VH-65) (February 16, 2001)

35. Applicant's Responses to Information Request No. 291(Supplemental CR-1) through 369 Supplemental (CR-79) (February 20, 2001)

36. Applicant's Responses to Information Request No. 370 (DOH-51 through 372 (DOH-53) (March 19, 2001)

37. United Water's Responses to the County of Rockland's Supplemental Information Requests No. CR-1 through No. CR-35 (March 9, 2001)

38. Applicant's Table of Cooling Tower Emission Perimeters (October 4, 2000)

39. Applicant's Letter to the New York State Office of Parks, Recreation and Historic Preservation from TRC Environmental Corporation and enclosed letters, dated October 2, 2000 (October 5, 2000)

40. Applicant's SPDES Permit Application - BTA Analysis (October 25, 2000)

41. Applicant's Wetland Jurisdictional Determination Report: Bowline Unit 3 Generating Station (October 21, 2000)

42. Applicant's Revised Wetland Map for the Wetland Jurisdictional Determination Report (December 11, 2000)

43. Applicant's Comments on the Draft Prevention of Significant Deterioration Permit Conditions (December 14, 2000)

44. Applicant's Letter to John Williams re UTM Coordinates for the location of the stack and cooling tower (January 29, 2001)

45. Notice of Change of Name of Applicant (January 31, 2001)

46. Agreement between Mirant Bowline, L.L.C. and United Water New York, Inc., dated February 6, 2001

47. Applicant's Letter to Secretary Deixler re Applicant's use of hybrid cooling (February 13, 2001)

48. Applicant's Comments on the Draft State Pollutant Discharge Elimination System Discharge Permit (February 21, 2001)

49. Applicant's Comments on the Draft Subpart 201-6 Air Pre-Construction and Certificate to Operate Permit Conditions (February 21, 2001)

50. Letter from Army Corps of Engineers re delineation of wetlands, dated February 27, 2001 (March 5, 2001)

51. Applicant's Additional CORMIX analysis (March 15, 2001)

52. Applicant's Bowline Unit 3 Decommissioning Plan (April 13, 2001)

53. Applicant's Hybrid Cooling Filing in Accordance with Ruling on Proposed Adjudicable Issues and Petitions for Party Status (April 13, 2001)

54. NYSPSC Case No. 99-T-1814: Applicant's Wetland Jurisdictional Determination Report: Underground Natural Gas Pipeline (September 1, 2000)

55. NYSPSC Case No. 99-T-1814: Notice of Substitution of Applicant (January 12, 2001).

56. NYSPSC Case No. 99-T-1814: Applicant's Response to the Department of Public Service's January 10, 2000 Deficiency Letter (January 12, 2001); Supplemental Responses to Deficiency Letter (February 28, 2001)

57. NYSPSC Case No. 99-T-1814: Applicant's Phase IB Archaeological Survey (February 9, 2001)

58. NYSPSC Case No. 99-T-1814: Applicant's Responses to Information Request No. Staff - 1 through Staff - 24 (February 18, 2000)

59. NYSPSC Case No. 99-T-1814: Applicant's Proposed Permit Conditions (February 28, 2001)

60. NYSPSC Case No. 99-T-1814: Applicant's Responses to Information Request No. Staff - 25 - and Staff - 26 (April 3, 2000); Staff - 27 through Staff - 29 (April 21, 2000)

61. NYSPSC Case No. 99-T-1814: Applicant's Responses to Information Request No. Staff -

30 through Staff - 33 (February 12, 2001)

62. NYSPSC Case No. 00-T-0409: Applicant's Responses to Information Request Staff - 1 through Staff - 5 (May 18, 2000)

63. NYSPSC Case No. 00-T-0409: Applicant's Responses to Information Request DPS (ECS)-1 through DPS (ECS)-6 (September 8, 2000); Supplemental Responses to DPS(ECS)-1 through DPS (ECS)-6 (October 5, 2000); and Supplemental Responses to DPS(ECS)-1 through DPS (ECS)-6 (October 24, 2000).

64. NYSPSC Case No. 00-T-0409: PTI Report R9-2000, Bowline Combined Cycle Plant: Thermal, Transfer, Voltage and Short Circuit Analysis (March 3, 2000)

65. NYSPSC Case No. 00-T-0409: Bowline Point Generating Station Site Assessment of Electric and Magnetic Fields (EMF) Report (March 19, 2000)

66. NYSPSC Case No. 00-T-0409: Supplement to Bowline Unit 3 Thermal, Voltage and Short Circuit Analysis (May 26, 2000)

67. NYSPSC Case No. 00-T-0409: PTI Report R54-00, "Bowline Combined Cycle Plant: Supplement Number 2 "October 10, 2000)

68. NYSPSC Case No. 00-T-0409: Supplemental Direct Testimony of Johnny R. Willis and Douglas R. Brown and related exhibits (October 25, 2000)

69. NYSPSC Case No. 00-T-0409: Supplement No. 3 to the Bowline Unit 3 System Reliability Impact Study (October 26, 2000)

70. NYSPSC Case No. 00-T-0409: Supplement to Application of Mirant Bowline, L.L.C. [formerly Southern Energy Bowline, L.L.C.] Pursuant to Subpart 85-2 of the Public Service Commission's Rules of Procedure for a Certificate of Environmental Compatibility and Public Need for an Electric Transmission Line (January 31, 2001)

71. NYSPSC Case No. 00-T-0409: Phase IB Archaeological Survey of a Portion of a 345 kV Underground Electric Transmission Line (February 27, 2001)

72. NYSPSC Case No. 00-T-0409: Notice of Change of Name of Applicant (January 31, 2000)

73. NYSPSC Case No. 00-T-0409. Additional Analysis in Response to Questions from Robert Johnson, NYS Department of Public Service re EMF (March 20, 2001)

74. NYSPSC Case No. No. 00-T-0409 Applicant's Letter to Secretary Deixler, dated April 13, 2001

75. Supplement to the Article X Application: Applicant's Responses to Requests 1-5 of the DOH's June 30, 2000 letter (July 14, 2000)

76. Supplement to the Article X Application: Environmental Justice Analysis (July 17, 2000)

77. Draft PSD Permit Conditions (November 14, 2000)

78. Draft Air State Facility Permit (January 12, 2001)

79. Draft SPDES Permit and Fact Sheet (January 16, 2001)

80. Applicant's Wetland Jurisdictional Determination Report for the Proposed Underground 345 kV Electric Transmission Line, submitted to the U.S. Army Corps of Engineers, September 1, 2000

81. Joint Petition of Southern Energy, L.L.C. and Hudson Valley Gas Corporation Seeking Commission Authorization Pursuant to Section 70 of the Public Service Law to Grant and Transfer Easements to Hudson Valley Gas Corporation (January 12, 2001)

82. Petition of Hudson Valley Gas Corporation Seeking a Declaratory Ruling for Lightened Regulation as a Gas Corporation (January 12, 2001)

83 Joint Petition of Southern Energy Bowline, L.L.C. and Hudson Valley Gas Corporation for Trade Secret Protection (January 12, 2001)

84. Applicant's Responses to Request Nos. DPS (MS)-1 - DPS(MS)-4, inclusive in NYSPSC Case 01-G-0045 (February 16, 2001)

85. Applicant's Response to Request No. DPS (MS) - 1 in NYSPSC Case 01-G-0046 (February 16, 2001)

86. "Bowline Combined Cycle Plant: Supplement Number 4," PTI Report 62-00; December 12, 2000

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Wetland Jurisdictional Determination Report

Southern Energy Bowline L.L.C.
Underground 345kV Electric Transmission Line
Town of Haverstraw, New York

Submitted to:

U.S. Army Corps of Engineers
New York District, Regulatory Branch

Prepared for:

Southern Energy Bowline, L.L.C.

Prepared by:

TRC Environmental Corporation

1200 Wall Street West
Second Floor
Lyndhurst, New Jersey 07071

September 2000

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1.0 INTRODUCTION

Southern Energy Bowline L.L.C. (Southern Energy) is seeking a Certificate of Environmental Compatibility and Public Need Under Article X of the New York State Public Service Law for the construction and operation of a nominal 750 MW combined cycle electric generating facility. The electric generating facility, Bowline Unit 3, will be located at the existing Bowline generating station property, in the Town of Haverstraw, Rockland County, New York. The electric power from Bowline Unit 3 will be provided to the regional transmission grid via a 345 kV underground transmission line that will connect Bowline Unit 3 to an existing substation located in the Village of West Haverstraw. Southern Energy has filed an application, pursuant to Article VII of the Public Service Law, for authority to construct and operate the 345 kV transmission line.

The electric transmission line will be approximately 1.7 miles in length and will extend from the Bowline generating station property to the existing Orange and Rockland Utilities, Inc. West Haverstraw Substation primarily along an existing utility right-of-way. The right-of-way is characterized by existing underground electric transmission lines and an underground natural gas pipeline.

On December 8, 1999, February 17, 2000 and July 24, 2000, Jeffrey J. Park (TRC Environmental Resource Scientist) identified and delineated wetlands located within or immediately adjacent to the construction work area along the entire right-of-way (ROW). In addition, on May 9, 2000, Jeffrey J. Park and Scott J. Heim (TRC Senior Ecologist) identified and delineated wetlands located within or immediately adjacent to the construction work area along the ROW. The outer boundaries of these wetland areas have been delineated based on existing vegetative, hydrologic, and soil characteristics present on the ROW.

The two purposes of this Jurisdictional Determination are: (i) to achieve confirmation from the U.S. Army Corps of Engineers (ACOE) that the limits of wetlands present on the ROW have been delineated accurately; and (ii) to achieve confirmation from the ACOE that all wetlands within or directly adjacent to the ROW have been identified. This report describes the wetland delineation methodology utilized by Jeffrey J. Park and Scott J. Heim and the results of the field investigation.

2.0 METHODOLOGY

The determination of wetland boundaries encountered on the ROW was conducted using the Routine Determination Method presented in the ACOE Wetlands Delineation Manual (ACOE, 1987), including clarifications and interpretations provided in a March 6, 1992 guidance memorandum (Williams, 1992). The ACOE manual and guidance memorandum emphasize a three parameter approach to wetland boundary determination. This approach involves the identification of the following parameters: (i) evidence of wetland hydrology; (ii) presence of hydric soils; and (iii) predominance of hydrophytic vegetation as defined by the National Plant List Panel (Reed, 1988).

Wetland indicators described in the ACOE manual for each of these three parameters were examined in the field to determine the presence/absence of wetland resource areas. If the area being investigated did not exhibit the markers of disturbance, then the investigator looked for positive wetland indicators for each parameter before reaching the conclusion that the area was a wetland.

After a wetland area was identified, transects were established perpendicular to the wetland/upland boundary in order to document conditions within each community and firmly establish the wetland boundary. The vegetation, hydrology, and soils portions of the ACOE Routine Wetland Determination Data Forms were completed during the site inspection at each data point along each transect. These data forms are annexed as Attachment A. The identification and delineation of on-site wetlands were based upon: (i) the information documented in the data forms; and (ii) other wetland characteristics identified in the ACOE manual or guidance memo. The results of the delineations are summarized in Section 3.0.

3.0 WETLAND DELINEATION RESULTS

Based on the site inspections, the investigators concluded that three wetlands within the ROW exhibit wetland hydrology, soils and vegetation. In addition, one waterway of the United States was identified as Wetland H (Minisceongo Creek). Although technically not a wetland, the Minisceongo Creek was identified because it is a resource area that will be impacted temporarily during pipeline construction. The wetland boundaries for each wetland were marked with sequentially numbered pink surveyors flags labeled "Wetland Delineation."

The results of the wetlands identification and delineation are discussed below. The flag series and classification (Cowardin et al., 1979) for each of the wetland areas discussed in this report are as follows:

1.	Wetland H (Minisceongo Creek)		Riverine Lower Perennial R2
2.	Wetland I (WF I1-4)		Palustrine Forested PFO1
3.	Wetland J (WF J1-10)		Palustrine Forested PFO1
4.	Wetland K	(WF K1-3) (WF MC1 1-12) (WF MC2 1-7)	Palustrine Forested PFO1

The wetlands listed above have been characterized as: (i) Palustrine Forested Wetland (PFO1); or (ii) Riverine (R2/R4). Plant community composition within the wetlands was comprised primarily of the Palustrine Scrub-Shrub and Palustrine Emergent cover types with fewer examples of the Palustrine Forested and Riverine cover types, respectively. Forested

wetlands generally were located immediately adjacent to the ROW because maintenance activities, such as mowing and/or the selective removal of saplings, preclude their presence within the ROW itself. More detailed descriptions of wetland hydrology, soils, and vegetation are presented in the following sections.

Photographs of the wetlands taken on May 8, 2000 and July 24, 2000 are annexed as Attachment B.

3.1 Hydrology

Wetland H (Minisceongo Creek)

Wetland H consists of the Minisceongo Creek.[1] Estimated measurements of the Minisceongo Creek revealed a channel width of approximately 35-40 feet with banks that ranged in height from 8 feet to 35 feet within the ROW. Recent storm events (i.e., Hurricane Floyd in Fall 1999) have induced massive amounts of bank slumping along this reach of the Minisceongo Creek and great patches of exposed soil remain. Additionally, scars from past flood stage events are clearly visible along adjacent sections of the hillside.

Streambed composition consists of sand, cobbles, and boulders. Channel geometry is more or less trapezoidal. The streambed consisted of a heterogeneous mixture of sand, gravel, cobbles, and boulders. Water depths range from six inches up to three feet in pool sections.

[1] Although designated as "Wetland H," the Minisceongo Creek is a watercourse and a resource that will be affected during construction of the electric transmission line.

Wetland I

At the time of the initial field investigation and during subsequent visits in February and May 2000, the basin-like Wetland I contained standing water to a depth of approximately one foot. Secondary hydrologic indicators included water stained leaves and (anoxically induced) shallow rooting systems of many tree species.

Wetland J

Wetland J is a long, linear wetland that contains pools of standing water that appear to be partially impounded by the banks of the adjacent Samsondale Road. A mild hummock-hollow topography was observed in this wetland. A narrow, excavated ditch leads out from the wetland and conveys surface flow from Wetland J into a floodplain wetland, which is approximately 120 – 150 feet from the Wetland J boundary.

Wetland K

Wetland K consists of forested floodplain wetlands associated with the lateral influence of the Minisceongo Creek. In addition to riverine input, there appeared to be instances of groundwater seepage. Channelized surface flow from Wetland J travels through a shallow, excavated ditch and empties into Wetland K.

3.2 Soils

Soils along the ROW consist predominantly of glacial till with localized areas of glacial outwash, kame, and alluvial deposits. The glacial till consists of a poorly sorted mixture of sand, silt, clay, gravel, and larger rock fragments. Outwash and kame deposits contain water-sorted

deposits of sand and gravel, some of which are well stratified.

According to the Rockland County Soil Survey (NRCS, 1990), the dominant soil mapping units present within the ROW include the Alden, Hinckley, Holyoke, Rippowam, Udorthents (wet substratum), Urban Land, Wachaug, Wallington, and Wethersfield soil series (see Figure 2).

According to the Hydric Soils List for New York (State Laboratory, Rev. December 15, 1995), the Alden and Rippowam soil series are considered hydric soils. A brief description of each of the hydric soil mapping units is provided below:

Alden — Taxonomically mollic haplaquepts, the Alden soil series is characteristically deep, nearly level, medium textured, and very poorly drained. This series formed in colluvium over glacial till in depressional areas such as drainageways, till plains, and upland areas. Alden soils are strongly acid to moderately alkaline. Slopes are less than 1 percent.

Rippowam — Taxonomically aeric fluvaquents, the series are very deep, nearly level, poorly drained, coarse textured soils that formed in alluvial sediments along floodplains, rivers and streams. They are very strongly acid to neutral. Slopes range from 0-3 percent.

Wetland specific soils data are presented below.

Wetland I

Wetland I occurs within a mapped Urban Land Soil Series. Disturbed fill material surrounds this wetland.

Wetland J

A soil pit excavated within the disturbed ROW portion of Wetland K, adjacent to Wetland J, revealed 5 inches of a loamy sand (2.5Y 3/2). Many high chroma redoximorphic features (10YR 4/4) occurred 2 inches below the surface.

Wetland K

A 20-inch deep soil test pit excavated within the center of Wetland K revealed a dark loam (2.5Y3/2) with cobbles and brick fragments to a depth of four inches. Beneath this layer to a depth of approximately 20 inches, a fine loamy sand (2.5Y 4/3) is present with many high chroma redoximorphic features (7.5YR 4/6) starting at a depth of 5 inches.

A soil pit excavated within the disturbed ROW portion of Wetland K revealed five inches of a firm silt loam (2.5Y 3/2). Many high chroma redoximorphic features (10YR 4/4) occur two inches below the surface.

3.3 Vegetation

Wetland H

Dominant species observed along the banks of Minisceongo Creek include *Populus deltoides* (cottonwood), *Ulmus americana* (American elm), *Rosa multiflora* (multiflora rose), and *Lonicera japonica* (Japanese honeysuckle).

Wetlands I and J

Both Wetlands I and J (Palustrine Forested) are well-defined basins situated at the edge of the ROW. In general, the wetlands along this section of the ROW are extremely disturbed and support a number of disturbance-tolerant species. These conditions were exacerbated further by the deposition of debris (i.e. trees and sediment) associated with the flooding of the adjacent Minisceongo Creek and the subsequent clean up activities.

Dominant plant species within Wetlands I and J include *Rosa multiflora* (multiflora rose), *Populus deltoides* (eastern cottonwood), *Salix babylonica* (weeping willow), *Platanus occidentalis* (sycamore) and *Lonicera japonica* (Japanese honeysuckle). In addition, the following species were also noted:

Crataegus sp. (hawthorn)
Morus alba (mulberry)
Ulmus americana (American elm)
Lonicera tatarica (tatarian honeysuckle)
Lonicera japonica (Japanese honeysuckle)
Barbarea vulgaris (winter cress)
Viburnum recognitum (northern arrowwood)
Lindera benzoin (spicebush)
Impatiens capensis (spotted touch-me-not)

Wetland K

Dominant plant species within the open forested portion of Wetland K include *Acer rubrum* (red maple), *Ostrya virginiana* (hophornbeam), *Fraxinus americana* (white ash) and *Lindera benzoin* (spicebush) and *Symplocarpus foetidus* (skunk cabbage).

4.0 REFERENCES

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ATTACHMENT A

U.S. ARMY CORPS OF ENGINEERS

ROUTINE WETLAND DETERMINATION DATA FORMS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Southern Energy / Bowline
Applicant/Owner: Southern Energy
Investigator: TRC

Date: 2/17/00
County: Rockland
State: NY

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Riverine Lower Perennial
Transect ID:
Plot ID:

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC
2. Rosa multiflora	Sh	FACU
3. Lonicera japonica	Sh	FAC-
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/3 = 33%

Remarks: Upland (banks) plant community. Wetland H

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 36 (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TRC

SOILS

Map Unit Name (Series and Phase): Wethersfield — Drainage Class: well drained

Taxonomy (Subgroup): Mesic Oxyaquic Dystrudepts — Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: soil to rocky to sample

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks: Data collected to characterize stream crossing only.

Approved by HQUSACE 2/92

TRC

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Southern Energy / Bouline
Applicant/Owner:
Investigator:

Date: 7/24/00
County: Orange
State: NY

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PFO
Transect ID: 7
Plot ID: 14

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Lonicera japonica	SH	FAC-
2. Salix frag. 1.i	T	FAC+
3. Platanus occidentalis	T	FACW-
4. Crataegus sp.	T	—
5. Ulmus americana	T	FACW
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/4 = 75%

Remarks: Wetland I (I4)

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 10 (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TRC

SOILS

Map Unit Name (Series and Phase): Udorthents (×)

Drainage Class: _____

Taxonomy (Subgroup): _____

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

boundary distinct no soil profile conducted

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 2/92

TRC

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Southern Energy / Bowline
Applicant/Owner: Southern Energy
Investigator: TRC

Date: 7/24/00
County: Orange
State: NY

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PFO
Transect ID: 8
Plot ID: 15

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Acer rubrum		FAC
2. Populus deltoides		FAC
3. Lindera benzoin		FACW
4. Ulmus americana		FACW
5. Platanus occidentalis		FACW-
6. Lonicera japonica		FAC-
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83.3%

Remarks:
Wetland J.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
X Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

TRC

SOILS

Map Unit Name (Series and Phase): Hinckley

Drainage Class: excessively drained

Taxonomy (Subgroup): Mesic Typic Udorthents

Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Soils data see Wetland K

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 2/92

TRC

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Southern Energy / Bowline Applicant/Owner: Southern Energy Investigator: TRC	Date: 7/24/00 County: Orange State: NY
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: 1250 Transect ID: 9 Plot ID: 16

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Juncus effusus	h	FACW	9.		
2. Scirpus atrovirens	h	OBL	10.		
3. Solidago rugosa	h	FAC	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: Wetland K (flow series MC) highly disturbed

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	2 (in.)
Depth to Free Water in Pit:	___ (in.)
Depth to Saturated Soil:	0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated (stream)
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TRC

SOILS

Map Unit Name (Series and Phase): Hinckley

Drainage Class: excessively drained

Taxonomy (Subgroup): Typic Udorthents

Field Observations
Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5"	A	2.5Y 3/2			loamy sand
@ 1			10YR 4/4	many	

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

extremely disturbed profile refusal @ 5
cement / rock

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

TRC

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Southern Energy / Bowline	Date: 7/24/00
Applicant/Owner: Southern	County: Orange
Investigator: TRC	State: NY
Do Normal Circumstances exist on the site? Yes (No)	Community ID: PFO
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID: 9
Is the area a potential Problem Area? Yes (No)	Plot ID: 17
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Solidago rugosa	H	NI	9.		
2. Morus alba	T	NI	10.		
3. Rosa multiflora	Sh	FACU	11.		
4. Acer rubrum	T	FAC	12.		
5. Vitis aestivalis	Liana	FACU	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 1/5 = 20% C

Remarks: Wetland K - Hay Series (MC-2) highly disturbed

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

TRC

SOILS

Map Unit Name (Series and Phase): Hiddy

Drainage Class: Moderately drained

Taxonomy (Subgroup): Mix Typic Udorthents

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y 3/2			loamy Sand

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HQUSACE 2/92

TRC

ATTACHMENT B

PHOTOGRAPHS OF WETLANDS

Figure 1. View of Wetland H (Minisceongo Creek) Photo taken in center of ROW facing upstream.

Figure 2. View of Wetland I.

Figure 3. View of Wetland J.

Figure 4. View of Wetland K (Flag Series MC) (forested portions adjacent to ROW).

Figure 5. View of Wetland K (Flag Series MC) (Within-ROW channelized flow connecting Wetland J and Wetland K).

Figure 6. View of Wetland K (Flag Series MC2) (forested portions adjacent to ROW).

Figure 7. View of Wetland K (Flag Series MC2) (portion within ROW).

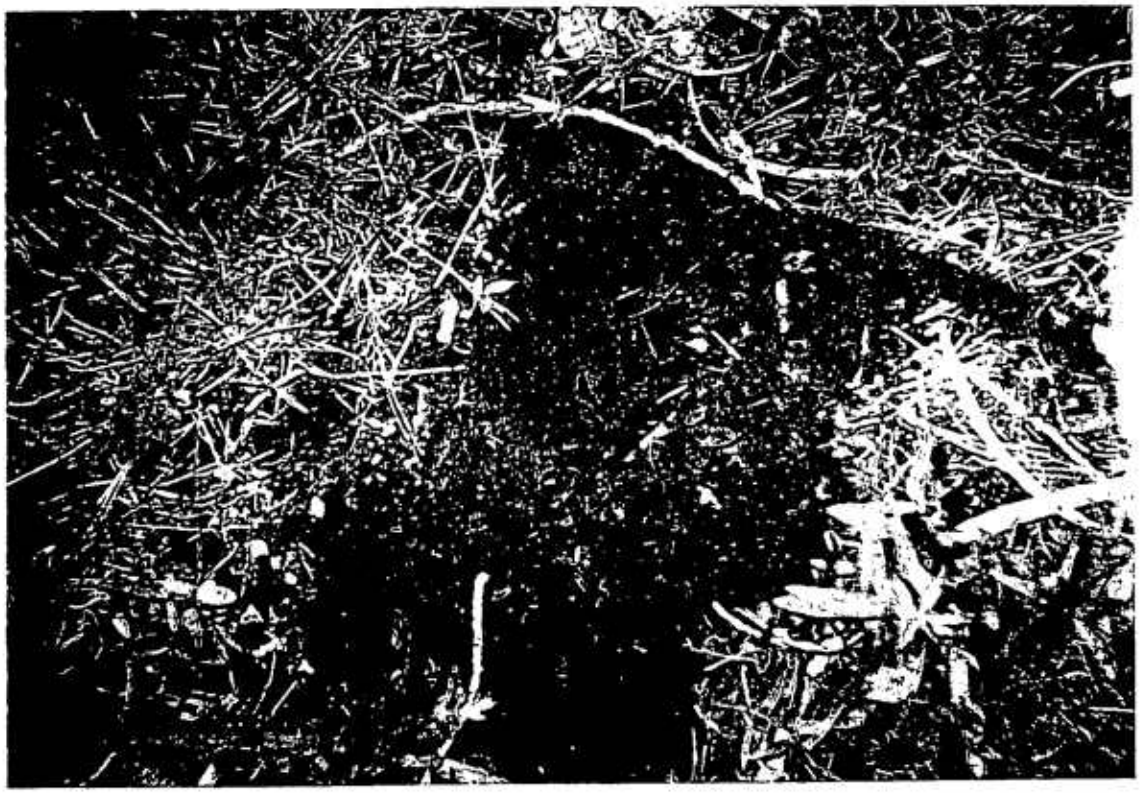

Figure 8. View of Wetland K (Flag Series MC) soils w/in ROW

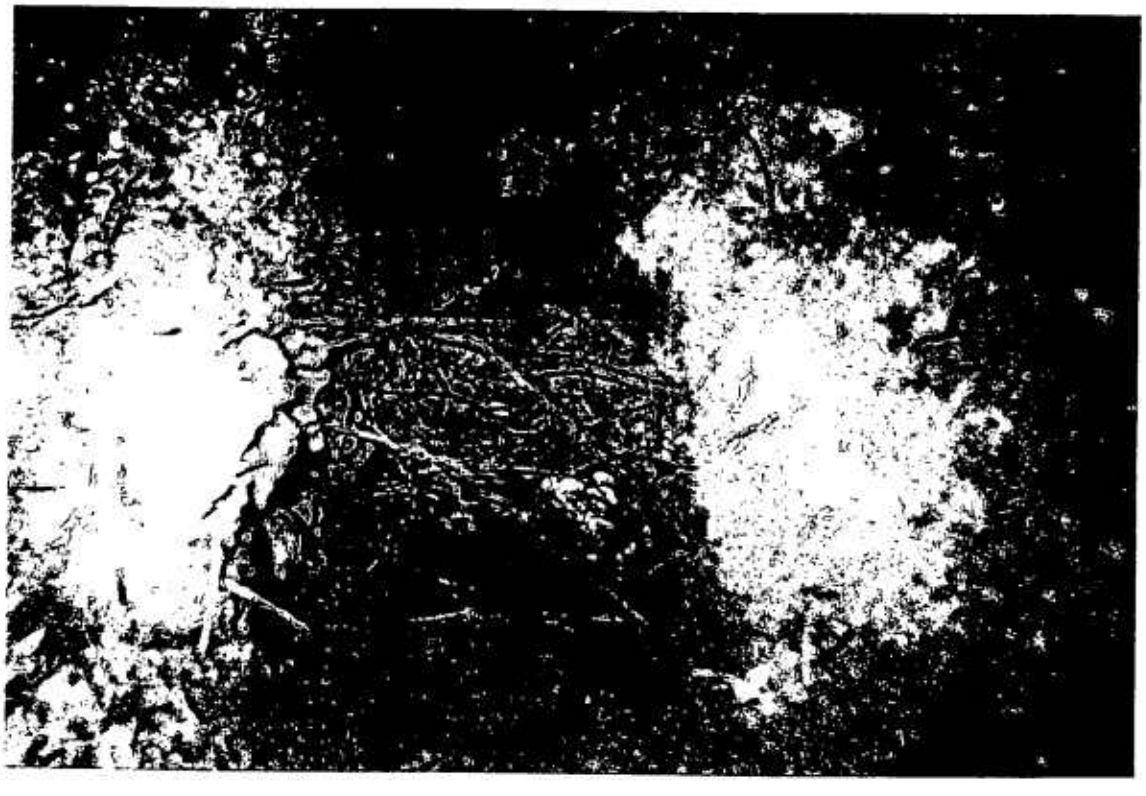

Figure 9. View of Wetland K Soils (Flag Series MC) (forested portion adjacent to ROW).

ATTACHMENT C

CONSTRUCTION DRAWINGS

ATTACHMENT D

RESUMES OF WETLAND DELINEATORS

SCOTT J. HEIM

EDUCATION

M.S., Wildlife Ecology, University of New Hampshire, 1988
B.S., Forest Biology, State University of New York - College of Environmental Science and Forestry, 1982
A.A.S., Pre-Professional Forestry, Paul Smith's College, 1979

TECHNICAL SPECIALTIES

Mr. Heim has more than 13 years of experience encompassing:

- Rare Species Surveys and Impact Assessment
- Wetland Delineation, Functional Analysis, and Construction
- Aquatic/Terrestrial Ecology
- Ecological Risk Assessment
- Environmental Permitting
- Environmental Assessments and Impact Reports

SPECIALIZED TRAINING

OSHA Hazardous Waste Site Training, 40 hours, 1992
OSHA 8-Hour Refresher Course, 1993-99
Habitat Evaluation Procedures (HEP), 1986
Soil Science Coursework (13 credit hours)

PROFESSIONAL CERTIFICATIONS

Associate Wildlife Biologist, The Wildlife Society

PROFESSIONAL AFFILIATIONS

The Wildlife Society
Society of Wetland Scientists

REPRSENTATIVE PROJECT EXPERIENCE

Wetlands Experience

Mr. Heim's experience includes delineating and/or identifying wetlands on the following:

U.S. Generating Company, Connecticut. Wetland resource areas at three locations in Connecticut were identified.

Amtrak Railroad, Massachusetts. Wetland resource areas located within 100 feet of existing railroad right-of-ways were identified throughout eastern and central Massachusetts.

AES, Inc., Lebanon, Pennsylvania. 6.3 mile pipeline route was surveyed for the presence of wetlands.

Shady Lane Landfill, Nashua, New Hampshire. Wetlands located within and adjacent to the landfill were identified and delineated and an assessment of wetland impacts from the proposed landfill closure was conducted.

Toll Brothers, Inc., Walpole, Massachusetts. Wetlands present within a 180-acre parcel of land where a residential subdivision was proposed were delineated.

Loral Microwave Frequency, Inc., Chelmsford, Massachusetts. A wetlands delineation was conducted on a 14-acre parcel.

Kmart Plaza, Woodbury, New York. Delineation of wetlands within a 68-acre parcel located in southeastern New York.

Pace University, Mount Pleasant, New York. Wetlands present on the college campus were identified and delineated.

Warren Woods Subdivision, Upton, Massachusetts. Design a wetland replacement area for a proposed subdivision that would impact approximately 2,000 square feet of wetlands.

Pease Air Force Base, Newington, New Hampshire. A proposed wetlands mitigation plan was reviewed and recommendations provided to EPA.

Environmental Assessments

Mr. Heim has prepared several environmental assessments and impact reports that involved various technical areas including the identification of sensitive resources that may potentially be impacted by proposed projects. Mr. Heim's experience includes the following:

Holyoke Mall Expansion, Holyoke, Massachusetts. The preparation of Draft and Final Environmental Impact Reports (EIRs) for a proposed expansion of an existing retail mall facility in central Massachusetts.

MDC Charles River Riverwalk, Newton, Waltham, Watertown, Massachusetts. An inventory of wildlife species and habitats along the lower portion of the Charles River where a walkway was proposed to be constructed.

Cape Cod Canal Sensitive Areas Assessment, Cape Cod, Massachusetts. Site inspections of ecologically sensitive areas were conducted.

Bass River Navigational Improvements, Yarmouth, Massachusetts. Collection of sediment samples from the proposed dredging area.

Lanesboro Mall, Lanesboro, Massachusetts. Preparation of Draft and Final Environmental Impact Reports relating to wetland impacts from proposed construction activities.

Saugus Route One Plaza, Saugus, Massachusetts. Preparation of sections of the Draft Environmental Impact Report which addressed issues including storm water management, wetland and floodplain impacts, and visual aesthetic effects relating to the construction of a proposed retail/office park plaza.

Aquatic Ecology and Assessment

Mr. Heim has experience with aquatic assessments. Mr. Heim has experience includes the following:

Radial Ball Bearing Site Investigation, Still River, Connecticut. A surface water and sediment sampling program to assess potential contamination within a portion of the Still River.

Metal Alloy Aquatic Assessment, Hudson Branch, New Jersey. Design and sampling of surface water/sediment chemistry data including pH, temperature, dissolved oxygen, and conductivity.

Water Quality Sampling, Bell Marsh Reservoir/Smelt Brook, York, Maine. Collection of surface water samples and samples of the algae for subsequent analyses.

Waste Site Experience

Mr. Heim has conducted qualitative and quantitative ecological risk assessments for both aquatic and terrestrial environments at hazardous waste sites. Mr. Heim's experience includes the following:

Ecological Risk Assessment, Bennington Landfill, Bennington, Vermont.

Ecological Risk Assessment, Burgess Brothers Landfill, Bennington, Vermont.

Ecological Risk Assessment, Reynolds Metal, Massena, New York.

Ecological Risk Assessment, Revere Textiles Mill, Sterling, Connecticut.

Ecological Risk Assessment, Flanders Road, Westborough, Massachusetts.

Ecological Risk Assessment, Wilson Farm Superfund Site, Plumsted Township, New Jersey.

Ecological Risk Assessment, Tansitor Electronics, Bennington, Vermont.

JEFFREY J. PARK

EDUCATION

M.A., Biology, 1998, Harvard University
B.A., Anthropology, 1993, University of Maine (Orono)

SPECIALIZED TRAINING

OSHA Hazardous Waste Operations & Emergency Response, 8HR Refresher, 1999
OSHA Hazardous Waste Operations & Emergency Response, 40 hours, 1995
ACOE Wetland Delineation Training, 1995

PROFESSIONAL CERTIFICATIONS

Wetland Professional in Training (WPIT), Society of Wetland Scientists, October 1998

TECHNICAL SPECIALTIES

Mr. Park has 2 years of experience within the following areas:

- Wetland Delineations;
- Wetland Restoration Planning and Design;
- Wetland/Aquatic Impact Analyses;
- Threatened, Rare, and Endangered Species/Habitat Assessments
- Terrestrial, Palustrine, and Coastal Ecology;
- Environmental Permitting;
- Limnology; and
- Dredging Studies.

PROFESSIONAL AFFILIATIONS

Society for Ecological Restoration (SER)
Society of Wetland Scientists (SWS)

REPRESENTATIVE EXPERIENCE

Wetland Delineations and Environmental Permitting

Mr. Park's experience includes wetland delineations in the northeastern and mid-Atlantic United States on the following:

Pownal Tannery Superfund Site, Wetland Delineation, Pownal, VT. Delineation of all wetland resources relative to remedial efforts at the Pownal Tannery.

General Electric Expansion Project, Wetland Delineation, Ossining, NY. Delineation of all wetland resources relative to the proposed expansion of the General Electric management campus in Ossining, NY.

NEES Electric Company U-6 Line Structural Improvements, Wetland Delineation, Various Sites, Southeastern MA. Delineation of all wetland resources along a 12-mile long utility corridor that intersected with five towns (Dighton, Berkeley, Taunton, Raynham, and Bridgewater).

GPU/Genco Power Plant Site, Wetland Delineation, Straban, PA. Delineation of wetland resources on a 257 acre parcel relative to the siting of a proposed electric generating facility.

Sithe Energies, Inc. Power Plant Site, Wetland Delineation, Erie, PA. Delineation of wetland resources on an approximately 80 acre parcel relative to the siting of a proposed electric generating facility.

National Network Technologies Fiber Optic Cable Project, Wetland Delineation, NJ/NY. Delineation of wetland resources along a proposed fiber optic cable corridor in Newark, New Jersey and Brookhaven, New York.

High Voltage Engineering Remedial Treatment System, Wetland Delineation/Permitting, Burlington, MA. Delineation of wetland resources relative to the placement of proposed extraction and monitoring well locations.

Williams Communications Fiber Optic Cable Project, Wetland Delineation/Permitting, Various Sites, MA/NY. Delineated wetland resources along a proposed fiber optic cable corridor extending from Boston MA-Albany, NY.

Polaroid Corporation Siting Plan, Wetland Delineation, New Bedford. Wetland delineation on a 400+ acre commercially zoned lot situated between the Acushnet Cedar Swamp National

Natural Landmark and the New Bedford Industrial Park.

Columbia Transmission Communications Fiber Optic Cable Project, Permitting/Wetland Delineation, NJ/PA/MD. Delineation of wetland resources along a pipeline corridor.

Boston Parks and Recreation Department Master Plan, Wetland Delineation, Boston, MA. Performed a wetland boundary determination of the Back Bay Fens area relative to the Muddy River restoration initiative.

Wetland Restoration Planning and Design

Mr. Park has designed and supervised the construction of several wetland restoration projects, including the following:

RohmTech Facility, Wetland Restoration Plan, Malden, MA. The wetland restoration design included preparing a planting plan and post-construction monitoring protocol.

Ethan Allen, Parker Landfill Superfund Site Draft Wetland Restoration Plan, Lyndonville, VT. Reviewed a Draft Wetland Restoration Plan prepared by another consultant and developed a draft set of comments that were sent to the EPA.

KC Realty Trust Siting Plan, Wetland Restoration, Newburyport, MA. Design of a 2.6 acre wetland restoration at a previously filled site.

The Town of Georgetown Roadway Construction, Wetland Replication, Georgetown, MA. Analysis of the extent of the construction footprint upon the bordering vegetated wetlands, and the design of the wetland mitigation.

Beverly Hospital Siting Plan, Wetland Restoration, Manchester-by-the-Sea, MA. Remedial wetland restoration plan for impacts created by construction vehicles adjacent to the primary construction site.

Aquatic Resources Impact Analyses

Mr. Park has participated in aquatic impact analyses including the following:

Southern Energy, Sandwich Canal Station, Unit 2 Repowering, Ichthyoplankton Assessment Report, Sandwich, MA. Development of Section 316 impact report that discussed fish biology/life history, entrainment impacts, impingement impacts, and thermal plume impacts.

New York Power Authority, Proposed 750 MW Charles Poletti Project Article X, Ichthyoplankton Assessment Report, Queens, NY. Development of a Section 316 impact report that discussed fish biology/life history, entrainment impacts, impingement impacts, and thermal plume impacts.

Boston Parks and Recreation Department, Scarboro Pond Limnological/Dredging Feasibility Study, Boston, MA. Collected and analyzed limnological data from a seven acre pond which included macrophyte distribution, sediment and water depths, water clarity, water temperature, and water/sediment chemistry.

Boston Parks and Recreation Department, Emerald Necklace Environmental Improvements Master Plan ENF, Boston, MA. Phase I Report that discussed project elements, project phasing, environmental permitting, dredge volumes, a sediment and water quality sampling program, bank impacts, methods for dredging and dredged material disposal, and a wetlands restoration design relative to the Muddy River restoration initiative.

Quincy Granite Rail Quarry, Wetlands/Aquatic Impact Analysis, Quincy, MA. Engineering feasibility study and impact analysis for the de-watering process in the Granite Rail quarry complex in Quincy, MA.

Threatened, Rare, and Endangered Species/Habitat Assessments

Mr. Park's experience includes designing and conducting threatened, rare, and endangered plant/animal studies on the following:

AES Red Oaks Power Plant Facility, Helonias bullata Survey, Sayreville, NJ. Design and execution of a field survey for the federally listed (threatened) swamp pink (*Helonias bullata*) with data analysis.

Tennessee Gas Pipeline Project, Plant Survey, MA/NH. Designed and executed a survey for eighteen, state-listed (threatened and endangered) plant species and populations within a pipeline corridor.

Columbia Transmission Communications Fiber Optic Cable Project, Bog Turtle Survey, NJ/PA/MD. A habitat assessment of the federally listed (threatened) *Clemmys muhlenbergii* (bog turtle) within a pipeline corridor in three states.

Terrestrial, Palustrine, and Coastal Ecology

Mr. Park has designed and conducted several ecological studies, including the following:

New England Power/Massachusetts Electric Company, Vernal Pool Study, Lynn, MA. Assessment of a vernal pool located within a powerline easement corridor.

McLean Hospital Reuse Master Plan, Avian Diversity, Abundance, and Habitat Usage Study, Belmont, MA. A study to assess the impacts of disturbance on avian communities, as part of a Master Reuse plan.

Water and Sediment Quality, Limnology, and Dredging Studies

Mr. Park has participated in the collection of groundwater, surface water, and sediment samples, including the following:

Bennington Landfill Superfund Site, Bennington, VT. Collection of ambient water quality criteria; the identification of invertebrate species and dominant plant species; and the collection of groundwater samples.

Charles George Landfill Superfund Site, Tyngsboro, MA. Collection of groundwater samples.

Reorder No. 5109N
JULIUS BLUMBERG, INC.
NYC 10013

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Joint Petition of Southern Energy Bowline, L.L.C. and Hudson Valley Gas Corporation Seeking Commission Authorization Pursuant to Section 70 of the Public Service Law to Grant and Transfer Properties to Hudson Valley Gas Corporation

Case No. ___

Pursuant to Section 70 of the New York Public Service Law, Southern Energy Bowline, L.L.C. ("Southern Energy") and Hudson Valley Gas Corporation ("Hudson Valley") (collectively, "Petitioners"), request authority to grant and transfer certain properties (collectively, the "Properties") to Hudson Valley. The Petitioners seek to transfer the Properties pursuant to a Grant of Easement and a Bargain and Sale Deed (collectively the "Agreements") entered into by and among the Petitioners. The Agreements are annexed hereto as Exhibits A and B, respectively. In addition, the Petitioners have entered into an Assignment and Assumption of Agreements ("Assignment Agreement"), by which Southern Energy has assigned certain specified agreements to Hudson Valley. The Assignment Agreement is annexed hereto as Exhibit C. Petitioners seek the following determinations by the New York State Public Service Commission ("Commission"): (i) the transfers are in the public interest; (ii) the transfers will benefit citizens of New York; and (iii) the transfers will not violate New York law or Commission precedent.[1]

---

[1] The Petitioners will not file and record the Agreements in the absence of Commission approval.

I. DESCRIPTION OF THE PARTIES

1. Southern Energy is a subsidiary of Southern Energy New York which, in turn, is a subsidiary of Southern Energy, Inc. ("SEI"). SEI is one of the world's largest independent power producers.

2. Hudson Valley is a corporation organized pursuant to the New York Transportation Corporations Law. Hudson Valley is a subsidiary of Southern Energy Hudson Valley Investments, Ltd., which in turn is a wholly-owned subsidiary of SEI.

II. BACKGROUND

3. On May 20, 1996, the Commission issued Opinion No. 96-12 regarding competitive opportunities for electric service in Case 94-E-0952, In the Matter of Competitive Opportunities Regarding Electric Service. In Opinion No. 96-12, the Commission set forth its vision and goals for a fully competitive retail electric market, repeatedly emphasizing that its goals include lower rates and effective competition in the generation and energy services sectors. (See Op. No. 96-12 at 24.)[2]

4. Establishing that competition should be implemented on an individual company basis, the Commission directed the investor-owned utilities to file rate and restructuring plans with the Commission. (Id. at 75.)

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[2] See Cases 94-E-0932 et al., Competitive Opportunities Regarding Electric Service, "Opinion and Order Regarding Competitive Opportunities for Electric Service" "Opinion No. 96-12" (issued May 20, 1996).

5. In accordance with the Commission's directive, Orange and Rockland Utilities, Inc. ("O&R") filed a rate and restructuring plan with the Commission, initiating its restructuring proceeding in Case 96-E-0900, In the Matter of Orange and Rockland Utilities Inc.'s Plans for Electric Rate/Restructuring Pursuant to Opinion No. 96-12 ("O&R Proceeding"). The O&R Proceeding culminated in the execution of a settlement agreement, dated November 6, 1997 ("Settlement Agreement").

6. Thereafter, the Commission authorized the sale of the electric generation assets ("Assets") jointly owned by O&R and Consolidated Edison Company of New York, Inc. ("Con Edison") by auction in its "Order Adopting Terms of Settlement," which it issued on December 31, 1997 in Case 96-E-0900, supra. ("Settlement Order").

7. On November 24, 1998, O&R, Con Edison and Southern Energy, in accordance with the Auction Order issued April 16, 1998 in Case 96-E-0900, supra, executed, inter alia, asset sales agreements for the transfer of the Assets.

8. On February 26, 1999, O&R, Con Edison and SEI filed a petition with the Commission pursuant to Section 70 of the Public Service Law seeking authorization to transfer the Assets to SEI's affiliates, including, inter alia, the transfer of the Bowline Point fossil fuel generating facility ("Bowline Facility") from O&R and Con Edison to Southern Energy.

9. On June 24, 1999, the Commission issued an order in Case 96-E-0900, supra, ("Order Approving Transfer of Generating Facilities and Making Other Findings") approving the transfer of, inter alia, the Bowline Facility to Southern Energy.

10. On June 24, 1999, the Commission issued an order in Case 99-G-0632, Southern Energy Bowline L.L.C. - Petition Seeking a Declaratory Ruling Regarding Regulation As a Gas Corporation and Case 99-E-0633, Southern Energy Bowline L.L.C., Southern Energy Lovett L.L.C., and Southern Energy NY-Gen L.L.C. - Joint Petition for a Declaratory Ruling Regarding Regulation of Electric Corporations ("Order Providing for Lightened Electric and Gas Regulation") holding, inter alia, that Southern Energy, as a gas and electric corporation under the Public Service Law, is entitled to light-handed regulation.

11. On December 27, 1999, Southern Energy filed an Application pursuant to Subpart 85-1.3 of the Commission's Rules of Procedure to construct a fuel gas transmission line which is less than 10 miles long in Case 99-T-1814, Application of Southern Energy Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need for the Construction of a 4.2 mile, 24-inch Natural Gas Pipeline in the Towns of Haverstraw, Clarkstown and Village of West Haverstraw, Rockland County ("Article VII Application").

12. The 24-inch outside diameter ("O.D.") intrastate gas pipeline will extend approximately 4.2 miles from the Bowline Point generating station property to a Columbia Gas Transmission Corporation ("Columbia") interconnection at or near Columbia's existing Buena Vista Gas Measuring Station in the Town of Clarkstown, Rockland County, New York and will operate at a maximum pressure of 850 psig. (Case 99-T-1814, supra, Article VII Application). As part of its Article VII application, Southern Energy has proposed to design, construct and operate the following appurtenant facilities: gas measurement station and electronic gas measurement equipment; gas regulator; filtering equipment; heater equipment; and

chromatography equipment. The pipeline will be located, in part, on property or rights-of-way currently in the possession of Southern Energy or to be acquired by Hudson Valley.

13. On August 18, 2000, Hudson Valley was incorporated as a gas corporation pursuant to the New York Transportation Corporations Law.

14. Southern Energy, in conjunction with this Petition, is filing with the Commission: (a) a "Notice of Substitution of Applicant" in Case 99-T-1814, supra, substituting Hudson Valley as the Applicant in the Article VII proceeding insofar as the Applicant seeks to construct the natural gas pipeline and appurtenances; and (b) a "Notice of Substitution of Applicant in Case 99-T-1814 " in Case 99-F-1164, In the Matter of Southern Energy Bowline, L.L.C., for a Certificate of Environmental Compatibility and Public Need to Construct and Operate a Nominal 750 Megawatt Combined Cycle Combustion Turbine Electric Generating Plant in Haverstraw, Rockland County, New York, notifying the New York State Board on Electric Generation Siting and the Environment that Hudson Valley had been substituted as the Applicant in the Article VII proceeding insofar as the Applicant seeks to construct the natural gas pipeline and appurtenances. In addition, Hudson Valley is filing a Petition seeking a Declaratory Order For Lightened Regulation as a Gas Corporation.

III. DESCRIPTION OF THE TRANSACTIONS

15. Petitioners seek approval of the transfer of the Properties to Hudson Valley. In consideration of the transfer of Easements, Hudson Valley will provide a one-time payment of $659,651 to Southern Energy. (See Exhibit A). In consideration of the transfer of the

property located at 352 Buena Vista Road in fee, Hudson Valley will provide a one-time payment of $358,131 to Southern Energy. (See Exhibit B.) The Properties to be conveyed consist of: (a) easements across property owned by Southern Energy located in the Village of West Haverstraw, New York; (b) easements across properties owned by third parties; (c) assignable easements and deeds across property owned by third parties which are obtained after the filing of this petition, providing that the easements and deeds are for property on the identified route of the pipeline; and (d) one residential parcel located at 352 Buena Vista Road, New City, New York. The property in the Village of West Haverstraw owned by Southern Energy extends from the Bowline Point generating station property to a point just east of Bridge Street. The easements across properties owned by third parties are located along or adjacent to the existing right-of-way from the western boundary of Southern Energy's property to the Buena Vista Gas Measuring Station.

Moreover, Hudson Valley has accepted assignment of certain specific agreements and assumes all liabilities and the performance of all of the terms, covenants and conditions arising out of the agreements. (See Exhibit C).

IV. THE TRANSFER OF THE PROPERTIES TO HUDSON VALLEY IS IN THE PUBLIC INTEREST

16. Pursuant to Section 70 of the Public Service Law, no gas or electric corporation may "transfer or lease its franchise, works or system or any part of such franchise, works or system to any other person or corporation or contract for the operation of its works and

system, without the written consent of the Commission." N.Y. Pub. Serv. Law Section 70 (McKinney 1999).

17. The transfer of the Properties to Hudson Valley is in the public interest. The Properties will provide Hudson Valley with rights-of-way upon which it will construct the pipeline proposed in the Article VII Application. Once constructed, the pipeline will be used to transport natural gas to existing and future facilities at the Bowline Point generating station property for the generation of electricity ("Bowline Facilities").[3] The resulting electric power from the Bowline Facilities will be provided to the regional transmission grid. The Bowline Facilities operate in a competitive market pursuant to the rules established by the Commission and the Federal Energy Regulatory Commission ("FERC").

18. By promoting the production of electricity that will be sold in the competitive wholesale electric market through the regional transmission grid, the proposed transfer will further the Commission's vision of increased customer choice, competition, and enhancing system reliability. (See Op. No. 96-12 at 24.)

19. The increased use of natural gas for the production of electricity will reduce and/or displace the use of oil, providing an environmental benefit to the local communities, the

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[3] In recognition of the long-standing franchise rights of O&R to provide natural gas service in Rockland County, Hudson Valley intends to use the proposed pipeline to transport gas only to existing and future facilities at the Bowline Point generating station property. However, Hudson Valley will provide service in response to all service requests deemed appropriate by the Commission in accordance with New York law.

region and the State. The increased use of natural gas for electric generation at the Bowline Facilities will decrease NO_x emissions and fuel oil barge traffic on the Hudson River.

20. Moreover, the transfer of the Properties will not impact adversely customer rates. The Properties were obtained through private resources and were not funded by ratepayers through traditional regulated rate-of-return revenues.

21. Lastly, the transfer will not diminish the Commission's jurisdiction over Southern Energy. Southern Energy will continue to be subject to Commission regulation pursuant to the "Order Providing for Lightened Electric and Gas Regulation". The request for light handed regulation of Hudson Valley as gas corporation is the subject of a separate petition, Petition of Hudson Valley Gas Corporation Seeking a Declaratory Ruling For Lightened Regulation As a Gas Corporation.

WHEREFORE, for the reasons set forth herein, Southern Energy Bowline, L.L.C. and Hudson Valley Gas Corporation respectfully request that the Joint Petition be granted and that the Commission authorize the transfer of the Properties from Southern Energy Bowline, L.L.C. to Hudson Valley Gas Corporation.

Dated: Albany, New York
January 12, 2001

Respectfully submitted,

Algird F. White, Jr., Esq.
Couch White, LLP
Attorneys for Southern Energy Bowline, L.L.C. and
Hudson Valley Gas Corporation
540 Broadway
P.O. Box 22222
Albany, New York 12201-2222
Phone: (518) 426-4600
Telecopier: (518) 426-0376

J:\DATA\Client\09212\Joint Petition.wpd

Exhibit A

Exhibit A

Cat. #5126 Mfg by
JULIUS BLUMBERG, INC.
NYC 10013

RECORD & RETURN:
Couch White, LLP
P.O. Box 22222
Albany, New York 12201-2222
Attn.: Lisa Ruoff Purdy, Esq.

GRANT OF EASEMENTS

THIS GRANT OF EASEMENT, made as of the 8th day of January 2001, by SOUTHERN ENERGY BOWLINE, L.L.C., a Delaware limited liability company having an office at 400 Rella Boulevard, Suite 157, Suffern, New York, 10901 (hereinafter referred to as the "Southern Energy" or "Grantor"), to HUDSON VALLEY GAS CORPORATION, a New York Transportation Corporation having an office at 400 Rella Boulevard, Suite 157, Suffern, New York, 10901 (hereinafter referred to as the "Hudson Valley Gas" or "Grantee"),

W I T N E S S E T H :

That Southern Energy, in consideration of One Dollar ($1.00) lawful money of the United States and other valuable consideration paid to it by Hudson Valley Gas, the receipt and sufficiency of which are hereby acknowledged, does hereby grant and release unto Hudson Valley Gas, its successors and assigns forever, a perpetual easement, thirty (30) feet in width, for the construction, reconstruction, operation, and maintenance of an underground natural gas pipeline and all necessary appurtenances thereto, for the transmission/transportation of natural gas upon, over, under, along and across the property of Grantor, together with the right to clear the easement and keep it clear of brush, trees, buildings, fire hazards; and the right to remove trees, if any, located beyond the limits of the easement but that may interfere with Grantee's use of the easement, together with reasonable access across the property of Grantor in order to install and maintain said underground natural gas pipeline, and together with temporary construction

work areas as approved by the New York State Public Service Commission, free of the lien of any security interest created by the Grantor covering certain lots, pieces or parcels of land situate, lying and being in the Town of Haverstraw and Village of West Haverstraw, County of Rockland, State of New York, the centerline of said easement being more particularly described in Schedule A, attached hereto and made a part hereof and shown on the following maps or plans, each being attached hereto and made a part hereof, and includes any rights that Grantor may have in any part of any streets or roads adjoining the above described easement:

1. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.07-1-11.2"

2. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.07-1-12"

3. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.07-5-72"

4. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West

Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.07-5-71"

5. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.07-4-4"

6. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lots: 26.07-4-5 & 26.07-4-6"

7. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.08-3-32" (two sheets).

8. "Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In. = 100Ft., Tax Lot: 26.08-3-33"

9. Map of Proposed 345 kV Electric Transmission Line and 24 Inch Natural Gas Pipeline, Southern Energy Bowline, L.L.C., Town of Haverstraw, Village of West

Haverstraw, Rockland County, New York, August 5, 2000, Scale: 1In.=200 Ft., Tax Lots: 27.05-1-2 & 27.05-1-4"

TOGETHER WITH AND SUBJECT TO, such easement granted by Donald and Barbara Foiles to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 9, 2000, recorded June 16, 2000 as Instrument ID# 2000-00026608 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Patrick J. Clarke to Southern Energy Bowline, L.L.C. by Grant of Easement dated June 28, 2000, recorded July 17, 2000 as Instrument ID # 2000-00035024 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Robert and Gretchen Gabrielle to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 5, 2000, recorded June 27, 2000 as Instrument ID# 2000-00028446 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by the Gabrielle Family Trust to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 5, 2000, recorded June 16, 2000 as Instrument ID# 2000-00026614 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Robert and Michelle Bowman to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 17, 2000, recorded June 27, 2000 as Instrument ID# 2000-00028447 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Madeline Blanc to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 27, 2000, recorded June 16, 2000 as Instrument ID# 2000-00026617 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Darrow Cannizzaro to Southern Energy Bowline, L.L.C. by Grant of Easement dated June 8, 2000, recorded June 27, 2000 as Instrument ID# 2000-00028453 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Lloyd and Ina Tepper to Southern Energy Bowline, L.L.C. by Grant of Easement dated July 18, 2000, recorded July 18, 2000 as Instrument ID # 2000-00035026 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Harvey and Christine Siegel to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 9, 2000, recorded June 16, 2000 as Instrument ID# 2000-00026615 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Harvey and Christine Siegel to Southern Energy Bowline, L.L.C. by Grant of Easement dated July 28, 2000, recorded September 22, 2000 as Instrument ID# 2000-00042566 in the Rockland County Clerk's Office.

TOGETHER WITH AND SUBJECT TO, such easement granted by Lynda and Martin Blake to Southern Energy Bowline, L.L.C. by Grant of Easement dated June 8, 2000, recorded June 27, 2000 as Instrument ID# 2000-00028451 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Cinthia Streeter to Southern Energy Bowline, L.L.C. by Grant of Easement dated August 4, 2000, recorded as Instrument ID # 2000-00035712 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Patrick Petti to Southern Energy Bowline, L.L.C. by Grant of Easement dated May 18, 2000, recorded June 27, 2000 as Instrument ID# 2000-00028448 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Howard K. Schachman, Ethel L. Schachman and Marc Schachman to Southern Energy Bowline, L.L.C. by Grant of Easement dated August 21, 2000, recorded September 22, 2000 as Instrument ID# 2000-00042571 in the Rockland County Clerk's Office; and

TOGETHER WITH AND SUBJECT TO, such easement granted by Helen Rose Schneider, as executrix of the Estate of Julia Moxley to Southern Energy Bowline, L.L.C. by Grant of Easement dated August 28, 2000, recorded September 22, 2000 as Instrument ID# 2000-00042564 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Richard O'Brien to Southern Energy Bowline, L.L.C. by Grant of Easement dated September 28, 2000, recorded October 2, 2000 as Instrument ID# 2000-00043995 in the Rockland County Clerk's Office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Maria Scaglione and Joanne DeGaglia to Southern Energy Bowline, L.L.C. by Grant of Easement dated October 12, 2000, recorded on October 23, 2000 as Instrument ID# 2000-00047022 in the Rockland County Clerk's office;

TOGETHER WITH AND SUBJECT TO, such easement granted by Ellen Gabriel to Southern Energy Bowline, L.L.C. by Grant of Easement dated October 25, 2000, recorded on November 13, 2000 as Instrument ID# 2000-00050715 in the Rockland County Clerk's office; and

Southern Energy shall convey to Hudson Valley Gas any and all additional easements on the identified route of the gas pipeline obtained by Southern Energy in the future in connection with and in order to facilitate the construction of the gas pipeline.

The rights granted herein shall run with the land and be binding on the parties hereto and their respective successors and assigns.

AND, Grantor, in compliance with Section 13 of the Lien Law, hereby covenants that Grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

IN WITNESS WHEREOF, Grantor and Grantee have executed this instrument by duly authorized officers, respectively, as of the day and year first written above.

SOUTHERN ENERGY BOWLINE, L.L.C.

As Grantor

By _____
Christopher Johnson, Controller

HUDSON VALLEY
GAS CORPORATION

As Grantee

By _____
John E. Dorsett, Acting Chief Executive Officer

STATE OF NEW YORK }
COUNTY OF ROCKLAND} ss:

On the 8th day of January in the year 2001, before me, the undersigned, personally appeared Christopher Johnson, Controller of Southern Energy Bowline, L.L.C., personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the entity on behalf of which the individual acted, executed the instrument.

JoAnn E. Dagele
Notary Public - State of New York
JOANN E. DAGELE
Notary Public, State of New York
No. 01DA6005650
Qualified in Orange County
Commission Expires 4/20/2002

STATE OF NEW YORK }
COUNTY OF ROCKLAND} ss.:

On the 8th day of January, in the year 2001, before me, the undersigned, personally appeared John E. Dorsett, Acting Chief Executive Officer of Hudson Valley Gas Corporation, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the entity on behalf of which the individual acted, executed the instrument.

JoAnn E. Dagele
Notary Public - State of New York

JOANN E. DAGELE
Notary Public, State of New York
No. 01DA6005650
Qualified in Orange County
Commission Expires 4/20/2002

SCHEDULE "A"

1. **REPUTED OWNER: JOSE & ANGELA PENA**
TAX LOT DESIGNATION: 26.07-1-11.2

All that certain plot piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the northerly right-of-way line of Hunt Street, said point being distant S76-28-09E, 6.52 feet as measured in an easterly direction along the northerly right-of-way line of Hunt Street from a point located at the easterly end of a curve connecting the northerly right-of-way line of Hunt Street with the easterly right-of-way line of Bridge Street; running thence thru lands now or formerly of Jose & Angela Pena (Tax Lot 26.07-1-11.2) the following three (3) courses and distances:

1) N63-54-22E, 34.84 feet;

2) N89-00-00E, 73.52 feet;

3) N55-00-00E, 140.00 feet to a point on the easterly line of lands now or formerly of Garnerville Holding Co. (Tax Lot 26.07-1-12) also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Jose & Angela Pena (Tax Lot 26.07-1-11.2).

2. **REPUTED OWNER: GARNERVILLE HOLDING COMPANY**
TAX LOT DESIGNATION: 26.07-1-12

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the easterly line of lands now or formerly of Jose & Angela Pena (Tax Lot 26.07-1-11.2), said point being distant N11-54-09E, 145.81 feet as measured in anortherly direction along the easterly line of lands now or formerly of Jose & Angela Pena (Tax Lot 26.07-1-11.2) from a point on the northerly right-of-way line of Hunt Street located at the southeast corner of lands now or formerly of Jose & Angela Pena (Tax Lot 26.07-1-11.2); running thence

1) S79-11-04E, 186.01 feet thru lands now or formerly of Garnerville Holding Co. (Tax Lot 26.07-1-12) to a point on the westerly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-5-72) also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Garnerville Holding Co. (Tax Lot 26.07-1-12).

3. TAX LOT 26.07-5-72

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw,Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the easterly line of lands now or formerly of Garnerville Holding Co. (Tax Lot 26.07-1-12), said point being distant S40-00-27E, 55.74 feet as measured in a southeasterly direction along the easterly line of lands now or formerly of Garnerville Holding Co.(Tax Lot 26.07-1-12) from a point located at the southwest corner of lands now or formerly of the Village of West Haverstraw (Tax Lot 26.07-5-1); running thence thru lands now or formerly of Southern Energy Bowline, LLC the following two (2) courses and distances:

1) S79-11-04E, 484.23 feet;

2) S81-32-30E, 122.38 feet to a point on the easterly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-5-71), also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-5-72).

4. TAX LOT 26.07-5-71

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the westerly right-of-way line of N.Y.S. Route 9W, said point being distant S11-05-34W, 35.00 feet as measured in a southerly direction along the westerly right-of-way line of N.Y.S. Route 9W from a point on the westerly right-of-way line of N.Y.S. Route 9W located at the southeast corner of lands now or formerly of East Samsondale Corp. (Tax Lot 26.07-5-70); running thence thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-5-71) the following two (2) courses and distances:

1) N79-15-04W, 449.84 feet;

2) N81-32-30W, 384.40 feet to a point on the easterly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-5-72), also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-5-71).

5. TAX LOT 26.07-4-4

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the easterly right-of-way line of N.Y.S. Route 9W, said point being distant S19-25-43E, 15.06 feet as measured in a southerly direction along the easterly right-of-way line of N.Y.S. Route 9W from a point on the easterly right-of-way line of N.Y.S. Route 9W located at the southwest corner of lands now or formerly of West Haverstraw Land Corp. (Tax Lot 26.07-4-3); running thence thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-4-4) the following three (3) courses and distances:

1) S79-15-04E, 98.01 feet;

2) S61-00-00E, 210.00 feet;

3) S84-30-00E, 371.04 feet to a point on the westerly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-4-5), also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-4-4).

6. TAX LOTS 26.07-4-5 & 26.07-4-6

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the westerly line of lands now or formerly of Consolidated Rail Corp. (Tax Lot 20.20-2-55), said point being distant S05-25-49E, 56.97 feet as measured in a southerly direction along the westerly line of lands now or formerly of Consolidated Rail Corp. (Tax Lot 20.20-2-55) from a point on the westerly line of Consolidated Rail Corp. (Tax Lot 20.20-2-55)

located at the southeast corner of lands now or formerly of Village Fairgrounds II (Tax Lot 26.07-7-5); running thence thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-4-5 & 26.07-4-6) the following two (2) courses and distances:

1) N78-00-00W, 222.75 feet;

2) N84-30-00W, 341.96 feet to the point on the easterly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.07-4-4), also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Southern Energy Bowline LLC (Tax Lots 26.07-4-5 & 26.07-4-6).

7. TAX LOT 26.08-3-32

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the easterly line of lands now or formerly of Consolidated Rail Corp. (Tax Lot 20.20-2-55), said point being distant the following two (2) courses and distances as measured in a southerly direction along the easterly line of lands now or formerly of Consolidated Rail Corp. (Tax Lot 20.20-2-55) from a point on the easterly line of lands now or formerly of Consolidated Rail Corp. (Tax Lot 20.20-2-55) located at the southeast corner of lands now or formerly of Michael Tesik (Tax Lot 26.08-3-19):

A) S07-11-54E, 218.03 feet;

B) S12-10-14E, 209.80 feet; running thence thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.08-3-32) the following six (6) courses and distances:

1) S78-00-00E, 216.43 feet;

2) S63-00-00E, 208.00 feet;

3) N74-26-53E, 384.62 feet;

4) N81-58-40E, 169.95 feet;

5) S86-21-53E, 138.73 feet;

6) S67-10-33E, 4.41 feet to the point on the westerly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.08-3-33), also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.08-3-32).

8. TAX LOT 26.08-3-33

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the westerly right-of-way line of Samsondale Avenue, said point being distant N17-21-47W, 109.52 feet as measured in a northwesterly direction along the westerly right-of-way line of Samsondale Avenue from a point on the westerly right-of-way line of Samsondale Avenue located at the northeast corner of lands now or formerly of Frederick Viohl (Tax Lot 26.36-1-25); running thence thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.08-3-33) the following four (4) courses and distances:

1) N83-53-25W, 60.54 feet;

2) N35-03-33W, 424.32 feet;

3) N47-05-24W, 160.53 feet;

4) N67-10-30W, 105.11 feet to a point on the easterly line of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.08-3-32), also being the terminus of said 24 inch gas pipeline thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 26.08-3-33).

9. TAX LOTS 27.05-1-2 & 27.05-1-4

All that certain plot, piece or parcel of land situate, lying and being in the Town of Haverstraw, Village of West Haverstraw, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the easterly right-of-way line of Samsondale Avenue, said point being distant the following three (3) courses and distances as measured in a southerly direction along the easterly right-of-way line of Samsondale Avenue from a point on the easterly right-of-

way line of Samsondale Avenue located at the the southwest corner of lands now or formerly of Southern Energy Bowline, LLC (Tax Lot 27.05-1-1);

A) S11-38-00E, 24.82 feet;

B) S11-26-16E, 61.57 feet;

C) S08-08-48E, 92.52 feet; running thence thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lots 27.05-1-2 & 27.05-1-4) the following four (4) courses and distances:

1) S79-00-00E, 110.00 feet;

2) N75-00-00E, 590.00 feet;

3) N83-00-00E, 435.00 feet;

4) N02-46-30W, 250± feet to the terminus of said 345 KV Line thru lands now or formerly of Southern Energy Bowline, LLC (Tax Lots 27.05-1-2 & 27.05-1-4).

J:\DATA\Client\08351\Legal Descriptions\Hudson Valley.wpd

Exhibit B

Cat. #5175 Mfg by
JULIUS BLUMBERG, INC
NYC 10013

Record and Return to:
Lisa Ruoff Purdy, Esq.
Couch White, LLP
540 Broadway
P.O. Box 22222
Albany, New York 12201-2222

BARGAIN AND SALE DEED WITH COVENANT AGAINST GRANTOR'S ACTS (INDIVIDUAL OR CORPORATION)

STANDARD NYBTU FORM 8007

THIS INDENTURE, made the 8th day of January 2001, **between** Southern Energy Bowline, L.L.C., a Delaware limited liability company having an office at 400 Rella Boulevard, Suite 157, Suffern, New York 10901, Grantor, and

Hudson Valley Gas Corporation, a New York Transportation Corporation, having an office at 400 Rella Boulevard, Suite 157, Suffern, New York 10901, Grantee,

WITNESSETH, that the Grantor, in consideration of Ten and 00/100 Dollars ($10.00), lawful money of the United States, paid by the Grantee, does hereby grant and release unto the Grantee, the heirs or successors and assigns of the party of the Grantee,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Town of Clarkstown, County of Rockland and State of New York, being more particularly described in Schedule "A" annexed hereto and made a part hereof,

BEING the same property conveyed to Southern Energy Bowline, L.L.C. by Tom and Maureen Oliver by deed dated December 5, 2000 and recorded on December 20, 2000, in the Rockland County Clerk's office as Instrument ID # 2000-00056164.

TOGETHER with all right, title and interest, if any, of the Grantor in and to any streets and roads abutting the above described premises to the center lines thereof,

TOGETHER with the appurtenances and all the estate and rights of the Grantor in and to said premises,

TO HAVE AND TO HOLD the premises herein granted unto the Grantee, the heirs or successors and assigns of Grantee part forever.

AND the Grantor, covenants that it has not done or suffered anything whereby the said premises have been encumbered in any way whatever, except as aforesaid.

AND the Grantor, in compliance with Section 13 of the Lien Law, covenants that it will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

THIS conveyance is made with the unanimous consent of the Board of Directors of the Grantor and does not constitute a transfer of all or substantially all of the assets of the Grantor.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the Grantor has duly executed this deed the day and year first above written.

GRANTOR:
SOUTHERN ENERGY BOWLINE, L.L.C

By: _____
Name: Christopher Johnson
Title: Controller

STATE OF NEW YORK)
) ss.:
COUNTY OF ROCKLAND)

On the 8th day of January in the year 2001, before me, the undersigned, personally appeared Christopher Johnson, Controller of Southern Energy Bowline, L.L.C, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the entity upon behalf of which he acted, executed the instrument.

JoAnn E. Dagele
Notary Public - State of New York

JOANN E. DAGELE
Notary Public, State of New York
No. 01DA6005650
Qualified in Orange County
Commission Expires 4/20/2002

J:\DATA\Client\09212\352 red rock road deed.wpd

SCHEDULE "A"

ALL that certain plot, piece or parcel of land, situate, lying and being in New City, Town of Clarkstown, County of Rockland and State of New York, and more particularly bounded and described as follows:

BEGINNING at a point in the easterly line of Buena Vista Road, at the northwesterly corner of the premises herein described and at the southwesterly corner of lands of Jaborg, formerly of McLeod;

RUNNING THENCE along the same and through the center of a stone wall, South 75 degrees 18 minutes 50 seconds East 520 feet to lands of Egolf;

RUNNING THENCE along the same, South 11 degrees 32 minutes 30 seconds West 168.5 feet to other lands of Sawyer;

RUNNING THENCE along the same, North 75 degrees 18 minutes 50 seconds West 520 feet to the easterly line of said Buena Vista Road; and

RUNNING THENCE along the same, North 11 degrees 32 minutes 30 seconds East 168.5 feet to the point or place of beginning.

The above premises also being described as follows:

All that certain plot, piece or parcel of land situate, lying and being in the Town of Clarkstown, County of Rockland and State of New York. Being more fully bounded and described as follows:

BEGINNING at a point on the easterly right-of-way line of Buena Vista Road, said point being located at the northwest corner of lands now or formerly of Len Hoffman (Tax Lot 23-A-19) and the southwest corner of the hereinafter intended to be described parcel; running thence

1. N12-03-30E, 168.63 feet along the easterly right-of-way line of Buena Vista Road;

2. thence along lands now or formerly of Mark Johnson (Tax lot 23-A-20), lands now or formerly of Martin Baade (Tax lot 23-A-20.12) and lands now or formerly Harvey & Christine Siegel (Tax lot 23-A-20.11) S74-04-40E, 521.16 feet; thence

3. S12-46-40W, 168.50 feet along the westerly line of lands now or formerly of Tikvah Electric Co., Inc. (Tax Lot 23-A18.02); thence

4. N74-04-40W, 519.04 feet along the northerly line of lands now or formerly Len Hoffman (Tax Lot 23-A-19) to the point or place of BEGINNING.

Exhibit C

Exhibit C

Cat. #5128 Mfg by
JULIUS BLUMBERG, INC.
NYC 10013

ASSIGNMENT AND ASSUMPTION OF AGREEMENTS

THIS ASSIGNMENT AND ASSUMPTION OF AGREEMENTS, made as of January 08, 2001 ("Assignment"), by and between SOUTHERN ENERGY BOWLINE, L.L.C., a Delaware limited liability company whose principal office is located at 400 Rella Boulevard, Suite 157, Suffern, New York 10901 ("Assignor") and Hudson Valley Gas Corporation, a New York Corporation whose principal office is located at 400 Rella Boulevard, Suite 157, Suffern, New York 10901 ("Assignee").

WHEREAS Assignor and Assignee have entered into a Grant of Easements dated January 08, 2001 ("Grant of Easements") and a Bargain and Sale Deed, executed on the same day as this Assignment; and

WHEREAS, Assignor is a contracting party under those certain Agreements listed on Schedule 1 attached hereto and made a part hereof (as the same may have been amended, modified, supplemented, extended and/or assigned, the "Agreements");

WHEREAS, Assignor desires to assign the Agreements to Assignee so that Assignee may have the benefit of the use of the property subject to the Agreements; and

WHEREAS, this Assignment shall be effective as of the close of business on the date hereof,

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged:

1. Assignor hereby assigns and transfers to Assignee, its successors and assigns, and Assignee does accept the assignment of all of Assignor's right and interest in, to and under the Agreements, from and after the effective date of this Assignment for the remainder of the term of the Agreements, subject to the terms, covenants and conditions of the Agreements.

2. Assignee hereby assumes all liabilities and the performance of all of the terms, covenants and conditions arising out of the Agreements, herein assigned by Assignor to Assignee, which liabilities and performance are to be paid or performed subsequent to this Assignment. From and after the date of this Assignment, Assignee will well and truly perform all the terms, covenants and conditions of the Agreements herein assigned and hereinafter arising, all with full force and effect as if Assignee had signed the Agreements originally as a contracting party named therein.

3. Assignee hereby agrees that the obligations herein assumed by Assignee shall inure to the benefit of the respective contracting parties named in the Agreements and to their respective successors and assigns [unless otherwise provided in the Agreements].

4. Assignor and Assignee each agrees to execute and deliver to the other party, if the other party so requests, such further instruments as may be reasonably required to complete or further evidence either the foregoing assignment or the foregoing assumption.

5. This Assignment may be executed in one or more counterparts, each of which shall constitute an original, and all of which when taken together shall constitute one binding agreement.

6. It is understood and agreed that nothing in this Assignment shall constitute a waiver or release of any claims arising out of the contractual relationships between Assignor and Assignee.

7. The assumption by the Assignee of the Agreements shall not be construed to defeat, impair or limit in any way the rights, claims or remedies of the Assignee under any other agreements or contracts between the parties hereto.

8. Other than as specifically set forth in this Assignment, the Assignee shall not assume or be obligated to pay, perform or otherwise discharge any liability or obligation of the Assignor, including, without limitation, any liabilities or obligations in respect of any properties or assets, direct or indirect, known or unknown, absolute or contingent, other than the obligations and liabilities assumed with respect to the Agreements.

9. This Assignment and all disputes hereunder or relating hereto shall be governed by and construed in accordance with the laws of the State of New York (regardless of the laws that might otherwise govern under applicable New York principles of conflicts of laws).

IN WITNESS WHEREOF, Assignor and Assignee have executed this Assignment as of the date first set forth above.

ASSIGNOR:

SOUTHERN ENERGY BOWLINE, L.L.C.

By: _____
Name: Christopher Johnson
Title: Controller

ASSIGNEE:

HUDSON VALLEY GAS CORPORATION

By: _____
Name: John E. Dorsett
Title: Acting Chief Executive Officer

STATE OF NEW YORK)
) ss.:
COUNTY OF ROCKLAND)

On the 8th day of January in the year 2001, before me, the undersigned, personally appeared Christopher Johnson, Controller of Southern Energy Bowline, L.L.C., personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the entity on behalf of which the individual acted, executed the instrument.

JoAnn E. Dagele
Notary Public - State of New York

JOANN E. DAGELE
Notary Public, State of New York
No. 01DA6005650
Qualified in Orange County
Commission Expires 4/20/2002

STATE OF NEW YORK)
) ss.:
COUNTY OF ROCKLAND)

On the 8th day of January in the year 2001, before me, the undersigned, personally appeared John E. Dorsett, Chief Executive Officer of Hudson Valley Gas Corporation, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the entity on behalf of which the individual acted, executed the instrument.

JoAnn E. Dagele
Notary Public - State of New York

JOANN E. DAGELE
Notary Public, State of New York
No. 01DA6005650
Qualified in Orange County
Commission Expires 4/20/2002

SCHEDULE 1

AGREEMENTS

NO.	PROPERTY OWNER	DATE	RECORDED DATE	PROPERTY ADDRESS
1.	Robert and Michelle Bowman	05/17/00	Unrecorded	16 Central Highway New City, NY 10956
2.	Madeline C. Blanc	05/27/00	Unrecorded	1 Central Highway New City, NY 10956
3.	Darrow Cannizzaro	06/08/00	Unrecorded	211 South Mountain Road New City, NY 10956
4.	Patrick J. Clarke	06/28/00	Unrecorded	11 Oldfield Court Garnerville, NY 10923
5.	Gabrielle Family Trust	05/05/00	Unrecorded	22 Central Highway New City, NY 10956
6.	Patrick Petti	05/18/00	Unrecorded	219 South Mountain Road New City, NY 1956
7.	Lloyd and Ina Tepper	07/18/00	Unrecorded	5 Red Rock Road New City, NY 10956
8.	Maria Scaglione and Joann DeGaglia	10/12/00	Unrecorded	8 Oldfield Court Garnerville, NY 10923
9.	Estate of Julia Moxley	08/28/00	Unrecorded	549 South Mountain Road New City, NY 10956
10.	Richard O'Brien	09/28/00	Unrecorded	123 Ramapo Road Garnerville, NY 10923
11.	Howard K., Ethel L. and Marc Schachman	08/21/00	Unrecorded	194 South Mountain Road New City, NY 10956
12.	Harvey and Christine Siegel	07/27/00	Unrecorded	6 Red Rock Road New City, NY 10956
13.	Southern Energy Bowline, L.L.C. (Oliver post-closing occupancy agreement)	10/__/00	Unrecorded	352 Buena Vista Road New City, NY 10956

Reorder No. 5109N
JULIUS BLUMBERG, INC.
NYC 10013
©10% P.C.W.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Petition of Hudson Valley Gas Corporation Seeking a Declaratory Ruling For Lightened Regulation as a Gas Corporation

Case No. ____

Pursuant to Sections 8.1 and 58 of the New York Public Service Commission's ("Commission") Rules of Procedure, 16 N.Y.C.R.R. §§ 8.1; 58 (1995) and Section 66(13) of the New York Public Service Law, Hudson Valley Gas Corporation ("Hudson Valley") respectfully submits this Petition requesting that the Commission issue an order: (i) declaring that Hudson Valley is exempt from regulation as a gas corporation except with respect to certain safety and environmental matters; and (ii) notwithstanding the exemption sought, certifying that the Commission has regulatory jurisdiction over the rates, service and facilities of Hudson Valley and that it is exercising such jurisdiction. In support of its Petition, Hudson Valley states as follows:

I. BACKGROUND

1. On December 27, 1999, Southern Energy Bowline, L.L.C. ("Southern Energy"), filed an Application pursuant to Subpart 85-1.3 of the Commission's Rules of Procedure to construct a fuel gas transmission line which is less than 10 miles long in Case 99-T-1814, Application of Southern Energy Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need for the Construction of a 4.2 mile, 24-inch Natural Gas Pipeline

in the Towns of Haverstraw, Clarkstown and Village of West Haverstraw, Rockland County ("Article VII Application").

2. The proposed 24-inch outside diameter ("O.D.") intrastate gas transmission line will extend approximately 4.2 miles from the Bowline generating station property to a Columbia Gas Transmission Corporation ("Columbia") interconnection at or near Columbia's existing Buena Vista Gas Measuring Station in the Town of Clarkstown, Rockland County, New York. The proposed pipeline will operate at a maximum of 850 psig. (See Case 99-T-1814, supra, Article VII Application). Southern Energy also proposed to design, construct and operate the following facilities: gas measurement station and electronic gas measurement equipment; gas regulator; filtering equipment; heater equipment; and chromatography equipment.

3. On August 18, 2000, Hudson Valley was incorporated as a gas corporation pursuant to the New York Transportation Corporations Law.

4. Following the construction of the pipeline, Hudson Valley will be a gas corporation pursuant to Section 2(11) of the New York Public Service Law.

5. Hudson Valley is a wholly-owned subsidiary of Southern Energy Hudson Valley Investments, Ltd. ("SEHV").

6. SEHV is a wholly-owned subsidiary of Southern Energy, Inc., which is one of the largest independent power producers in the world.

7. Southern Energy, in conjunction with this Petition, is filing with the Commission: (a) a "Notice of Substitution of Applicant" in Case 99-T-1814, supra ("Notice"), substituting, Hudson Valley as the Applicant in the Article VII proceeding, insofar as the

Applicant seeks to construct the natural gas pipeline, gas measurement equipment and other appurtenances; (b) a joint petition with Hudson Valley pursuant to Section 70 of the Public Service Law seeking authorization to grant and transfer certain easements from Southern Energy to Hudson Valley; and (c) a "Notice of Substitution of Applicant in Case 99-T-1814" in Case 99-F-1164, In the Matter of Southern Energy Bowline, L.L.C., for a Certificate of Environmental Compatibility and Public Need to Construct and Operate a Nominal 750 Megawatt Combined Cycle Combustion Turbine Electric Generating Plant in Haverstraw, Rockland County, New York, notifying the New York State Board on Electric Generation Siting and the Environment that Hudson Valley had been substituted as the Applicant in the Article VII proceeding insofar as the Applicant seeks to construct and operate the natural gas pipeline, gas measurement equipment and other appurtenances.

II. THE COMMISSION SHOULD ISSUE AN ORDER GRANTING HUDSON VALLEY AN EXEMPTION FROM REGULATION AS A GAS CORPORATION EXCEPT WITH RESPECT TO CERTAIN SAFETY AND ENVIRONMENTAL MATTERS

8. Pursuant to Section 66(13) of the New York Public Service Law, the Commission may, at its discretion, exempt a gas corporation supplying service to less than 20 customers from all or any of the provision of Article 4 of the Public Service Law, except matters affecting public safety and the provisions of Sections 65, 68 and 74.[1] In order to be eligible for

[1] Section 74 has been repealed and its provisions relating to enforcement proceedings are (continued...)

an exemption, a gas corporation's business of owning, operating or managing a gas plant must be both subsidiary and incidental to the overall business activities carried on by such corporation and be inconsiderable in amount and not general in character.

9. Following the construction of the pipeline, Hudson Valley will transport natural gas for less than 20 customers. In recognition of the long-standing franchise rights of Orange and Rockland Utilities, Inc. to provide natural gas transportation service in Rockland County, Hudson Valley intends to use the pipeline to transport natural gas only to existing or future facilities at the Bowline generating station property in Rockland County.[2] The natural gas pipeline will provide transportation service to Southern Energy which owns the existing Bowline Units 1 and 2 and has filed an Article X Application for the construction and operation of Bowline Unit 3. Hudson Valley and Southern Energy have filed a request for trade secret protection for the Natural Gas Transportation Agreement between Hudson Valley and Southern Energy, dated January 8, 2001, and the corresponding cost of service data. Hudson Valley also will petition the Commission for approval of any other natural gas transportation agreements with other customers, if any.

10. Although Hudson Valley's business will be owning and operating the proposed pipeline and providing gas transportation services, Hudson Valley is part of the larger

---

[1](...continued)
now covered by Section 26.

[2] However, Hudson Valley will provide service, on non-discriminatory terms and conditions, in response to all service requests deemed appropriate by the Commission in accordance with New York law.

Southern Energy, Inc. holdings. The annual revenues of Southern Energy, Inc. are significantly greater than the projected annual revenues of Hudson Valley. In 1999, Southern Energy, Inc. reported operating revenues in excess of $2.0 billion. Hudson Valley is expected to have annual revenues of approximately $1.7 million. Consequently, Hudson Valley is incidental to the overall business of Southern Energy, Inc.

11. This Commission has held that gas corporations, like Hudson Valley, are exempt from Commission regulation except with respect to matters governing safety and the provisions of Sections 65 and 68 of the Public Service Law. See Case 92-M-0322, Petition of North Country Gas Pipeline Corporation and Saranac Energy Company, Inc. for a ruling that Saranac will not be subject to regulation under the Public Service Law as either an electric or steam corporation and that North Country will be exempted from regulation as a gas corporation, pursuant to §66(13) of the Public Service Law, "Declaratory Ruling and Order Granting Exemption" (issued August 27, 1992) ("North Country Order").

12. In Case 92-M-0322, supra, Saranac Energy Company, Inc. ("Saranac"), a wholly-owned subsidiary of Falcon Seaboard Power Corporation ("Falcon Power"), was constructing a cogeneration facility that would satisfy the criteria of a qualified facility under the Public Utility Regulatory Policies Act of 1978 ("PURPA"). North Country Gas Pipeline Corporation ("North Country"), a wholly-owned subsidiary of Falcon Seaboard Pipeline Corporation ("Falcon Pipeline"), had received a Certificate of Environmental Compatibility and Public Need to construct a 21-mile gas transmission pipeline between the site of Saranac's

facility and the Canadian border.[3] North Country, which planned to transport gas for three customers: Saranac, Saranac's steam host, and New York State Electric and Gas Corporation ("NYSEG"), sought lightened regulation as a gas corporation under PSL §66, on the grounds that: (i) it was serving less than 20 customers; (ii) its gas operations were incidental to the overall business of the co-generation project; and (iii) the exemption was in the public interest.

Notwithstanding opposition from NYSEG, the Commission approved North Country's petition for regulatory exemptions, ruling that:

> [s]everal cases . . . stand, inter alia, for the proposition that, when a PSL §66(13) exemption request is considered, the focus is on the economic entity as a whole. We thus reject NYSEG's claim that North Country's relationship with its affiliates renders it ineligible for a PSL §66(13) exemption. NYSEG's allegation that North Country's gas business is not inconsiderable in amount is also without merit, in view of the comparison of revenues discussed above [i.e., revenues associated with Saranac's electric activities].[4]

13. To ensure safe operation, Hudson Valley will enter into a letter of intent with Columbia to execute an Operating and Maintenance Plan and Emergency Plan. In addition, Hudson Valley has certified in two separate letters that it agrees to: (i) comply with the applicable provisions of Part 255, Transmission and Distribution of Gas for construction, operation and maintenance of the underground natural gas pipeline; and (ii) agrees to install and maintain underground natural gas pipelines constructed in New York State in accordance with the Central Hudson Gas & Electric Corporation environmental management and construction

---

[3] Falcon Power and Falcon Pipeline are both wholly owned subsidiaries of Falcon Seaboard Power Corporation.

[4] Case 92-M-0322, supra, at 9.

standards and practices which were approved by the New York State Public Service Commission in Case 94-T-0316, Application of Central Hudson Gas & Electric Corporation for a Certificate of Environmental Compatibility and Public Need for Replacement of a Portion of Central Hudson Gas & Electric Corporation's Existing Tuxedo to Poughkeepsie Underground Natural Gas Transmission Line - Approximately 6.3 Miles of 10" Natural Gas Pipeline Located in the Towns of Tuxedo, Monroe and Woodbury, Orange County (designated for filing in Case 70100). Copies of the letters are attached hereto as Exhibits A and B, respectively.

III. NOTWITHSTANDING THE EXEMPTION SOUGHT, SUPRA, THE COMMISSION SHOULD CLARIFY THAT HUDSON VALLEY REMAINS SUBJECT TO THE COMMISSION'S JURISDICTION

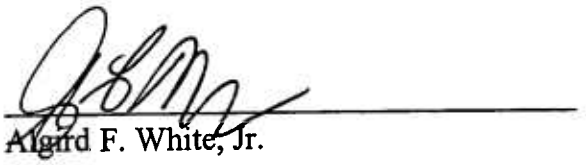
14. Under Section 1(c) of the Natural Gas Act, a gas corporation is exempt from regulation by the Federal Energy Regulatory Commission if all natural gas received within a State "is consumed within such State, . . . provided that the rates and service of the [supplier] be subject to regulation by a State Commission." 15 U.S.C.A. §717(c) (West 1997) ("Hinshaw Exemption"). A certification from the relevant state commission, "that such State Commission has regulatory jurisdiction over rates and service of such [supplier] and is exercising such jurisdiction shall constitute conclusive evidence of such regulatory power or jurisdiction." Id.

15. Hudson Valley will remain subject to regulation, notwithstanding the Section 66(13) exemption sought in this proceeding.

WHEREFORE, for the reasons set forth herein, Hudson Valley Gas Corporation respectfully requests that the Commission issue an order declaring that: (1) Hudson Valley Gas Corporation will be exempt from all Commission regulation as a gas corporation, except with respect to the safety and environmental matters embodied in Sections 65(8) and 66(23) of the Public Service Law; and (2) that, notwithstanding the exemption, the Commission retains jurisdiction over Hudson Valley Gas Corporation.

Dated: Albany, New York
January 12, 2001

Respectfully submitted,



Algird F. White, Jr.
COUCH WHITE, LLP
Attorneys for Hudson Valley
Gas Corporation
P.O. Box 22222
540 Broadway
Albany, New York 12201-2222
Phone: (518) 426-4600
Telecopier: (518) 426-0376

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Exhibit A

Cat. #5122 Mfg by
JULIUS BLUMBERG, INC.
NYC 10013

January 2, 2001

New York State Department of Public Service
Office of Gas and Water - Safety Section
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 99-T-1814 - Application of Southern Energy Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need for the Construction of a 4.2 Mile, 24-inch Natural Gas Pipeline in the Towns of Haverstraw and Clarkstown and the Village of West Haverstraw, Rockland County

Dear Sir/Madam:

This is to certify that Hudson Valley Gas Corporation hereby agrees to comply with the applicable provisions of Part 255, Transmission and Distribution of Gas for construction, operation and maintenance of the underground natural gas pipeline that is the subject of the above captioned proceeding.

Very truly yours,

HUDSON VALLEY GAS CORPORATION

John E. Dorsett
Acting Chief Executive Officer

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Exhibit B

Cat. #5128 Mfg by
JULIUS BLUMBERG, INC
NYC 10013

January 2, 2001

Hon. Janet Hand Deixler
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 99-T-1814 - Application of Southern Energy Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need for the Construction of a 4.2 Mile, 24-inch Natural Gas Pipeline in the Towns of Haverstraw and Clarkstown and the Village of West Haverstraw, Rockland County

Dear Secretary Deixler:

This is to certify that Hudson Valley Gas Corporation hereby agrees to install and maintain underground natural gas pipelines constructed in New York State in accordance with the Central Hudson Gas & Electric Corporation environmental management and construction standards and practices which were approved by the New York State Public Service Commission in Case 94-T-0316, Application of Central Hudson Gas & Electric Corporation for a Certificate of Environmental Compatibility and Public Need for Replacement of a Portion of Central Hudson Gas & Electric Corporation's Existing Tuxedo to Poughkeepsie Underground Natural Gas Transmission Line - Approximately 6.3 Miles of 10" Natural Gas Pipeline Located in the Towns of Tuxedo, Monroe and Woodbury, Orange County (designated for filing in Case 70100).

Very truly yours,

HUDSON VALLEY GAS CORPORATION

John E. Dorsett
Acting Chief Executive Officer

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Reorder No. 5109N
JULIUS BLUMBERG, INC.
NYC 10013
©10% P.C.W.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of Southern Energy Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need for the Construction of a 4.2 mile, 24-inch Natural Gas Pipeline in the Towns of Haverstraw, Clarkstown and Village of West Haverstraw, Rockland County

Case 99-T-1814

Petition of Hudson Valley Gas Corporation Seeking A Declaratory Ruling For Lightened Regulation As a Gas Corporation

Case No. ___

JOINT PETITION OF SOUTHERN ENERGY BOWLINE, L.L.C. AND HUDSON VALLEY GAS CORPORATION FOR TRADE SECRET PROTECTION

Pursuant to Section 6-1.3 of the New York Public Service Commission's ("Commission") Rules of Procedure, 16 N.Y.C.R.R. § 6-1.3 (1995) and Sections 87 and 89 of the Public Officers Law and Section 15 of the Public Service Law, Southern Energy Bowline, L.L.C. ("Southern Energy") and Hudson Valley Gas Corporation ("Hudson Valley") (collectively the "Petitioners") respectfully submit this Petition requesting that the Commission issue an order providing trade secret status for the following materials: (i) Natural Gas Transportation Agreement between Hudson Valley and Southern Energy, dated January 8, 2001("Agreement"); and (ii) Hudson Valley cost of service data. The Petitioners seek to supply this information to the Commission in support of Hudson Valley's Petition for Lightened Regulation as a Gas Corporation. Moreover, Hudson Valley seeks to supply the cost of service

data to the New York State Department of Public Service ("DPS") in response to DPS deficiency request 9.d. As set forth herein, the subject information both falls within the definition of trade secret status and qualifies for an exemption from public disclosure as authorized by the New York Freedom of Information Law ("FOIL"). N.Y. Pub. Off. Law § 87; 16 N.Y.C.R.R. § 6-1.3. The Agreement and cost of service data are attached hereto as Exhibit A.

BACKGROUND

On December 27, 1999, Southern Energy filed an Application pursuant to Subpart 85-1.3 of the Commission's Rules of Procedure to construct a fuel gas transmission line which is less than 10 miles long in Case 99-T-1814, Application of Southern Energy Bowline, L.L.C. for a Certificate of Environmental Compatibility and Public Need for the Construction of a 4.2 mile, 24-inch Natural Gas Pipeline in the Towns of Haverstraw, Clarkstown and Village of West Haverstraw, Rockland County ("Article VII Application").

The proposed 24-inch outside diameter ("O.D.") intrastate gas transmission line will extend approximately 4.2 miles from the Bowline generating station property to a Columbia Gas Transmission Corporation ("Columbia") interconnection at or near Columbia's existing Buena Vista Gas Measuring Station in the Town of Clarkstown, Rockland County, New York. The pipeline will operate at a maximum pressure of 850 psig. (See Case 99-T-1814, supra, Article VII Application). Southern Energy also proposed to design, construct and operate the following facilities: gas measurement station and electronic gas measurement equipment; gas

regulator; filtering equipment; heater equipment; chromatography equipment and other appurtenances.

On August 18, 2000, Hudson Valley was incorporated as a gas corporation pursuant to the New York Transportation Corporation Law. On January 8, 2001 Southern Energy and Hudson Valley executed a Grant of Easements and a Bargain and Sale Deed by which Southern Energy proposes transfer to Hudson Valley: (a) easements across property owned by Southern Energy; (b) easements across properties owned by third parties; (c) assignable easements across property owned by third parties which are obtained after the filing of this petition, providing that the easements are for property on the identified route of the pipeline; and (d) one residential parcel located at 352 Buena Vista Road, New City, New York. As set forth below, the agreements are subject to Commission review under Section 70 of the Public Service Law pursuant to a joint petition filed by Southern Energy and Hudson Valley. Thereafter, Hudson Valley developed a cost-of-service analysis for natural gas transportation service to be provided by Hudson Valley. Based in large part upon this analysis, Hudson Valley and Southern Energy entered into the Agreement on January 8, 2001.

Southern Energy, in conjunction with this Petition, is filing with the Commission: (a) a "Notice of Substitution of Applicant" in Case 99-T-1814, supra ("Notice"), substituting, Hudson Valley as the Applicant in the Article VII proceeding, insofar as the Applicant seeks to construct the natural gas pipeline, gas measurement equipment and other appurtenances; and (b) a joint petition with Hudson Valley pursuant to Section 70 of the Public Service Law seeking authorization to grant and transfer certain easements and property from Southern Energy to

Hudson Valley. Hudson Valley is filing with the Commission a "Petition Seeking a Declaratory Ruling For Lightened Regulation as a Gas Corporation." Southern Energy also is filing a "Notice of Substitution of Applicant in Case 99-T-1814" in Case 99-F-1164, In the Matter of Southern Energy Bowline, L.L.C., for a Certificate of Environmental Compatibility and Public Need to Construct and Operate a Nominal 750 Megawatt Combined Cycle Combustion Turbine Electric Generating Plant in Haverstraw, Rockland County, New York, notifying the New York State Board on Electric Generation Siting and the Environment that Hudson Valley had been substituted as the Applicant in the Article VII proceeding, insofar as the Applicant seeks to construct the natural gas pipeline, gas measurement equipment and other appurtenances.

ARGUMENT

TRADE SECRET PROTECTION IS NEEDED TO PREVENT COMPETITIVE HARM TO SOUTHERN ENERGY AND HUDSON VALLEY

Pursuant to the New York Public Officers Law, the legal standard for trade secret protection is whether the disclosure of information would cause competitive harm. FOIL; N.Y. Pub. Off. Law § 80 et seq. (McKinney 1999). FOIL exempts from public disclosure records that, inter alia, "are trade secrets or maintained for the regulation of commercial enterprise which if disclosed would cause substantial injury to the competitive position of the subject enterprise." N.Y. Pub. Off. Law § 87(2)(a) (1999). In effectuating FOIL, the Commission's regulations define "trade secret" as "any formula, pattern, device, or compilation of information which is

used in one's business, and which provides an opportunity to obtain an advantage over competitors who do not know or use it." 16 N.Y.C.R.R. § 6-1.3(a). In determining whether disclosure of information "would cause substantial injury to the competitive position of the person [seeking confidentiality]," the following six non-exclusive factors are to be considered:

(i) the extent to which the disclosure would cause unfair economic or competitive damage;

(ii) the extent to which the information is known by others and can involve similar activities;

(iii) the worth or value of the information to the person and the person's competitors;

(iv) the degree of difficulty and cost of developing the information;

(v) the ease or difficulty associated with obtaining or duplicating the information by others without the person's consent; and

(vi) other statute(s) or regulations specifically excepting information from disclosure.

Id.

Trade secret protection is granted when disclosure would cause competitive harm. As demonstrated below, the information submitted herewith contains very specific cost information regarding the Petitioners that, if divulged publicly, would adversely affect the negotiating positions of both Southern Energy and Hudson Valley vis-a-vis each other and other potential customers[1] and irreparably harm the competitive position of these facilities.

[1] In recognition of the long-standing franchise right of Orange and Rockland Utilities, Inc. to provide natural gas service to Rockland County, Hudson Valley intends to use the (continued...)

A. Effect of Public Disclosure

Public disclosure of the confidential Agreement would pose an undue threat to the competitive position of Southern Energy in New York by revealing its transportation costs to competitors. The Agreement and associated cost-of-service data contain sensitive cost information regarding Hudson Valley and Southern Energy operations and planning including, but not limited to, the following:

1. current and projected transportation contract prices;
2. projected capital expenditures and load factors;
3. current and projected tax rates;
4. estimated cost of capital;
5. non-price terms and conditions from the Agreement; and
6. current and projected labor costs.

Both the Agreement and Hudson Valley cost-of-service data should be protected from public disclosure. Public disclosure of this confidential information will cause irreparable harm to Southern Energy and Hudson Valley, whose competitors would benefit from this sensitive financial data and pricing information. See 16 N.Y.C.R.R. § 6-1.3(b)(2)(i). In a competitive market, providing commercial competitors with insight into the Petitioners'

---

[1](...continued)
proposed pipeline to transport gas only to existing and future facilities at the Bowline generating station property. However, Hudson Valley will provide service in response to all service requests deemed appropriate by the Commission in accordance with New York law.

financial statuses and planning strategies, and providing other suppliers with cost-of-service information will have a devastating impact on the ability of the Petitioners to function on a level playing field with the competition.

Moreover, this information is: (1) not known or accessible to others (16 N.Y.C.R.R. § 6-1.3(b)(2)(ii)); (2) of great value to competitors of Southern Energy and Hudson Valley (N.Y.C.R.R. § 6-1.3(b)(2)(iii)); and (3) would be difficult, if not impossible, to duplicate without the Petitioners' consent. (16 N.Y.C.R.R. § 6-1.3(b)(2)(iv) and (v)). Accordingly, the criteria for granting trade secret status clearly are satisfied.

Finally, according trade secret status to the information and limited access to it will not prejudice any other party. It is not necessary to publicly disclose the cost of service data and Agreement in order to determine whether Hudson Valley should be lightly regulated as a gas corporation by the Commission.

The Commission has previously granted trade secret status to commercially sensitive contractual information and data like the information presently at issue. In Case 94-E-0098, In the Matter of the Rates, Charges, Rules, and Regulations of Niagara Mohawk Power Corporation for Electric Service and Electric Street Lighting Service, Administrative Law Judge Lynch granted Niagara Mohawk's request to protect from public disclosure, certain confidential Independent Power Producer ("IPP") contractual information.[2] In the Procedural Order, Judge Lynch held that trade secret status was appropriate because disclosure, "would cause the

---

[2] See Case 94-E-0098, et al., supra, "Procedural Ruling and Protective Order" ("Protective Order") (issued October 5, 1994).

Company substantial and unfair economic damage to it, that the pertinent information is not known and could be valuable to individual IPPs and the IPP industry generally, and that the pertinent information cannot be obtained except from Niagara Mohawk."[3] Consistent with Commission precedent, the Agreement and the Hudson Valley cost of service data should be given trade secret status and access should be limited in accordance herewith.

B. Safeguarding the Trade Secrets

Due to the confidential nature of the information attached as Exhibit A, pursuant to Public Service Law Section 15, Public Officers Law Sections 87 and 89 and Commission Rule Section 6-1, Petitioners request that the following safeguards be adopted:

1. access to the information be limited to the New York State Public Service Commission and Department of Public Service Staff;

2. disclosure to other individuals or parties be specifically prohibited;

3. any discovery or testimony pertaining to the trade secret information, now or in the future, should be deemed trade secret material;

4. the trade secret information will be redacted from all materials, testimony, discovery, etc.; and

5. the Commission should implement such measures as it deems necessary for the protection of this trade secret information.

[3] Id. at 9-10.

CONCLUSION

For the reasons set forth herein, Petitioners respectfully request that the Commission issue an order declaring that the materials attached as Exhibit A hereto are trade secret materials and will be handled according to the safeguards requests above.

Dated: Albany, New York
January 12, 2001

Respectfully submitted,

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EXHIBIT A REDACTED

Reorder No. 5109N
JULIUS BLUMBERG, INC.
NYC 10013

NEW YORK STATE
PUBLIC SERVICE COMMISSION

IN THE MATTER

- of the -

Case 01-G-0045

Case 01-G-0045 - Petition of Hudson Valley Gas Corporation Seeking a Declaratory Ruling For Lightened Regulation as a Gas Corporation

---

RESPONSE TO STAFF'S FIRST SET OF DISCOVERY REQUESTS

1. Please provide a copy of Southern Energy, Inc.'s 1998, 1999 and 2000 annual reports.

A. Southern Energy, Inc. has not issued annual reports. However, the Southern Company issued annual reports in 1998 and 1999. A copy of the 1998 and 1999 Southern Company annual reports are being provided to Staff with this Response. Additional copies of the annual reports may be obtained from the Southern Company website (www.southernco.com). The Southern Company annual report for 2000 is expected to be released in March 2001.

Prepared by: Counsel
Dated: February 16, 2001

RESPONSE TO STAFF'S FIRST SET OF DISCOVERY REQUESTS

2. Please provide the basis for Hudson Valley Gas Corporation's (HVGC) expected revenues; also provide a revenue forecast for next three years.

A. Hudson Valley's projected revenues are a function of the Natural Gas Transportation Agreement between Hudson Valley and Southern Energy, dated January 8, 2001, and Hudson Valley's projected costs and expenses. Hudson Valley's pro forma income statement identifies Hudson Valley's projected cost of service, operating expenses, interest expenses, income taxes and net income. Hudson Valley's pro forma income statement is attached as Appendix B to the Natural Gas Transportation Agreement.

On January 12, 2001, Hudson Valley and Southern Energy Bowline, L.L.C. filed a Joint Petition for Trade Secret Protection ("Petition") with the New York State Public Service Commission. In the Petition, Hudson Valley and Southern Energy requested the Commission to issue an order providing trade secret status for (i) the Natural Gas Transportation Agreement between Hudson Valley and Southern Energy; and (ii) Hudson Valley's cost of service data.

Additional information in response to this request is attached hereto with a request for trade secret protection for this information. This information has not been provided to any party other than the Staff of the Department of Public Service.

Prepared by: Counsel and Daniel M. Ives
Dated: February 16, 2001

RESPONSE TO STAFF'S FIRST SET OF DISCOVERY REQUESTS

3. Please provide a copy of the transportation agreement between HVGC and Southern Energy Bowline, LLC (now Mirant Bowline, LLC.)

A. See Response to DPS (MS)-2, above.

Prepared by: Counsel
Dated: February 16, 2001

RESPONSE TO STAFF'S FIRST SET OF DISCOVERY REQUESTS

4. Please explain why the proposed pipeline should be considered a "Hinshaw" pipeline exempt from regulation by the Federal Energy Regulatory Commission.

A. The proposed pipeline is exempt from FERC regulation because it satisfies the criteria of the Hinshaw Amendment to the Natural Gas Act ("NGA"). The Hinshaw Amendment provides that:

> The provisions of [the NGA] shall not apply to any person engaged in or legally authorized to engage in the transportation in interstate commerce or the sale in interstate commerce for resale, of natural gas received by such person from another person within or at the boundary of a State if all the natural gas so received is ultimately consumed within such State, or to any facilities used by such person for such transportation or sale, provided that the rates and service of such person and facilities be subject to regulation by a State commission. The matters exempted from the provisions of this chapter by this subsection are declared to be matters primarily of local concern and subject to regulation by the several States. A certification from such State commission to the [FERC] that such State commission has regulatory jurisdiction over rates and service of such person and facilities and is exercising such jurisdiction shall constitute conclusive evidence of such regulatory power or jurisdiction.[1]

[1] 15 U.S.C.A. § 717(c) (West 1997).

The Hudson Valley natural gas transmission line will transport gas exclusively within New York State and all of the natural gas received by the Hudson Valley natural gas transmission line ultimately is consumed within the state. Hudson Valley has requested that the New York State Public Commission assert jurisdiction over the pipeline's rates, services and facilities. Thus, the Hudson Valley pipeline should be considered a Hinshaw pipeline exempt from FERC regulation.

Prepared by: Counsel
Dated: February 16, 2001
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Reorder No. 5109N
JULIUS BLUMBERG, INC.
NYC 10013

NEW YORK STATE
PUBLIC SERVICE COMMISSION

IN THE MATTER

- of the -

Joint Petition of Southern Energy Bowline, L.L.C. and Hudson Valley Gas Corporation Seeking Commission Authorization Pursuant to Section 70 of the Public Service Law to Grant and Transfer Easements to Hudson Valley Gas Corporation

Case 01-M-0046

RESPONSE TO STAFF'S FIRST SET OF DISCOVERY REQUESTS

1. Please provide the basis for, and equity of, the proposed Hudson Valley Gas Corporation payments to Mirant Bowline, LLC in consideration of the transfer of the easements and properties.

A. The basis for the payment of funds from Hudson Valley to Mirant for the easements is an appraisal performed for Mirant by a New York State certified general appraiser.

The basis for the payment of funds from Hudson Valley to Mirant for the property located at 352 Buena Vista Road is the actual cost of acquisition of the property by Mirant.

These payments are equitable because they are based on fair market value and actual costs.

Prepared by: Donald K. Gray, II
Dated: February 16, 2001
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Reorder No. 5126N
JULIUS BLUMBERG, INC.
NYC 10013

Report

Bowline Combined Cycle Plant: Supplement Number 4

Prepared for
Southern Energy Inc.

Submitted by
Johnny R. Willis, Executive Consultant
Douglas R. Brown, Senior Consultant
Consulting Services

December 12, 2000

Report No. 62-00

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Appendix A Proposed Interconnection Diagram

Appendix B Short Circuit Analysis

Appendix C Critical Clearing Times

Appendix D Special Protection Systems

Appendix E Transfer Capability

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Executive Summary

This executive summary supplements the summary in Supplement 3.

This system reliability impact study was conducted in 2000 by Power Technologies (PTI) for Southern Energy, Incorporated (Southern Energy) to evaluate the impact of the Bowline 3 generation project on the reliability of the NYCA bulk power system. The Bowline 3 combined cycle plant will be located at the site of the existing Bowline 1 and 2 units in southeastern New York. Bowline 3 consists of one steam turbine and three combustion turbines and is expected to have a nominal 750 MW rating.

The results of the impact study are summarized in this Supplement 4 and six additional documents:

- "Bowline Combined Cycle Plant: Thermal, Transfer, Voltage and Short Circuit Analysis"; PTI Report R9-2000; March 3, 2000.
- "Bowline Combined Cycle Plant: Stability, Relay Coordination and Auto-Reclosing Analysis"; PTI Report R16-00; April 3, 2000.
- "Supplement to Bowline 3 Thermal, Voltage and Short Circuit Analysis"; PTI Report Supplement; May 23, 2000.
- "Bowline Combined Cycle Plant: Supplement 2"; PTI Report R54-00; October 5, 2000.
- "Bowline Combined Cycle Plant: Supplement 3"; PTI Report R57-00; October 24, 2000.
- Memorandum Regarding Bowline 3 SRIS, Conference Call with NYISO; Transmitted to NYISO November 13, 2000. (See Appendix F of this supplement)

Based on the results of the analyses, the conclusions of this supplement are as follows:

1) The critical clearing time at Ladentown with Bowline 3 in-service exceeds 10.0 cycles under peak load conditions.
2) The project requires modification and reclassification of the existing Type III SPS that rejects Bowline unit 2 following the loss of both 345 kV lines from Ladentown (loss of Y88 and W72, an extreme contingency). The modified SPS will be Type II.
3) The addition of Bowline 3 causes fault current at the Buchanan 345 kV substation to exceed the ratings of two breakers (breaker 1 and breaker 3). Con Edison is developing a short-circuit duty mitigation plan that will address the short circuit impacts associated with Bowline 3.

The study, including this supplement, was performed in accordance with applicable NERC Planning Standards[1], NPCC criteria[2] and NYSRC Reliability Rules[3].

Southern Energy has confirmed that the Bowline 3 project will be designed and operated in accordance with NYSRC, NPCC and NERC criteria.

[1] NERC Planning Standards; North American Electric Reliability Council; September 1997.
[2] Basic Criteria for Design and Operation of Interconnected Power Systems; Northeast Power Coordinating Council; August 9,1995.
[3] New York State Initial Reliability Rules, New York State Reliability Council, September 10, 1999.

Section 1

Introduction

This report supplement was prepared to address issues raised by the NYISO during review of the following reports:

- "Bowline Combined Cycle Plant: Thermal, Transfer, Voltage and Short Circuit Analysis"; PTI Report R9-2000; March 3, 2000.
- "Bowline Combined Cycle Plant: Stability, Relay Coordination and Auto-Reclosing Analysis"; PTI Report R16-00; April 3, 2000.
- "Supplement to Bowline 3 Thermal, Voltage and Short Circuit Analysis"; PTI Report Supplement; May 23, 2000.
- "Bowline Combined Cycle Plant: Supplement 2"; PTI Report R54-00; October 5, 2000.
- "Bowline Combined Cycle Plant: Supplement 3"; PTI Report R57-00; October 24, 2000.

The primary concern raised by the NYISO was related to the aspect of the Bowline 3 interconnection plan, which created a design contingency (loss of tower 67/68) that involved the loss of 1625 MW of generation. Southern Energy has agreed to supplement its interconnection plan for Bowline 3 to address this concern. Under the supplemented interconnection plan, the addition of Bowline 3 does not affect the loss of generation from the tower 67/68 contingency pre-contingency.

The analysis contained in this supplement summarizes the effects of the supplemented interconnection plan on the analyses presented in the reports and supplements listed above.

Section
2

Interconnection Plan

The supplemented Bowline 3 interconnection is shown in Appendix A. From an electrical perspective, the most significant aspect of the supplemented plan is that the three Bowline units are each connected to a dedicated 345 kV line and are no longer connected together at Bowline. With this supplemented interconnection plan, the tower 67/68 contingency remains the same as under pre-project conditions; this contingency results in the loss of 1200 MW of Bowline generation.

In both the interconnection plan and and the supplemented interconnection plan Bowline 3 interconnection plans, the Bowline complex delivers approximately 2000 MW to the 345 kV substation at Ladentown. Relative to the interconnection plan (see Appendix F of Supplement 2), the supplemented plan would not significantly impact the response of the bulk transmission system to disturbances on the bulk transmission system external to the Ladentown substation. As a result, the supplemented Bowline 3 interconnection plan has a limited effect on certain parts of the original report and first three supplements.

Short Circuit Analysis
Short circuit analysis for the interconnection plan is summarized in Report R9 and Supplement 1. Short circuit analysis using the supplemented interconnection is summarized in Section 3 of this report.

Critical Clearing Time Analysis
Critical clearing times for the interconnection plan are summarized in Supplement 3. Critical clearing time analysis using the supplemented interconnection is summarized in Section 4 of this report.

Special Protection Systems
SPS analysis for the interconnection plan is summarized in Supplement 3. Separating the three units at Bowline eliminates the need for the four new Special Protection Systems (SPS) proposed in Supplement 3. SPS analysis using the supplemented interconnection is summarized in Section 5 of this report.

Transfer Analysis
Thermal analysis for the interconnection plan is summarized in Supplement 2. Voltage analysis was summarized in Supplement 2 and a memo transmitted to the NYISO on November 13 (see Appendix F). The controlling transfer limits (thermal or voltage) are shown in Table 1-2 of Appendix F.

Controlling transfer limits estimated using the interconnection plan were not set by the 67/68 tower contingency. Because the supplemented interconnection plan reduces the severity of the tower 67/68 contingency relative to the interconnection plan, the

supplemented interconnection will not affect the estimated controlling transfer limits shown in Appendix F.

Stability analysis for the interconnection plan is summarized in Supplement 3. Stability analysis using the supplemented interconnection is summarized in Section 6 of this report.

PAR Analysis

PAR analysis for the interconnection plan is summarized in Report R9. In the supplemented interconnection plan, as in the interconnection plan, the Bowline complex delivers approximately 2000 MW to the 345 kV substation at Ladentown. Because the supplemented plan does not impact power flows in the bulk transmission system external to the Ladentown substation, the supplemented plan will not affect the results of the PAR analysis.

Extreme Contingency Analysis

Extreme contingency analysis for the interconnection plan is summarized in Supplement 2, Supplement 3 and a memo transmitted to the NYISO on November 13 (see Appendix F). Because the supplemented interconnection plan does not impact power flows in the bulk transmission system external to Ladentown, the supplemented plan will not affect the results of the extreme contingency analysis. This analysis is supported by the results of the stability analysis summarized in Section 6 of this report.

Section 3

Short Circuit Analysis

Short circuit analysis is summarized in Report R9 and Supplement 1. This section reviews the effect of the supplemented Bowline 3 interconnection plan on short circuit levels. The methodology for the short circuit analysis is described in Section 7 of Report R9.

3.1 Short Circuit Base Case

The short circuit base case described in Section 3.4 of Report R9 was revised to incorporate the supplemented interconnection. The new Bowline 345/138 kV transformer was assumed to be identical to the existing 345/138 kV transformer at West Haverstraw.

3.2 Results

Total station fault duties with Bowline 3 in-service are shown in Appendix B. The Appendix B table includes a column that indicates the difference in total station fault duty relative to the original interconnection plan. Breaker by breaker analysis summarized in Supplement 1 was checked by adding the change in total station fault duty to the breaker fault duties calculated for Supplement 1, a conservative assumption.

The supplemented interconnection plan does not change the conclusions of Supplement 1. The conclusions of this analysis are that Bowline 3 causes the fault current at the Buchanan South 345 kV substation to exceed the ratings of two circuit breakers, specifically breakers 1 and 3.

Breaker ratings have been requested from Orange and Rockland to complete the information contained in Appendix F. This information will be forwarded immediately upon its receipt.

Section 4

Critical Clearing Time Analysis

Critical clearing times calculated at the Ladentown and Bowline 345 kV substations are shown in Section 3 of Supplement 3. This section reviews the effect of the supplemented Bowline 3 interconnection plan on critical clearing times.

4.1 Data Base Preparation

Section 2 of Supplement 3 describes the creation of summer peak case DS6a with Bowline 3 displacing Indian Point 3. Case DS6a was adjusted to incorporate the supplemented interconnection and is referenced herein as DS7.

The interface flows for case DS7 are the same as those shown in Table 2-1 in Supplement 3 for case DS6.

4.2 Results

The three-phase stuck breaker contingencies listed in Table 4-1 were simulated to check critical clearing times at Ladentown and Bowline. The contingencies were simulated using the summer peak DS7 case described in Section 4.1. Simulations were run using a 10 cycle critical clearing time at Ladentown and a 12 cycle critical clearing time at the Bowline 138 kV bus.

Plots of system response may be found in Appendix C.

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
DS7_CCT1	At Ladentown on Ladentown-Ramapo W72	Ladentown 1-56-2	> 10.0 cycles
DS7_CCT2	At Ladentown on Ladentown-Ramapo W72	Ladentown 4-56-2	> 10.0 cycles
DS7_CCT3	At Bowline 138 kV Bus Y	345/138 kV Xfmr, 138 kV Brkr	> 12.0 cycles

4.2.1 DS7_CCT1: Fault at Ladentown on Line W72, Fail 1-56-2

This contingency is a 3-phase fault at Ladentown on the Ladentown-Ramapo line W72. At 3.5 cycles, W72 is cleared normally at Ramapo, but breaker 1-56-2 fails at Ladentown. At 10 cycles, backup relaying clears Line 67 and trips Bowline 1.

This simulation is stable with a 10 cycle clearing time.

4.2.2 CCT2: Fault at Ladentown on Line W72, Fail 4-56-2

This contingency is a 3-phase fault at Ladentown on the Ladentown-Ramapo line W72. At 3.5 cycles, W72 is cleared normally at Ramapo, but breaker 4-56-2 fails at Ladentown. At 10 cycles, backup relaying clears Line 68 and trips Bowline 2.

This simulation is stable with a 10 cycle clearing time.

4.2.3 CCT3: Fault on 138 kV Bowline Bus Y, Fail Transformer Breaker

This contingency is a 3-phase fault on the Bowline 138 kV Bus Y. At 4.5 cycles, the line 56 and line 561 breakers operate and the 345/138 kV transformer breaker fails. At 11.0 cycles backup relaying clears the high side of the 345/138 kV transformer. At 12.0 cycles backup relaying clears the low side of the 345/138 kV transformer.

This simulation is stable with a 12 cycle clearing time.

Section 5

Special Protection Systems

In Section 4 of Supplement 3, the effect of Bowline 3 on the existing Ladentown SPS was reviewed and new SPS were proposed. The supplemented interconnection plan eliminates the need for the four new SPS proposed in Supplement 3.

This section reviews the effect of Bowline 3 on the existing SPS at Ladentown (SPS39). Analysis was conducted using the summer peak case DS7 described in Section 4.1 herein.

5.1 SPS39

The present operation of this SPS is described in Section 4.1 of Supplement 3. The initiating event is the loss of the Ladentown-Buchanan (Y88) and Ladentown-Ramapo (W72) 345 kV lines. With the supplemented interconnection plan, there are two possible scenarios:

1) Ladentown 345 kV bus intact such that Bowline 1, 2 and 3 are connected to each other through the Ladentown substation. The units remain connected to the system through the West Haverstraw 345/138 kV transformer and the Bowline 345/138 kV transformer. They are not connected to the 345 kV system.

2) Ladentown 345 kV bus split such that Bowline 2 and 3 are connected to each other through the Ladentown substation. Bowline 2 and 3 remain connected to the system through the Bowline 345/138 kV transformer and Bowline 1 remains connected to the system through the West Haverstraw 345/138 kV transformer.

Correct Operation

Simulations were performed to assess the generation tripping requirements for SPS39. Plots of the system response are contained in Appendix D and the results are summarized below:

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ds7_SPS39c	on-line	trip	trip	Loss of Y88 & W72, Ladentown bus intact	Stable
ds7_SPS1d	on-line	trip	trip	Loss of Y88 & W72, Ladentown bus split	Stable

SPS39 will be revised to trip Bowline 2 and Bowline 3 when all three units are operating.

Misoperation

Misoperation of the revised SPS would trip Bowline 2 and Bowline 3 even though the Y88 and W72 lines remain in service. This disturbance would be less severe than Extreme Contingency E1, which simulated the sudden loss of all Bowline generation. (See Section 4 of Supplement 2 and Section 3 of Supplement 3) Misoperation of the revised SPS will not have a significant adverse impact on the bulk transmission system.

Failed Operation

Stability analysis indicates that failure of the revised SPS39 to initiate tripping of any Bowline generation would result in the transient instability of the Bowline complex as well as the Lovett generation. (The electrical center is near Lovett.) This may also lead to transmission line tripping in the 138kV system near Lovett and Bowline due to apparent impedance transients. Given the effect of a failure of SPS39, it is appropriate that SPS39 be changed from NPCC Type III to Type II because (1) it is required to respond to an extreme contingency; and (2) failure of the SPS would have a significant adverse impact outside the local area.

5.2 SPS Summary

Based on the above analysis, the following classification is deemed appropriate for the SPS discussed above. (SPS Type Classifications are based on NPCC Document B-11, "Special Protection System Guideline", March 2, 1999).

[redacted]

[redacted]	[redacted]	[redacted]
W72 & Y88 (Existing SPS39)	II	Tripping of Bowline 2 and 3 to maintain stability at Bowline and Lovett

Section
6

Transfer Analysis

In Section 5 of Supplement 3, stability analysis was conducted to verify that stability-based transfer limits are higher than the estimated controlling (thermal or voltage) transfer limits. The estimated controlling transfer limits are shown in Table 1-2 of Appendix F.

This section reviews the effect of the supplemented interconnection plan on the stability analysis summarized in Supplement 3. Methodology and criteria are described in Section 5 of Supplement 3.

6.1 UPNY-ConEd Interface

The DS6 series case used in Section 5.4.1 of Supplement 3 for UPNY-ConEd analysis had an UPNY-ConEd interface flow of 8768 MW. This case was adjusted to incorporate the supplemented interconnection and will be referred to herein as case DS7_UC8768. The simulations shown in Supplement 3, Table 5-2 were repeated using case DS7_UC8768 for comparison with the results shown in Appendix F of Supplement 3.

With the supplemented interconnection plan, the tower 67/68 contingency (UC26) does not involve Bowline 3 and the plots in Appendix E show that system response following the tower 67/68 contingency is stable and well damped. In all other respects, the supplemented interconnection plan does not significantly impact the system responses found in Appendix F of Supplement 3.

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
UC26	LLG @ Ladentown	Ladentown-West Haverstraw	L/O Tower 67/68	Stable

6.2 Total East Interface

The DS6 case used in Section 5.4.2 of Supplement 3 for Total East analysis had a Total East interface flow of 6328 MW without additional reactive compensation and 6879 MW with additional reactive compensation. These cases were adjusted to incorporate the supplemented interconnection and will be referred to herein as case DS7_TE6328 and DS7_TE6883, respectively. The simulations shown in Supplement 3, Tables 5-3 and 5-4 were repeated using cases DS7_TE6328 and DS7_TE6883 for comparison with the results shown in Appendices G and H of Supplement 3.

With the supplemented interconnection plan, the tower 67/68 contingency (contingency UC26) does not involve Bowline 3 and the plots in Appendix E show that system response following the tower 67/68 contingency is stable and well damped. In all other respects, the supplemented interconnection plan does not significantly impact the system responses found in Appendices G and H of Supplement 3.

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UC26	LLG @ Ladentown	Ladentown-West Haverstraw	L/O Tower 67/68	Stable

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UC26	LLG @ Ladentown	Ladentown-West Haverstraw	L/O Tower 67/68	Stable

Table 5-4 in Supplement 3 shows that the Total East interface may be stability limited before the addition of Bowline 3. The Bowline 3 project does not have a significant impact on the pre-project condition.

Section 7

Conclusions

This report supplement was prepared to address issues raised by NYISO during review of the following reports:

- "Bowline Combined Cycle Plant: Thermal, Transfer, Voltage and Short Circuit Analysis"; PTI Report R9-2000; March 3, 2000.
- "Bowline Combined Cycle Plant: Stability, Relay Coordination and Auto-Reclosing Analysis"; PTI Report R16-00; April 3, 2000.
- "Supplement to Bowline 3 Thermal, Voltage and Short Circuit Analysis"; PTI Report Supplement; May 23, 2000.
- "Bowline Combined Cycle Plant: Supplement 2"; PTI Report R54-00; October 5, 2000.
- "Bowline Combined Cycle Plant: Supplement 3"; PTI Report R57-00; October 24, 2000.

The primary concern raised by the NYISO was related to the aspect of the interconnection plan, which created a design contingency (loss of lines 67 and 68) that involved the loss of 1625 MW of generation. Southern Energy has agreed to supplement its interconnection plan to address this concern. As set forth more fully herein, under the supplemented interconnection plan, the addition of Bowline 3 does not have any affect on the loss of generation from the tower 67/68 contingency.

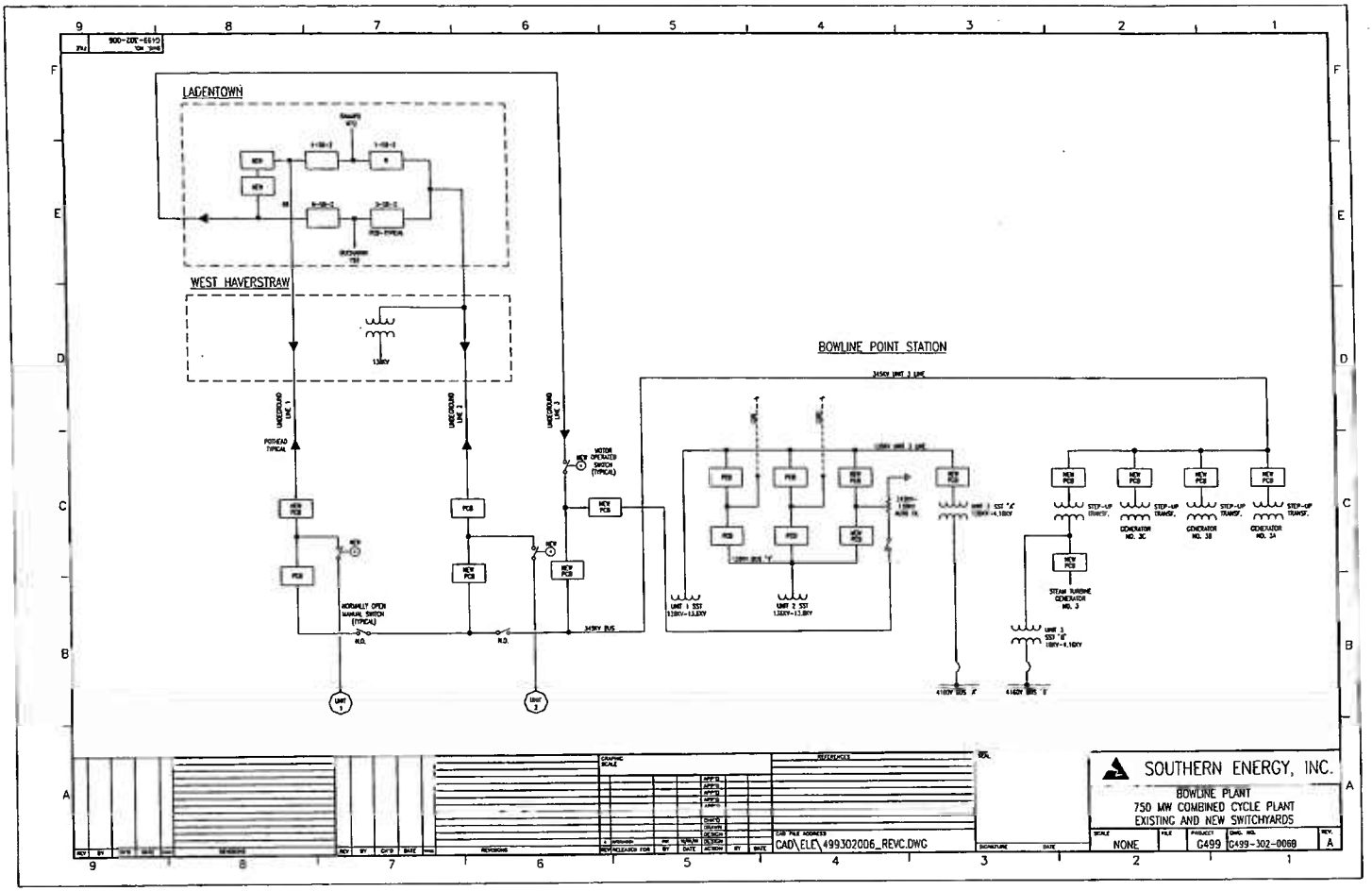
The analysis contained in this supplement summarizes the effects of the supplemented interconnection plan on the analysis presented in the reports and supplements listed above. As a result of the analysis in this supplement, the following conclusions supersede the conclusions stated in Supplement 3:

1) The Bowline 3 project does not have a significant adverse impact[4] on system performance for extreme contingencies.
2) The critical clearing time at Ladentown with Bowline 3 in service exceeds 10.0 cycles under peak load conditions.
3) The project requires modification and reclassification of the existing Type III SPS that rejects Bowline unit 2 following the loss of both 345 kV lines from Ladentown (loss of Y88 and W72, an extreme contingency). The modified SPS will be Type II.
4) Stability constrained transfer limits are less limiting than thermal or voltage limitations for the UPNY-ConEd interface. The Total East interface may be stability limited pre-project. However, the addition of Bowline 3 will not contribute to this limit.

[4] As defined in "Criteria for Review and Approval of Documents, Appendix A"; Northeast Power Coordinating Council; May 9,1995.

Appendix
A

Proposed Interconnection Diagram


LADENTOWN
WEST HAVERSTRAW
BOWLINE POINT STATION
UNDERGROUND LINE 1
UNDERGROUND LINE 2
UNDERGROUND LINE 3
MOTOR OPERATED SWITCH (TYPICAL)
NORMALLY OPEN MANUAL SWITCH (TYPICAL)
345KV BUS
STEAM TURBINE GENERATOR NO. 3
GENERATOR NO. 3C
GENERATOR NO. 3B
GENERATOR NO. 3A
SOUTHERN ENERGY, INC.
BOWLINE PLANT
750 MW COMBINED CYCLE PLANT
EXISTING AND NEW SWITCHYARDS
CAD\ELE\499302006_REVC.DWG
NONE
C499
C499-302-0069
A

Appendix
B

Short Circuit Analysis

STATION TOTAL FAULT DUTIES

Bus		Lowest Breaker Rating	BASE CASE (kA) 3PH	BASE CASE (kA) LLG	BASE CASE (kA) LG	BASE CASE WITH BOWLINE 3 (kA) 3PH	BASE CASE WITH BOWLINE 3 (kA) LLG	BASE CASE WITH BOWLINE 3 (kA) LG	CHANGE FROM REPORT R9 (A)* 3PH	CHANGE FROM REPORT R9 (A)* LLG	CHANGE FROM REPORT R9 (A)* LG
345 KV - Con Edison											
8	BUCHAN N	40	32.22	31.55	29.75	32.68	32	30.14	30	40	60
9	BUCHAN S	40	43.53	42.13	38.27	45.05	43.61	39.51	180	210	240
12	DUNWODIE	63	64.41	64.11	53.32	65.15	64.78	53.69	70	60	30
839	E FISHKL	63	39.86	37.7	27.95	40.09	37.9	28.04	20	10	10
18	FARRAGUT	63	62.84	63.4	59.19	63.35	63.85	59.51	50	40	30
22	FR KILLS	63	23.3	24.25	24.06	23.31	24.27	24.08	0	0	10
24	GOETHL N	40	22.66	23.51	23.44	22.67	23.52	23.45	0	0	0
25	GOETHL S	40	22.65	23.78	23.96	22.66	23.79	23.97	0	0	0
26	GOW N	40	18.96	19.25	17.53	18.97	19.26	17.54	0	0	
27	GOW S	40	18.97	19.37	17.59	18.98	19.38	17.6	0	0	0
32	MILLWOOD	63	50.98	48.4	36.32	52.08	49.41	36.84	130	110	80
39	PL VAL	63	40.66	38.08	24.97	40.89	38.29	25.04	20	10	10
165	POLETTI	80	47.35	47.58	41.73	47.63	47.82	41.87	30	30	10
127	PVILLE-1	63	22.86	21.46	15.89	22.95	21.53	15.93	10	0	10
128	PVILLE-2	63	23.08	21.68	16.11	23.17	21.76	16.14	10	10	0
41	RAINEY	63	62.17	62.4	57.18	62.67	62.84	57.48	50	40	20
702	RAV-3 DU	63	60.12	60.36	55.54	60.6	60.77	55.82	50	40	30
708	RAV-3 DU	63	60.12	60.36	55.54	60.6	60.77	55.82	50	40	30
48	SPRN BRK	63	65.45	65.01	53.74	66.28	65.75	54.14	90	70	40
438	W 49 ST	63	57.9	58.31	50.21	58.38	58.74	50.46	40	40	20
138 KV - Con Edison			3PH	LLG	LG	3PH	LLG	LG			
37	AST-E R1	45	28.94	28.91	22.49	28.96	28.93	22.5	0	10	0
62	AST-EAST	45	41.13	44.88	45.85	41.15	44.89	45.86	0	0	0
64	AST-WEST	40	40.28	41.31	38.84	40.32	41.34	38.86	10	10	0
66	BUCHANAN	40	15.79	15.18	13.89	15.82	15.22	13.93	0	0	10
70	CORONA	45	39.54	45.23	42.02	39.55	45.24	42.03	0	0	0
72	DUN NO	40	33.36	33.42	30.2	33.42	33.47	30.23	10	0	0
73	DUN SO	40	31.21	31.64	30.18	31.26	31.69	30.21	0	10	0
78	E 13 ST	40	43.87	44.1	43.11	43.96	44.18	43.17	10	10	0
203	E 75 ST	40	9.49	9.61	9.64	9.49	9.61	9.65	0	0	0
89	FOXHLS 1	40	31.01	31.46	24.5	31.02	31.46	24.51	0	0	0
90	FOXHLS 2	40	30.96	31.42	24.52	30.96	31.43	24.53	0	0	10

* Change due to ammended Bowline 3 interconnection plan.

12/8/2000

STATION TOTAL FAULT DUTIES

Bus		Lowest Breaker Rating	BASE CASE (kA)			BASE CASE WITH BOWLINE 3 (kA)			CHANGE FROM REPORT R9 (A)*		
			3PH	LLG	LG	3PH	LLG	LG	3PH	LLG	LG
91	FR KILLS	40	33.94	34.45	33.13	33.94	34.46	33.13	0	0	0
94	GRENWOOD	45	43.71	45.46	43.89	43.72	45.47	43.9	0	0	0
102	HG 5 & 6	63	40.6	42.33	38.61	40.64	42.36	38.64	10	0	0
106	HUDSON E	40	37.5	37.47	35.08	37.52	37.48	35.09	0	0	0
108	JAMAICA	40	43.86	45.72	41.09	43.88	45.74	41.11	0	0	0
114	MILLWOOD	20	19.39	18.93	17.3	19.44	18.98	17.34	0	10	0
129	QUEENSBG	40	39.23	40.43	36.87	39.27	40.45	36.89	10	0	0
137	SB TR N7	63	27.38	27.28	25.66	27.43	27.32	25.69	10	0	10
136	SB TR S6	63	28.6	28.27	25.74	28.64	28.31	25.77	0	10	0
134	SHM CRK	40	41.55	42.66	36.12	41.6	42.7	36.15	10	0	0
120	TREMNT11	63	40.4	41.58	35.78	40.44	41.62	35.8	0	10	0
121	TREMNT12	63	40.4	41.59	35.87	40.44	41.64	35.9	0	10	10
139	VERNON E	40	31.71	32.01	31.3	31.72	32.02	31.31	0	0	0
140	VERNON W	40	29.7	30.31	29.82	29.71	30.32	29.83	0	0	0
345 KV - Central Hudson			3PH	LLG	LG	3PH	LLG	LG			
8005	ROCK TAV	38	26.69	24.99	19.09	26.89	25.17	19.2	20	10	20
8004	ROSETON	38	34.95	33.62	30.17	35.12	33.77	30.27	20	10	10
500 KV - Orange and Rockland			3PH	LLG	LG	3PH	LLG	LG			
2	RAMAPO		11.28	11.08	9.93	11.34	11.15	10.03	0	10	20
345 KV - Orange and Rockland			3PH	LLG	LG	3PH	LLG	LG			
7	BOWLINE1	40	30.89	30.05	27.48	32.71	32.03	29.34			
3	BOWLINE2	40	29.69	28.89	26.42	31.55	30.88	28.27			
6	BOWLINE3					37.96	39.43	37.59			
29	LADENTWN	63	47.3	45.8	39.5	52.72	52.29	48.19	750	1320	2670
45	RAMAPO	40	57.05	54.8	46.48	60.16	58.03	49.56	230	370	680
49	S.MAH-A	40	41.09	38.88	29.11	42.51	40.25	30.03	90	120	180
618	S.MAH-B	40	41.28	38.92	29.01	42.7	40.28	29.92	90	120	180
138 KV - Orange and Rockland			3PH	LLG	LG	3PH	LLG	LG			
1523	BOWLINE					23.76	22.51	21.14			
1505	BURNS		17.14	15.77	12.73	18.46	17.09	13.5	1060	1050	550

* Change due to ammended Bowline 3 interconnection plan.

12/8/2000

STATION TOTAL FAULT DUTIES

Bus		Lowest Breaker Rating	BASE CASE (kA)			BASE CASE WITH BOWLINE 3 (kA)			CHANGE FROM REPORT R9 (A)*		
			3PH	LLG	LG	3PH	LLG	LG	3PH	LLG	LG
1506	LOVETT		26.6	24.94	23.22	33.23	31.18	29.27	6130	5760	5550
1515	RAMAPO		35.56	34.09	31.56	36.51	35.06	32.47	510	530	490
59	SUGAR138		9.33	8.68	7.23	9.35	8.7	7.24	10	10	0
1508	W HAVER		26.19	24.83	22.97	29.94	28.42	26.07	3040	2820	2220
69 KV - Orange and Rockland			3PH	LLG	LG	3PH	LLG	LG			
1512	BRNS TAP		15.37	13.83	9.33	15.67	14.15	9.45	240	260	90
1509	BURNS		20.99	18.92	14.03	21.63	19.61	14.34	500	540	220
1501	CLOSTER		10.5	9.56	4.56	10.7	9.8	4.6	170	200	40
1503	HARR COR		17.32	15.74	11.76	17.86	16.31	12.05	450	480	220
1514	HILLBURN		32.07	32.45	31.12	32.43	32.84	31.53	200	210	230
1507	LOVETT		13.26	13.9	12.64	13.54	14.16	13	250	230	320
1520	MONGAUP		4.18	4.44	4.11	4.18	4.44	4.11	0	0	0
1511	MONTVALE		16.84	15.19	10.35	17.18	15.56	10.49	270	290	100
1522	RAMAP0 D		18.58	17.92	16.76	18.66	18.02	16.85	40	50	40
1516	S MAHWAH		29.89	28.16	24.3	30.13	28.41	24.49	100	110	80
1519	SHOEMKR		20.02	19.53	18.76	20.05	19.56	18.79	10	10	10
1518	SUGLOAF		23.98	22.38	18.31	24.05	22.46	18.36	30	30	20
1521	SWING BR		3.13	3.48	3.31	3.13	3.48	3.31	0	0	0
1500	W NYACK		16.6	14.78	11.23	17.24	15.46	11.58	560	600	300

* Change due to ammended Bowline 3 interconnection plan.

Appendix C

Critical Clearing Times

Saigal File Name	Description
DS7_CCT1.out	CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2 CLEAR RAMAPO (3.5 CYC) OPEN LINE 67 (10 CYC)
DS7_CCT2.out	CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2 CLEAR RAMAPO (3.5 CYC) OPEN LINE 68 (10 CYC)
DS7_CCT3.out	CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 3 PH FAULT BOWLINE 138 KV BUS Y, FAIL XFMR BRKR CLEAR XFMR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)

File: ds7_cct1.psa

```
/ 3-PH FAULT ON W72 AT LADENTWN 345, FAIL BRKR 1-56-2
/ CLEAR AT RAMAPO                    @  3.5~
/ DISCONNECT BOWLINE 1               @ 10.0~
/ CLEAR W HAVERSTRAW 345/138 KV XFMR  @ 11.0~
/
RECOVER FROM D2.SNP AND DS7.CNV

START OUTPUT ds7_cct1.out
RUN TO 0.1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT LADENTWN 345KV BUS 4340 Y 0.0 -2.0E+09 MVA
RUN FOR 3.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO RAMAPO 345KV BUS 4347 CKT
1
RUN FOR 6.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO W.HAV 345KV BUS 9300 CKT
1
  DROP UNIT 1 BOWLINE 1 BUS 9390
  CLEAR FAULT
  APPLY FAULT AT W HAV 345 KV BUS 9300 Y 2330 -46000 MVA
RUN FOR 1.0 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM W HAV 138 KV BUS 9325 TO W HAV 345 KV BUS 9300 CKT 1
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
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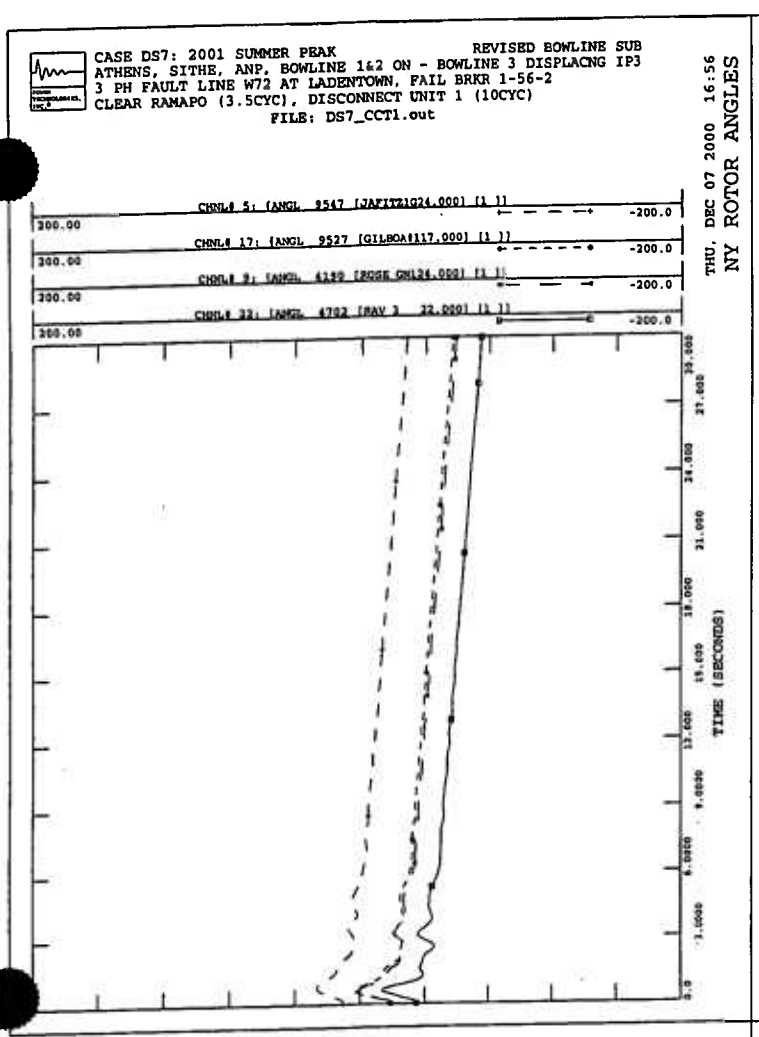
CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
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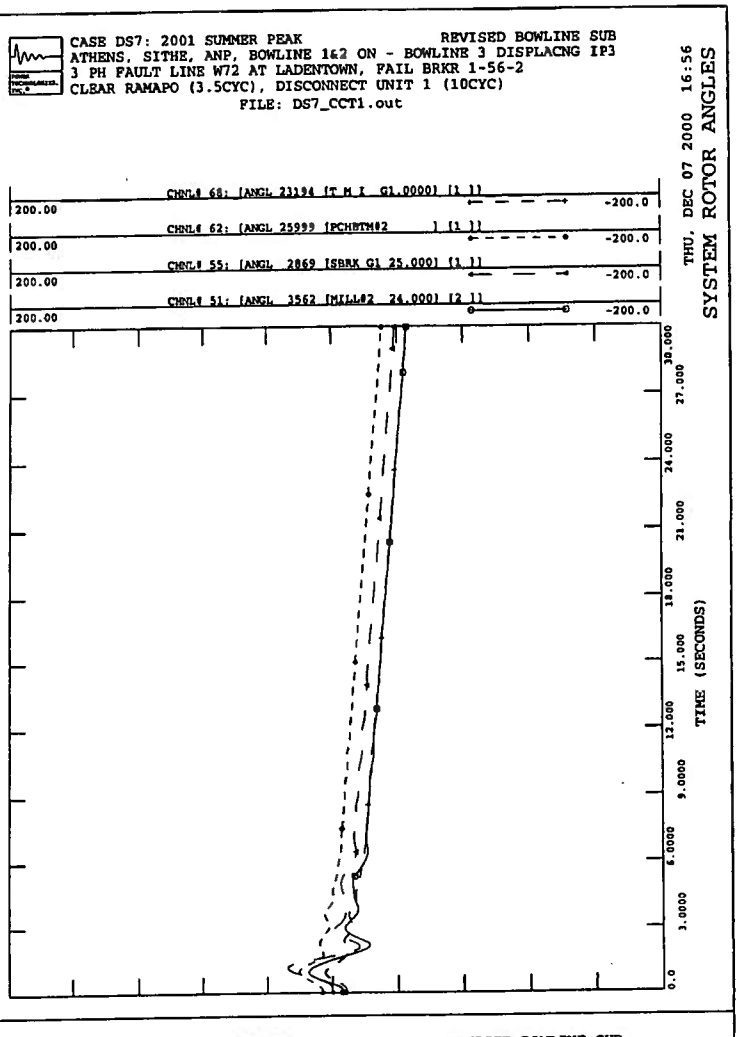
THU, DEC 07 2000 16:56
NY ROTOR ANGLES
TIME (SECONDS)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ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
FILE: DS7_CCT1.out
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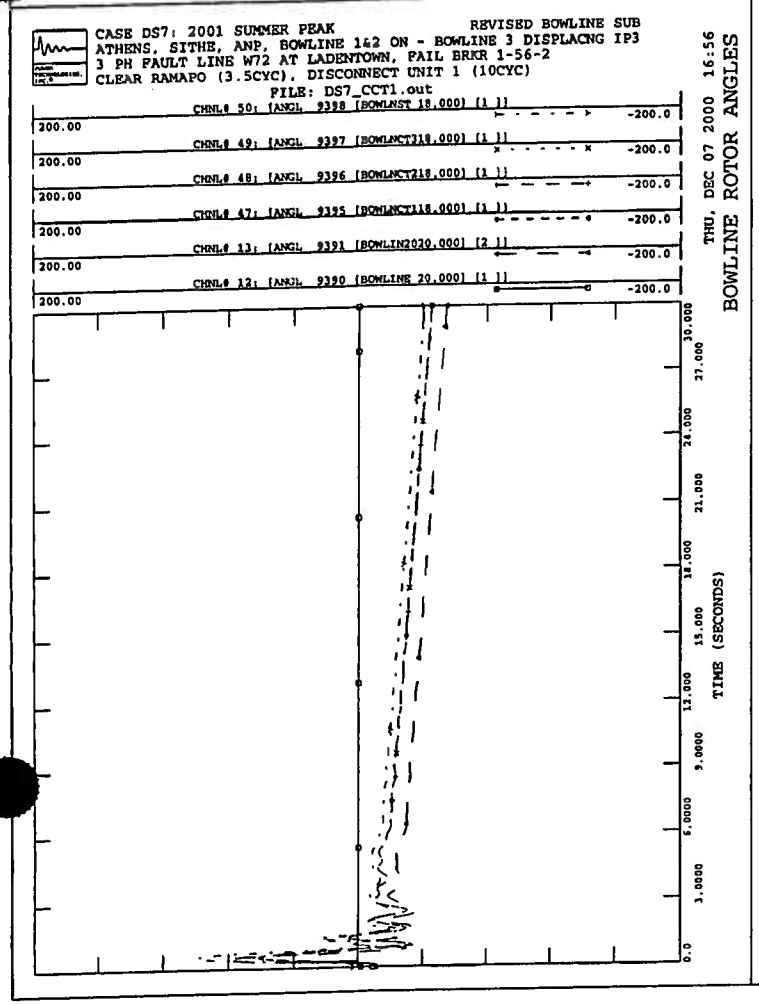
SYSTEM ROTOR ANGLES
TIME (SECONDS)


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
FILE: DS7_CCT1.out
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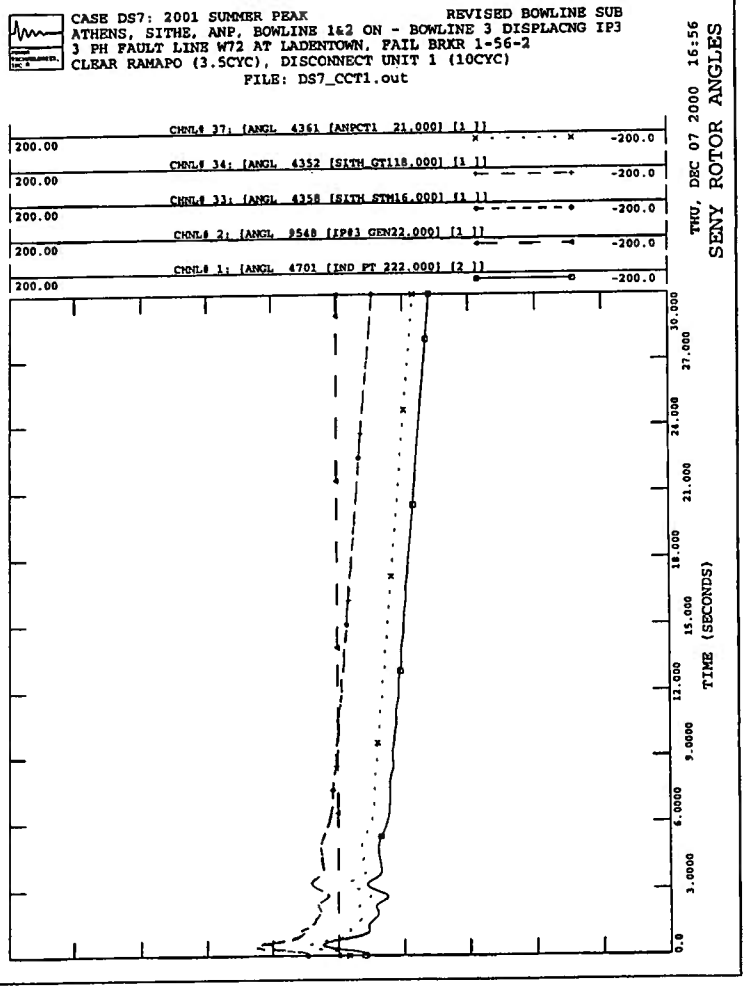
BOWLINE ROTOR ANGLES
TIME (SECONDS)


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
FILE: DS7_CCT1.out
THU, DEC 07 2000 16:56
SENY ROTOR ANGLES
TIME (SECONDS)

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
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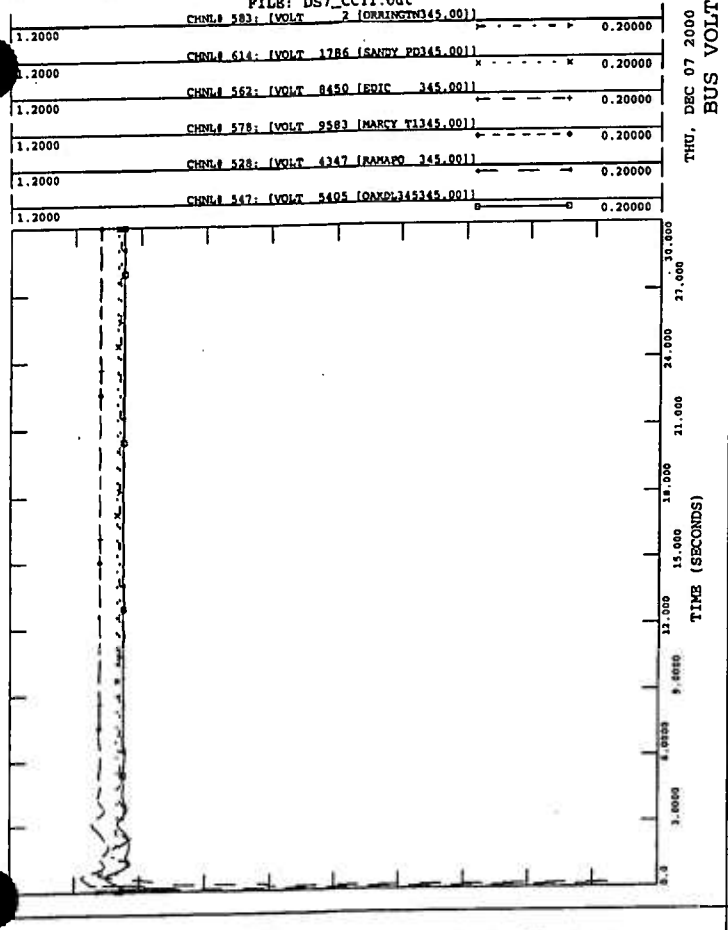
THU, DEC 07 2000 16:56

BUS VOLTAGES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
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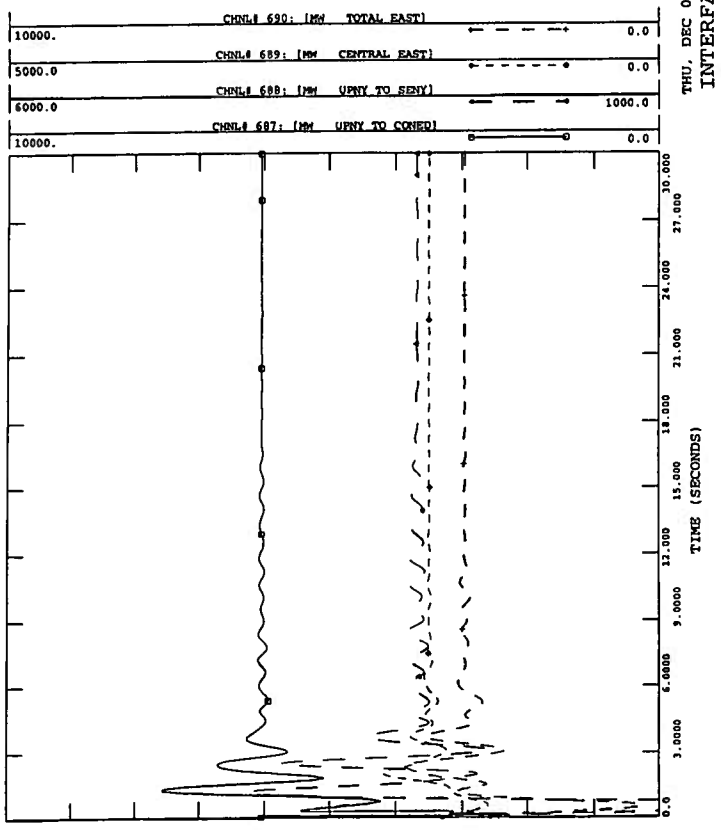
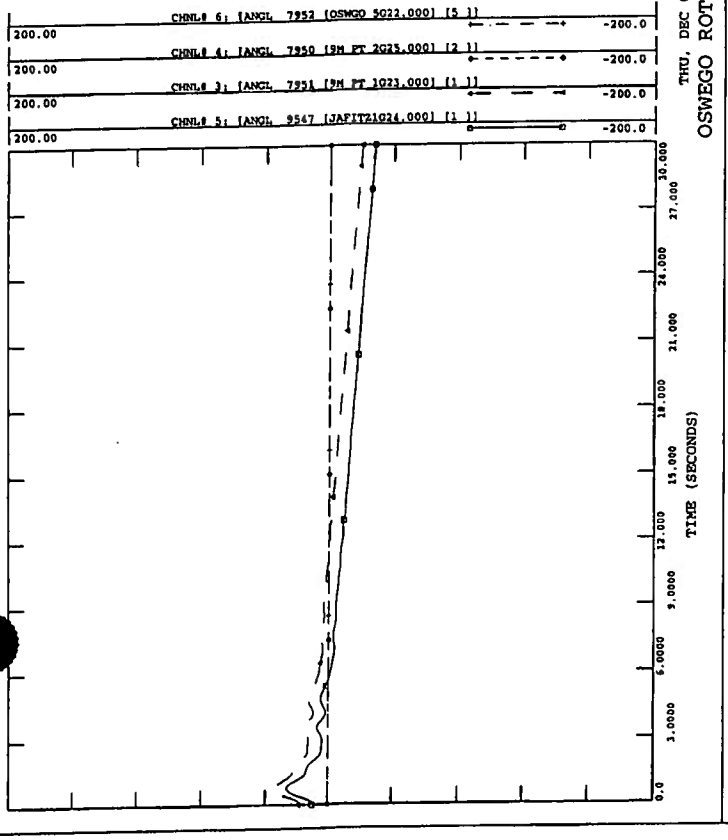
INTERFACE FLOWS



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
FILE: DS7_CCT1.out

THU, DEC 07 2000 16:56

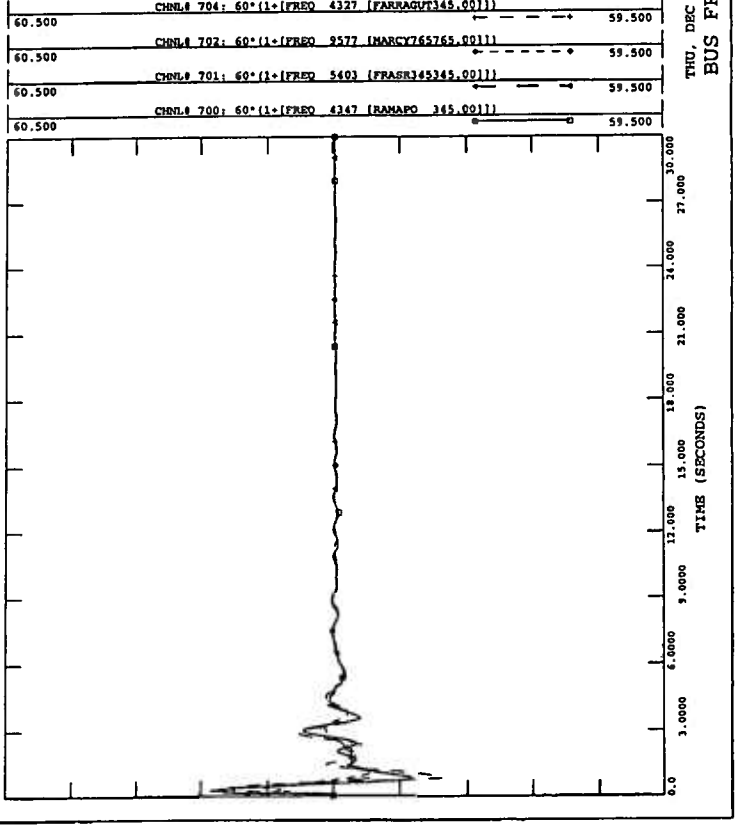
OSWEGO ROTOR ANGLES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 1-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 1 (10CYC)
FILE: DS7_CCT1.out

THU, DEC 07 2000 16:56

BUS FREQUENCIES

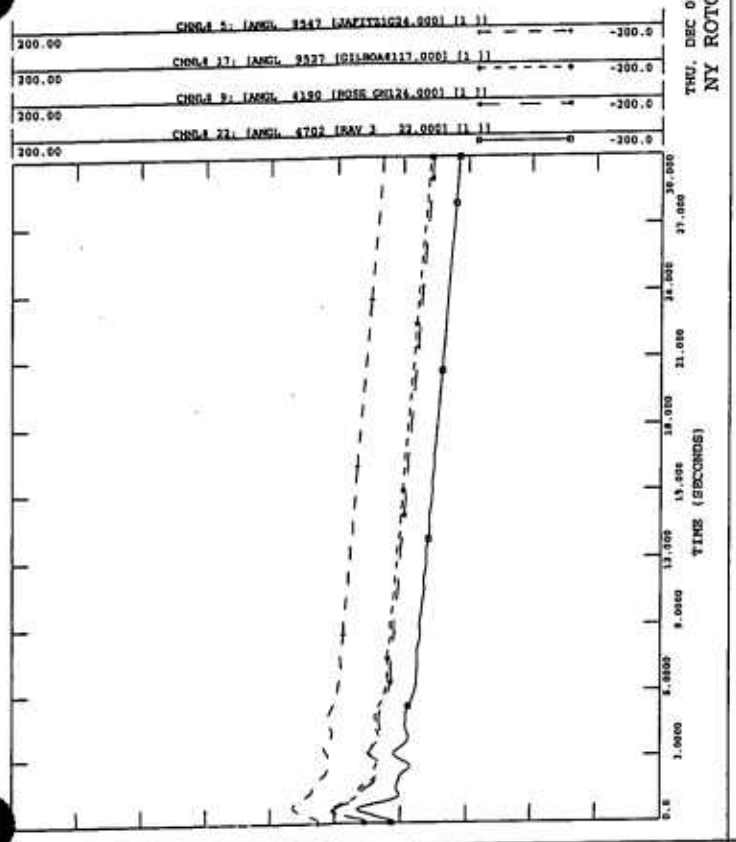


File: ds7_cct2.psa

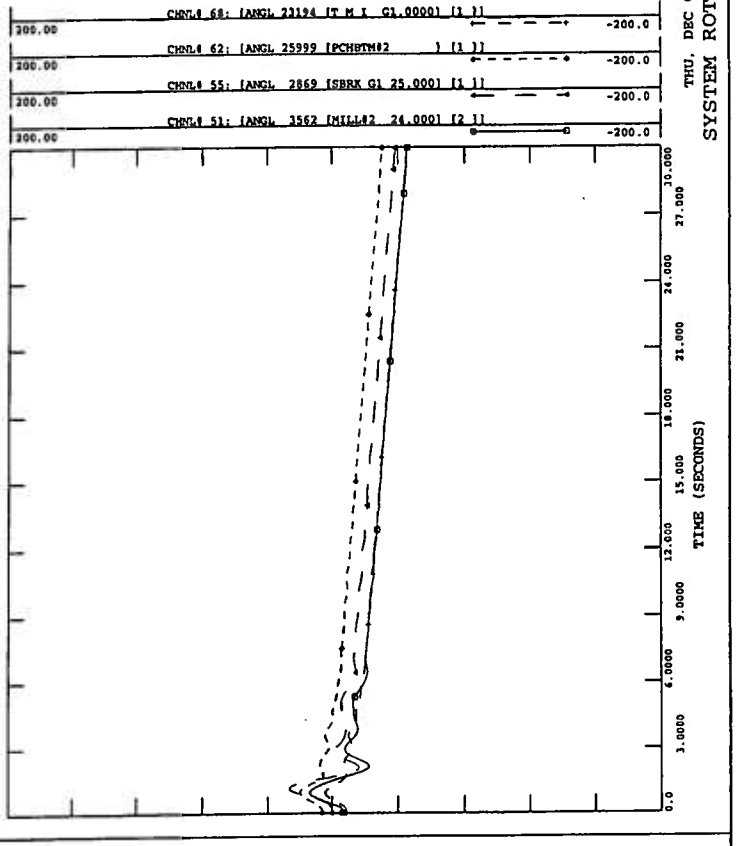
```
/ 3-PH FAULT ON W72 AT LADENTWN 345, FAIL BRKR 4-56-2
/ CLEAR AT RAMAPO                          @  3.5~
/ DISCONNECT BOWLINE 2                     @ 10.0~
/
RECOVER FROM D2.SNP AND DS7.CNV

START OUTPUT ds7_cct2.out
RUN TO 0.1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT LADENTWN 345KV BUS 4340 Y 0.0 -2.0E+09 MVA
RUN FOR 3.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO RAMAPO 345KV BUS 4347 CKT
1
RUN FOR 6.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  DISCONNECT BUS 9301
  DROP UNIT 2 BOWLINE 2 BUS 9391
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

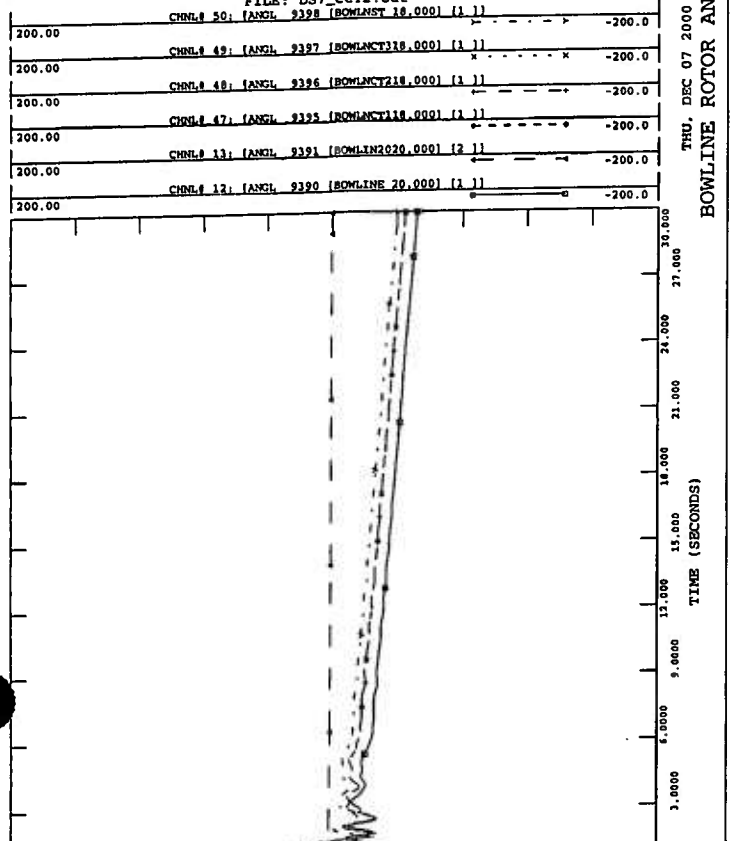
CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out



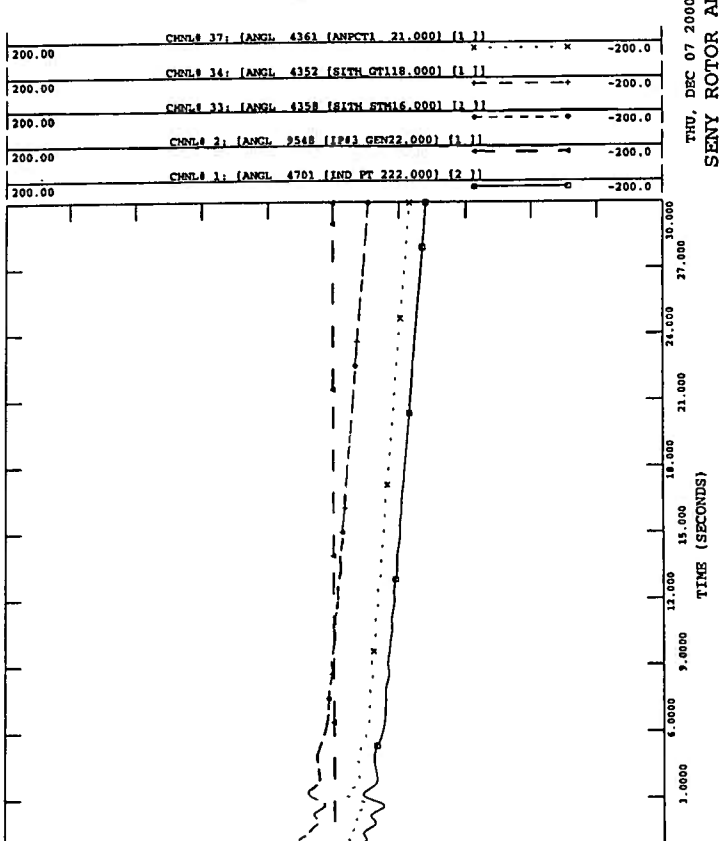
CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out

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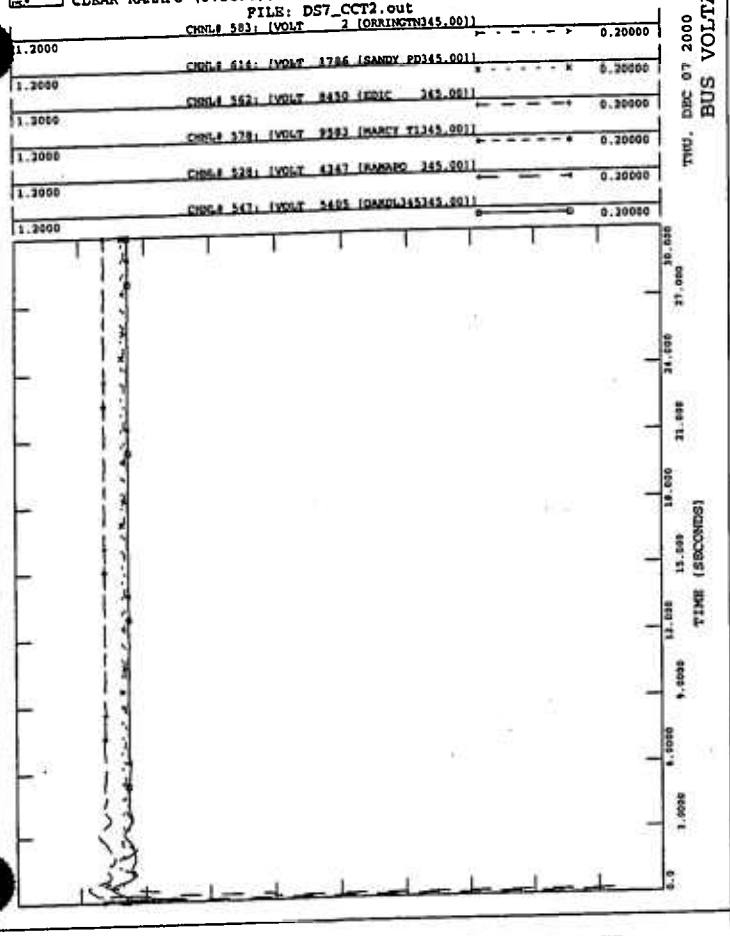
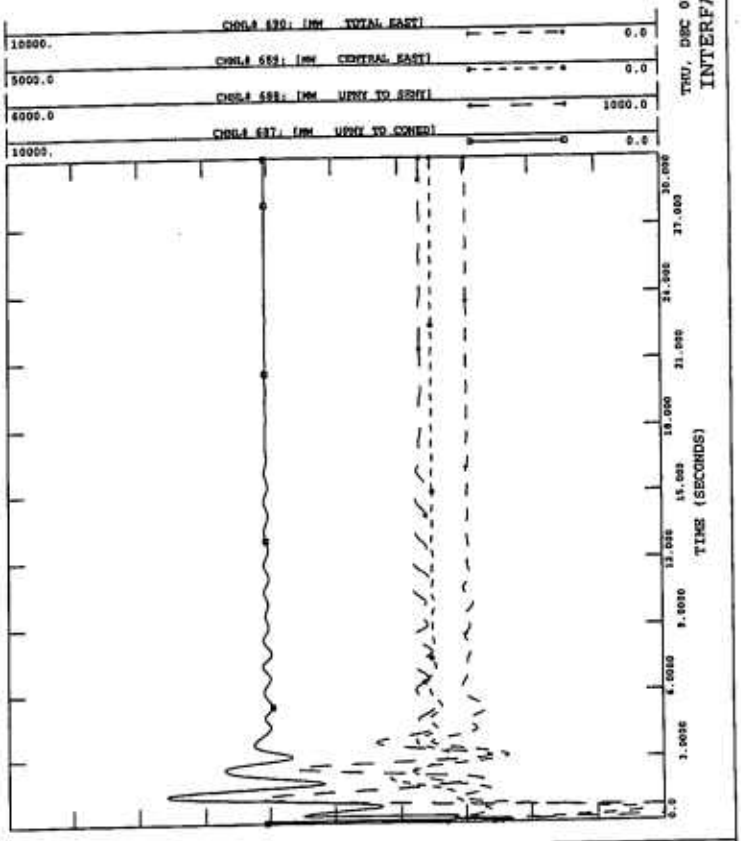
BUS VOLTAGES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out

THU, DEC 07 2000 16:56

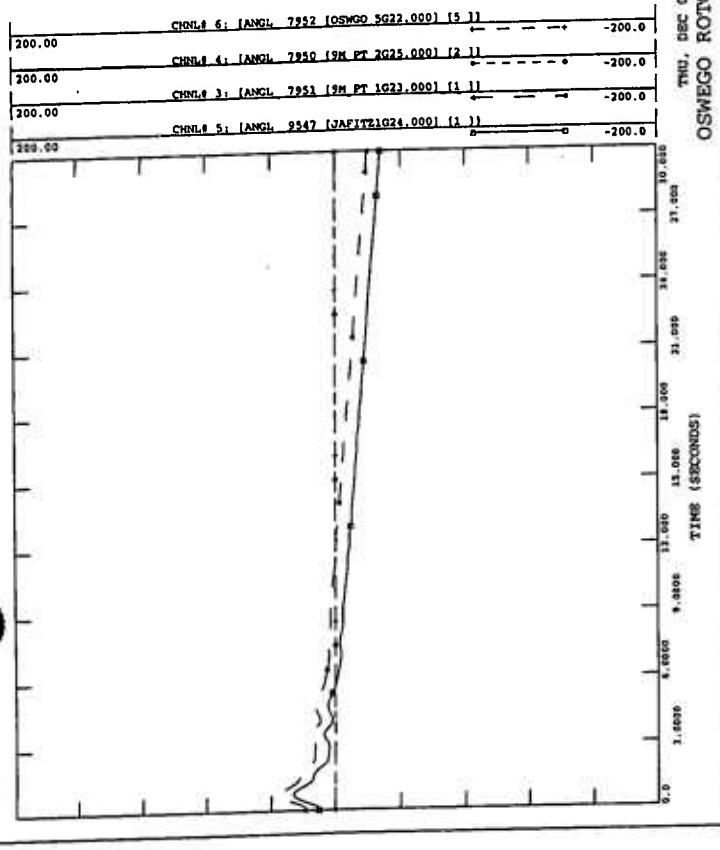
INTERFACE FLOWS



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out

THU, DEC 07 2000 16:56

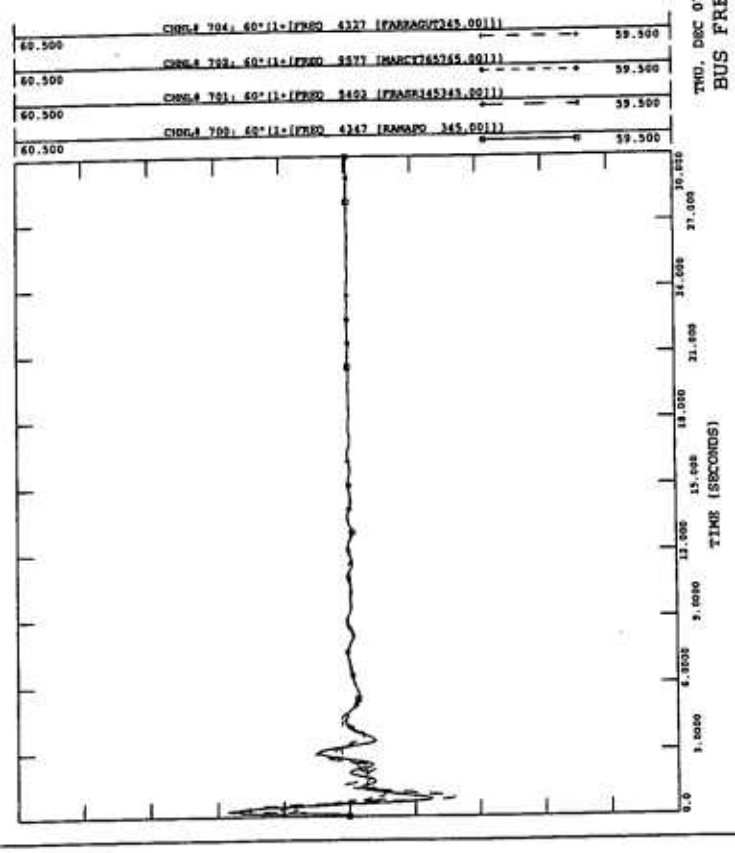
OSWEGO ROTOR ANGLES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT LINE W72 AT LADENTOWN, FAIL BRKR 4-56-2
CLEAR RAMAPO (3.5CYC), DISCONNECT UNIT 2(10CYC)
FILE: DS7_CCT2.out

THU, DEC 07 2000 16:56

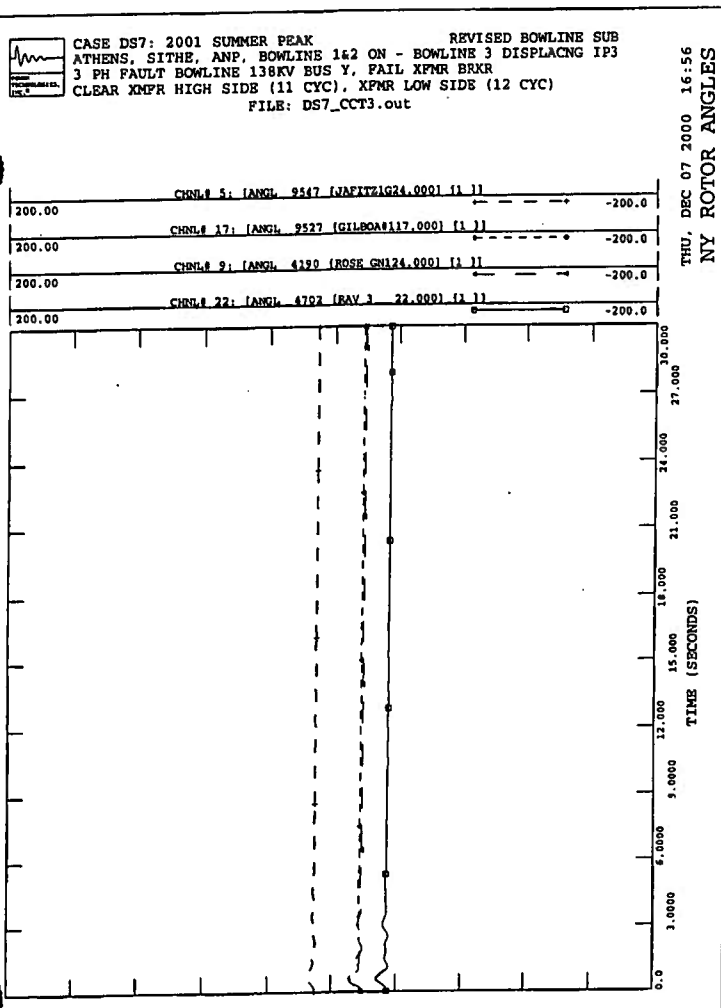
BUS FREQUENCIES

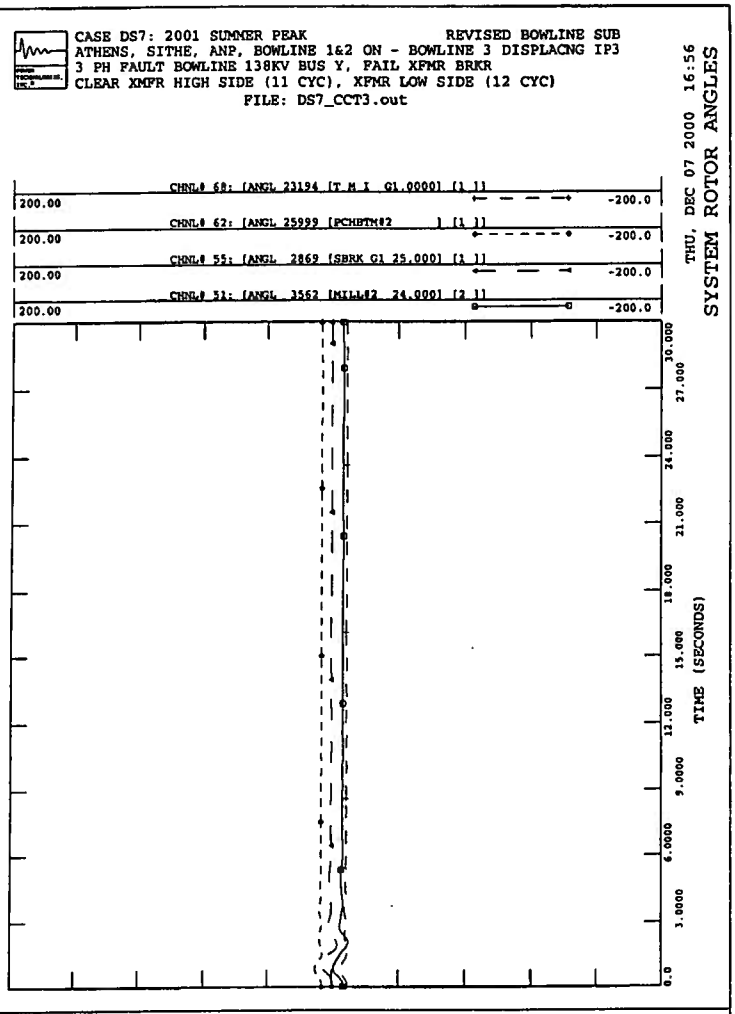


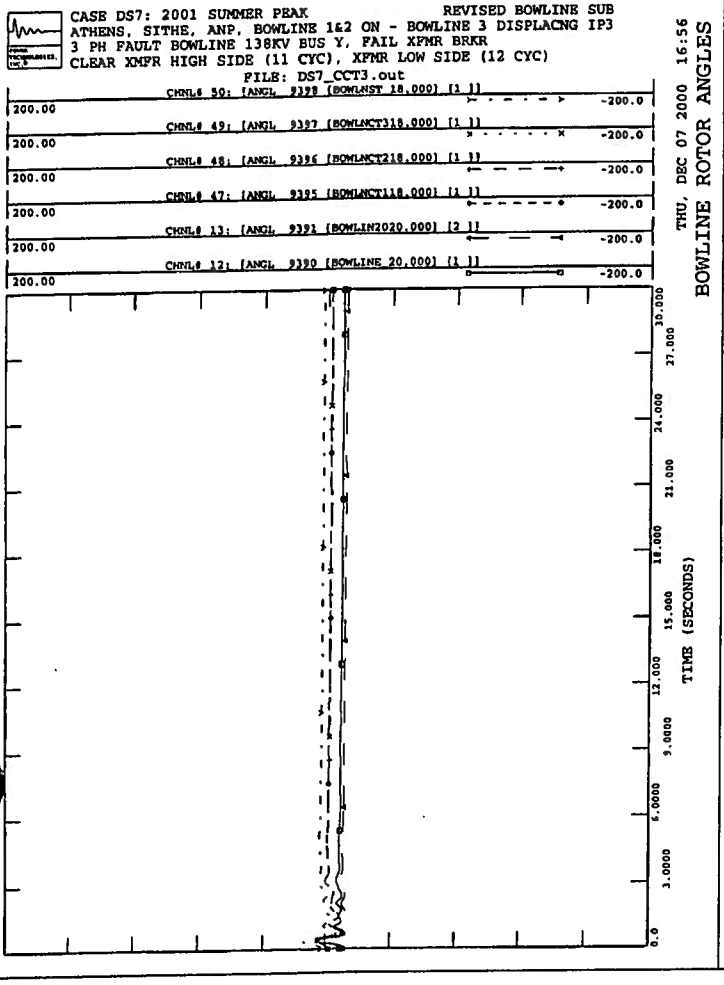
File: ds7_cct3.psa

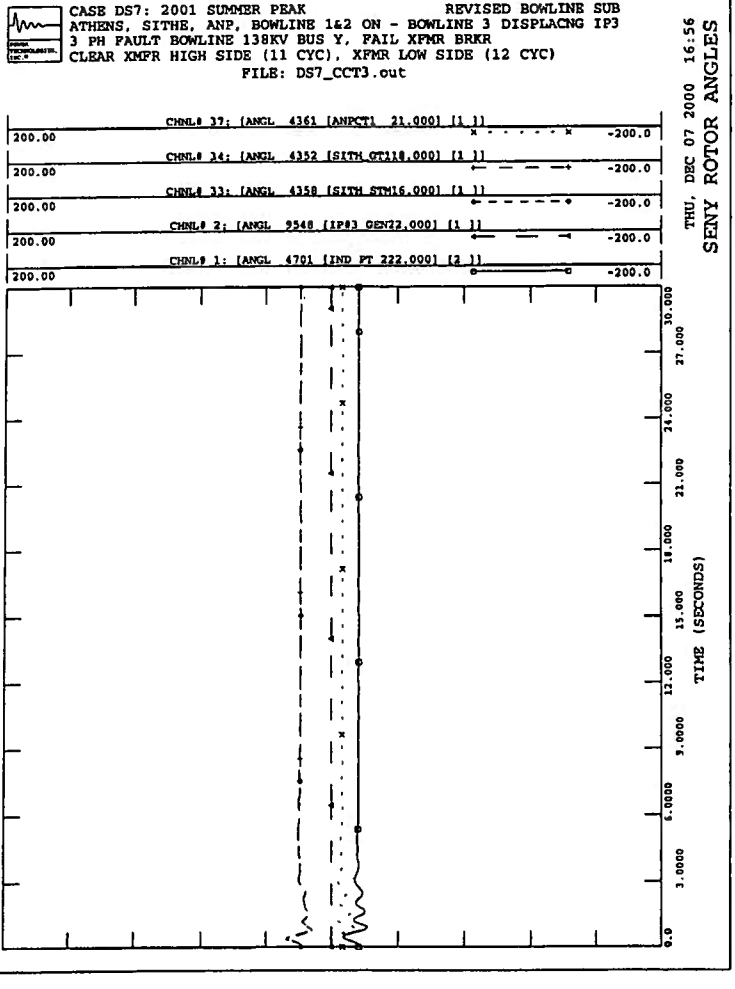
```
/ 3-PH FAULT ON BOWLINE 138KV BUS Y, FAIL XFMR BREAKER
/ CLEAR 345/138 KV XMFR HIGH SIDE      @ 11.0~
/ CLEAR 345/138 KV XMFR LOW SIDE       @ 12.0~
/ CLEAR FAULT                          @ 12.0~
/
RECOVER FROM D2.SNP AND DS7.CNV

START OUTPUT ds7_cct3.out
RUN TO 0.1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT BOWLINE 138KV BUS 9324 Y 0.0 -2.0E+09 MVA
RUN FOR 11.0 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM BOWLINE 3 345KV BUS 4310 TO BOWLINE 138KV BUS 9324
CKT 1
RUN FOR 1.0 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out
CHNL# 5: [ANGL 9547 [JAFIT21G24.000] [1]]
CHNL# 17: [ANGL 9527 [GILBOA#117.000] [1]]
CHNL# 9: [ANGL 4190 [ROSE GN124.000] [1]]
CHNL# 22: [ANGL 4702 [RAV 3 22.000] [1]]
200.00
-200.0
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
THU, DEC 07 2000 16:56
NY ROTOR ANGLES


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out
CHNL# 68: [ANGL 23194 [T M I G1.0000] [1]]
CHNL# 62: [ANGL 25999 [PCHBTM#2] [1]]
CHNL# 55: [ANGL 2869 [SBRK G1 25.000] [1]]
CHNL# 51: [ANGL 3562 [MILL#2 24.000] [2]]
200.00
-200.0
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
THU, DEC 07 2000 16:56
SYSTEM ROTOR ANGLES


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out
CHNL# 50: [ANGL 9398 [BOWLNST 18.000] [1]]
CHNL# 49: [ANGL 9397 [BOWLNCT318.000] [1]]
CHNL# 48: [ANGL 9396 [BOWLNCT218.000] [1]]
CHNL# 47: [ANGL 9395 [BOWLNCT118.000] [1]]
CHNL# 13: [ANGL 9391 [BOWLIN2020.000] [2]]
CHNL# 12: [ANGL 9390 [BOWLINE 20.000] [1]]
200.00
-200.0
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
THU, DEC 07 2000 16:56
BOWLINE ROTOR ANGLES


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out
CHNL# 37: [ANGL 4361 [ANPCT1 21.000] [1]]
CHNL# 34: [ANGL 4352 [SITH GT118.000] [1]]
CHNL# 33: [ANGL 4358 [SITH STM16.000] [1]]
CHNL# 2: [ANGL 9548 [IP#3 GEN22.000] [1]]
CHNL# 1: [ANGL 4701 [IND PT 222.000] [2]]
200.00
-200.0
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
THU, DEC 07 2000 16:56
SENY ROTOR ANGLES

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out

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BUS VOLTAGES

CHNL# 583: [VOLT 2 [ORRINGTN345.001]
CHNL# 614: [VOLT 1786 [SANDY PD345.001]
CHNL# 562: [VOLT 8450 [EDIC 345.001]
CHNL# 578: [VOLT 9583 [MARCY T1345.001]
CHNL# 528: [VOLT 4347 [RAMAPO 345.001]
CHNL# 547: [VOLT 5405 [OAKDL345345.001]

1.2000 0.20000

TIME (SECONDS)

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out

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INTERFACE FLOWS

CHNL# 690: [MW TOTAL EAST]
CHNL# 689: [MW CENTRAL EAST]
CHNL# 688: [MW UPNY TO SENY]
CHNL# 687: [MW UPNY TO CONED]

10000. 0.0
5000.0 0.0
6000.0 1000.0
10000. 0.0

TIME (SECONDS)

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out

THU, DEC 07 2000 16:56

OSWEGO ROTOR ANGLES

CHNL# 6: [ANGL 7952 [OSWEGO 5G22.000] [5]]
CHNL# 4: [ANGL 7950 [9M PT 2G25.000] [2]]
CHNL# 3: [ANGL 7951 [9M PT 1G23.000] [1]]
CHNL# 5: [ANGL 9547 [JAFITZ1G24.000] [1]]

200.00 -200.0

TIME (SECONDS)

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3 PH FAULT BOWLINE 138KV BUS Y, FAIL XFMR BRKR
CLEAR XMFR HIGH SIDE (11 CYC), XFMR LOW SIDE (12 CYC)
FILE: DS7_CCT3.out

THU, DEC 07 2000 16:56

BUS FREQUENCIES

CHNL# 704: 60*(1+[FREQ 4327 [FARRAGUT345.001]]
CHNL# 702: 60*(1+[FREQ 9577 [MARCY765765.001]]
CHNL# 701: 60*(1+[FREQ 5403 [FRASR345345.001]]
CHNL# 700: 60*(1+[FREQ 4347 [RAMAPO 345.001]]

60.500 59.500

TIME (SECONDS)

0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000

Appendix D

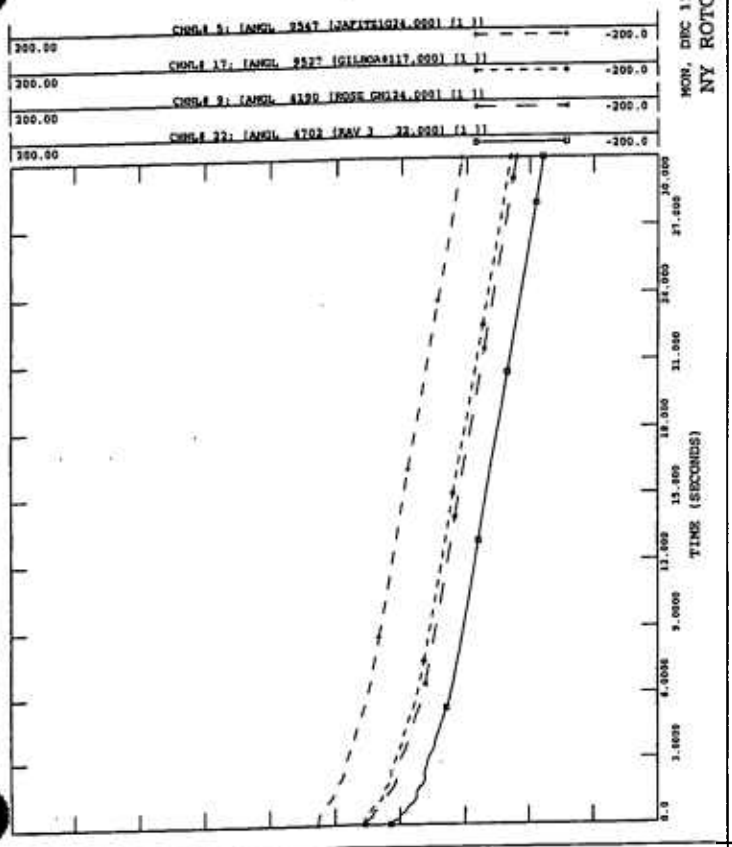
Special Protection Systems

Saigel file Name	Description
DS7_SPS39c.out	CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 OPEN Y88 AND W72, LADENTOWN RING BUS INTACT TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
DS7_SPS1d.out	CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT TRIP BOWLINE 2 & 3 AFTER 8 CYCLES

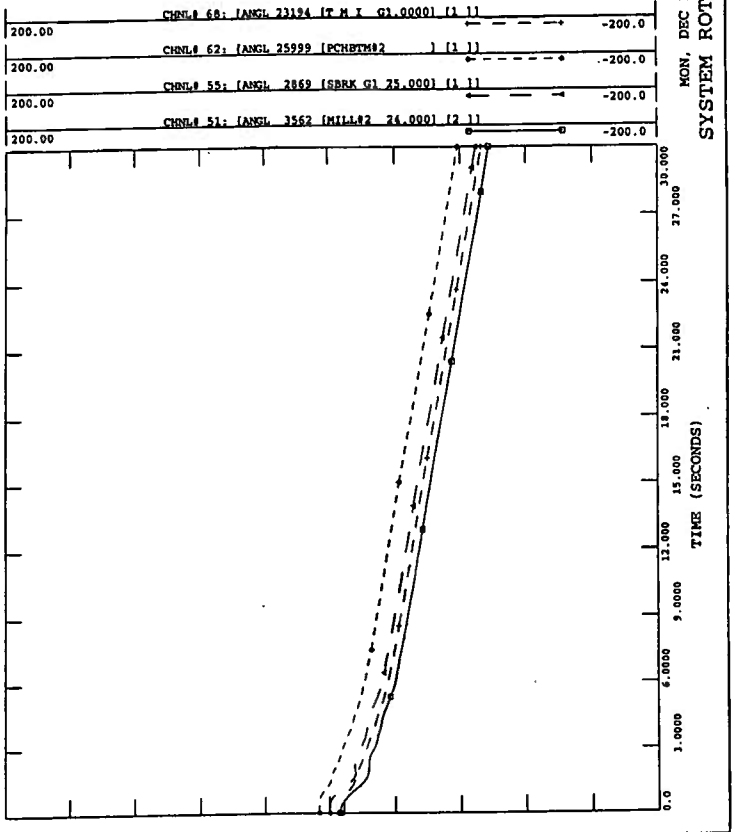
File: ds7_sps39Cc.psa

```
/ SPS 39 CORRECT OPERATION
/ LOSS OF EXTERNAL TIES AT LADENTOWN
/ LADENTOWN BUS REMAINS CLOSED
/ TRANSFER TRIP BOWLINE 2 AND BOWLINE 3 @ t = 8 cyc
/
RECOVER FROM D2.snp AND DS7.cnv / with Bowline 3
START OUTPUT ds7_sps39Cc.out
RUN TO 0.1 SECONDS PRINT 0 PLOT 3 CRTPLT 0
 DISCONNECT LINE Y88 FROM LANDENTWN 345KV BUS 4340 TO BUCH S 345KV
BUS 4313 CKT 1
 DISCONNECT LINE W72 FROM LANDENTWN 345KV BUS 4340 TO RAMAPO 345KV
BUS 4347 CKT 1
RUN FOR 8 CYCLES PRINT 0 PLOT 3 CRTPLT 0
 DROP GENERATOR 2 BOWLINE POINT G2 BUS 9391
 DROP GENERATOR 1 BOWLINE POINT G3CT1 BUS 9395
 DROP GENERATOR 1 BOWLINE POINT G3CT2 BUS 9396
 DROP GENERATOR 1 BOWLINE POINT G3CT3 BUS 9397
 DROP GENERATOR 1 BOWLINE POINT G3ST BUS 9398
RUN FOR 2 SECONDS PRINT 0 PLOT 3 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 5 CRTPLT 0
END
```

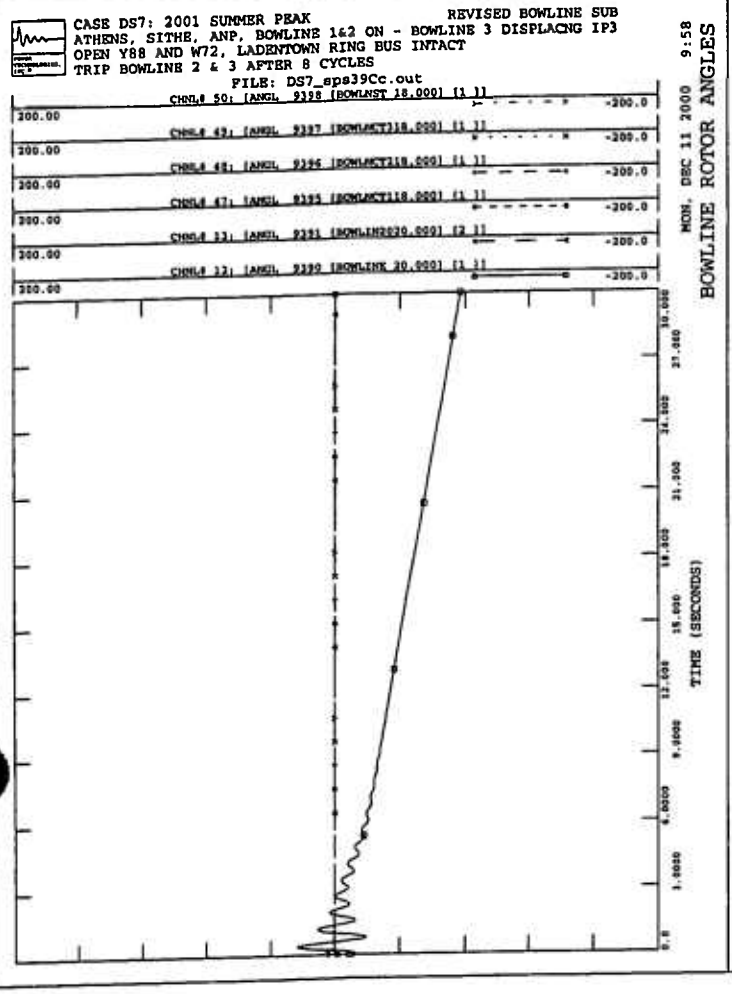
CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out



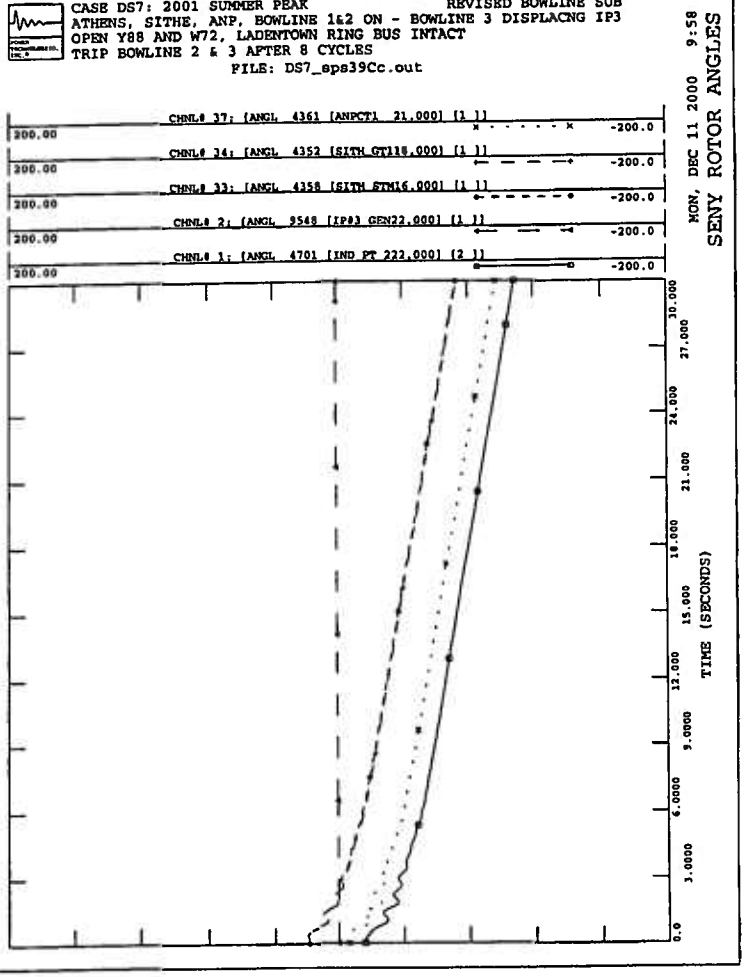
CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out



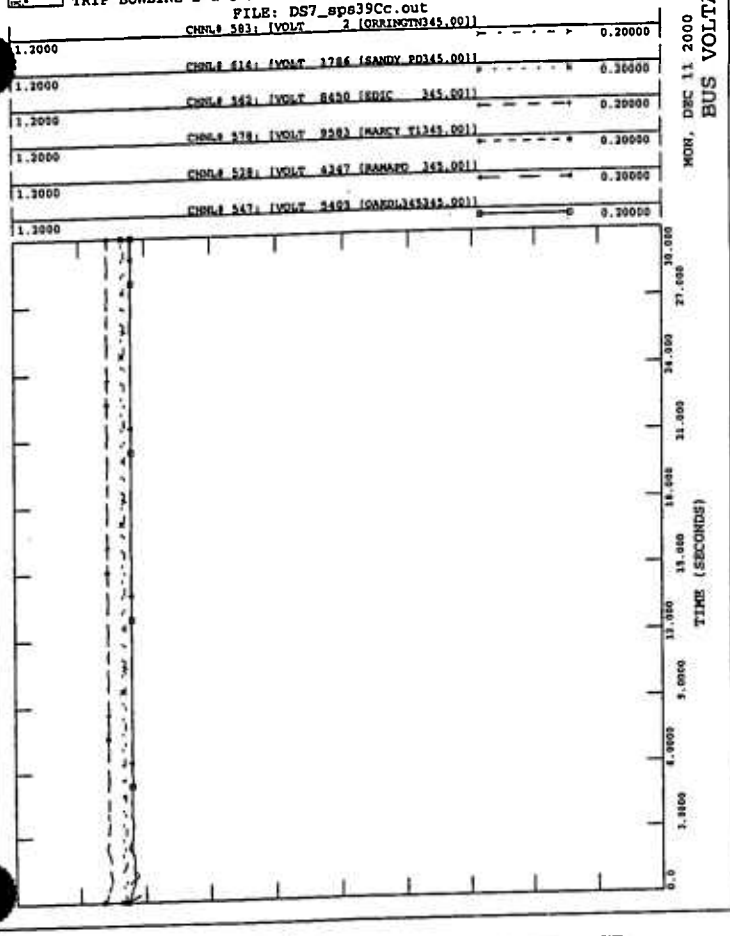
CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out

MON, DEC 11 2000 9:58

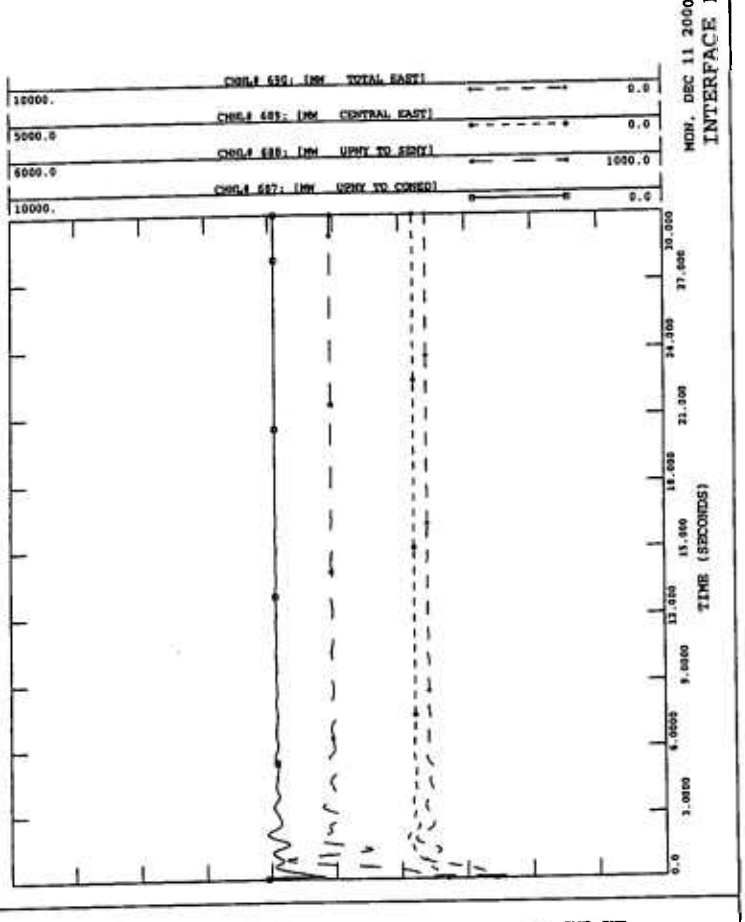
BUS VOLTAGES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out

MON, DEC 11 2000 9:58

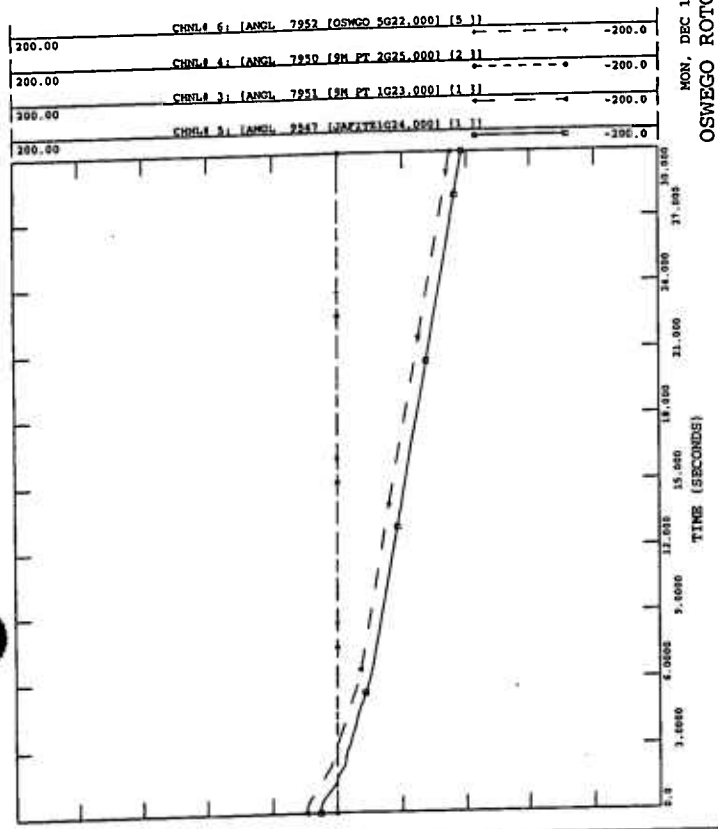
INTERFACE FLOWS



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out

MON, DEC 11 2000 9:58

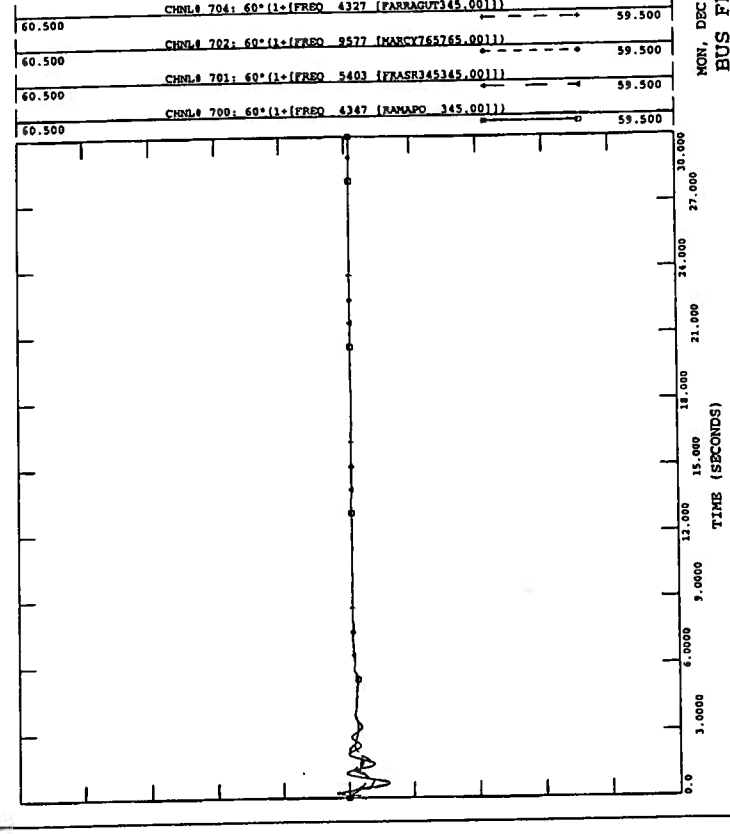
OSWEGO ROTOR ANGLES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS INTACT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps39Cc.out

MON, DEC 11 2000 9:58

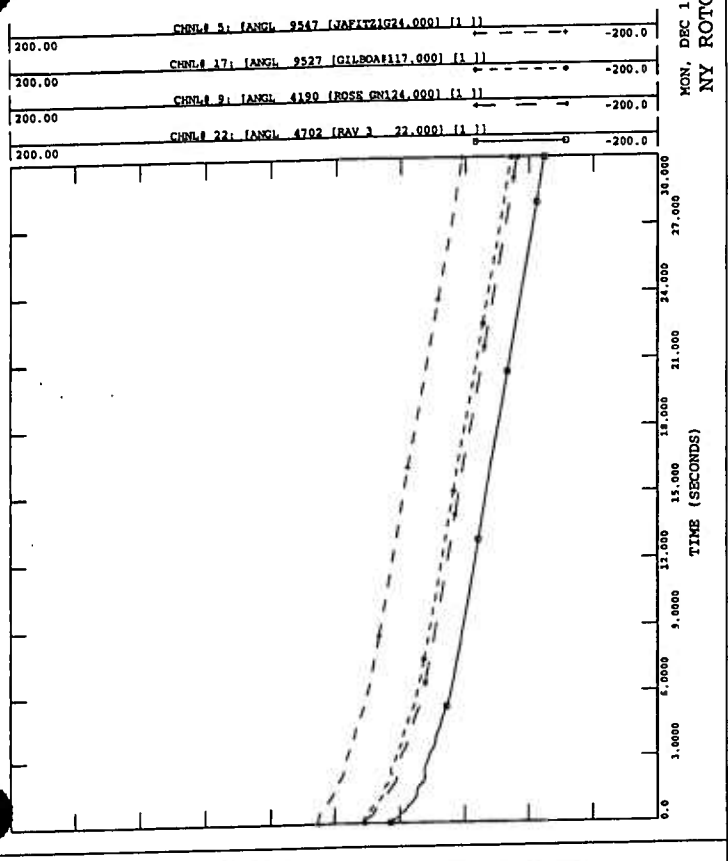
BUS FREQUENCIES



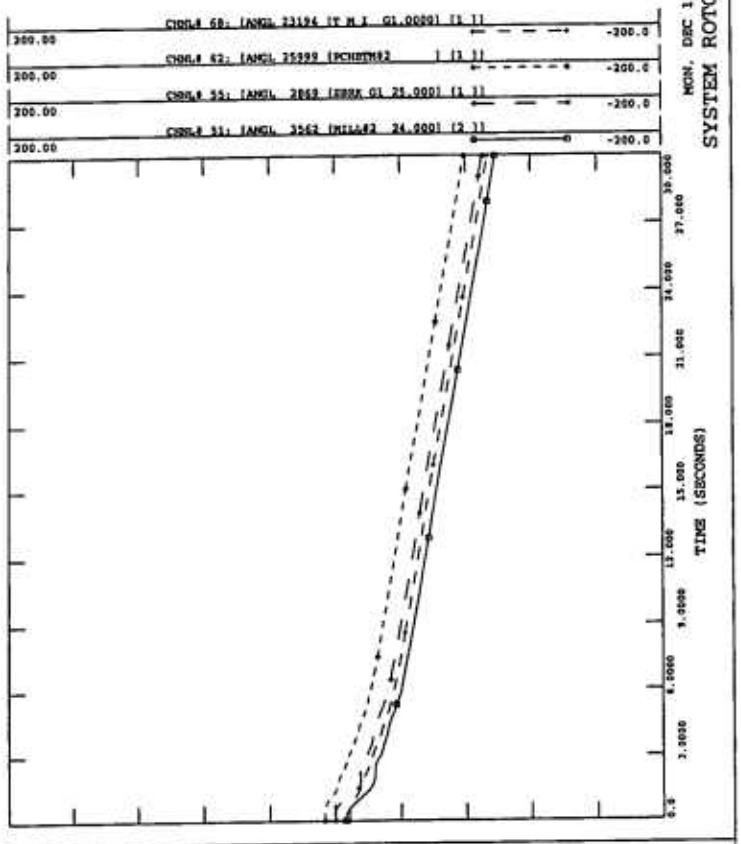
File: ds7_sps1d.psa

```
/ SPS 1 CORRECT OPERATION
/ LOSS OF EXTERNAL TIES AT LADENTOWN
/ LADENTOWN BUS SPLIT
/ TRANSFER TRIP BOWLINE 2 AND BOWLINE 3 @ t = 8 cyc
/
RECOVER FROM D2.snp AND DS7.cnv / with Bowline 3
START OUTPUT ds7_sps1d.out
RUN TO 0.1 SECONDS PRINT 0 PLOT 3 CRTPLT 0
 DISCONNECT LINE Y88 FROM LANDENTWN 345KV BUS 4340 TO BUCH S 345KV
BUS 4313 CKT 1
 DISCONNECT LINE W72 FROM LANDENTWN 345KV BUS 4340 TO RAMAPO 345KV
BUS 4347 CKT 1
 DISCONNECT LINE 67 FROM LANDENTWN 345KV BUS 4340 TO HAVERSTRAW 345KV
BUS 9300 CKT 1
RUN FOR 8 CYCLES PRINT 0 PLOT 3 CRTPLT 0
 DROP GENERATOR 2 BOWLINE POINT G2 BUS 9391
 DROP GENERATOR 1 BOWLINE POINT G3CT1 BUS 9395
 DROP GENERATOR 1 BOWLINE POINT G3CT2 BUS 9396
 DROP GENERATOR 1 BOWLINE POINT G3CT3 BUS 9397
 DROP GENERATOR 1 BOWLINE POINT G3ST BUS 9398
RUN FOR 6 SECONDS PRINT 0 PLOT 3 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 5 CRTPLT 0
END
```

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps1d.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps1d.out



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
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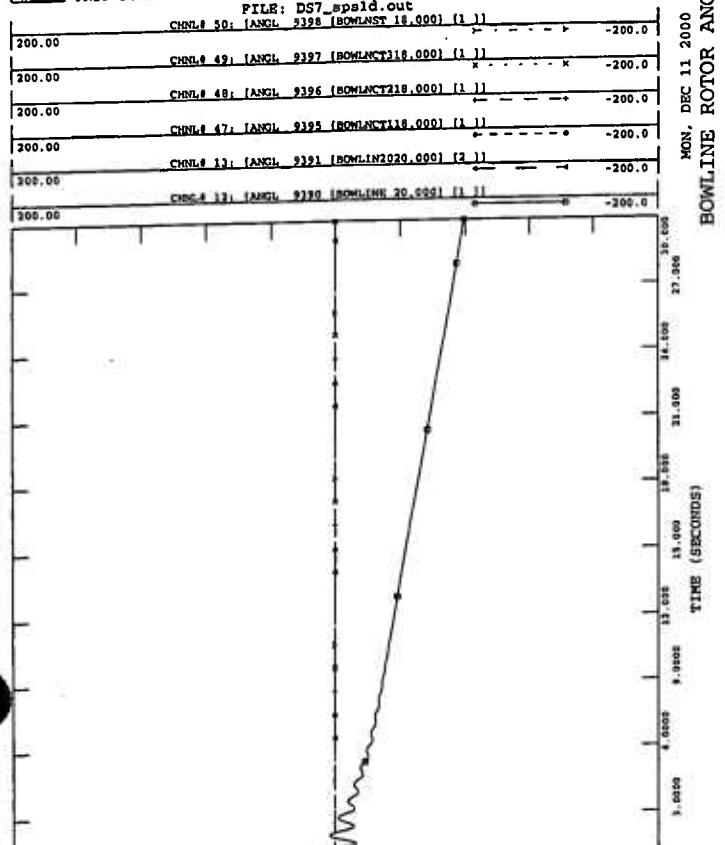

CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
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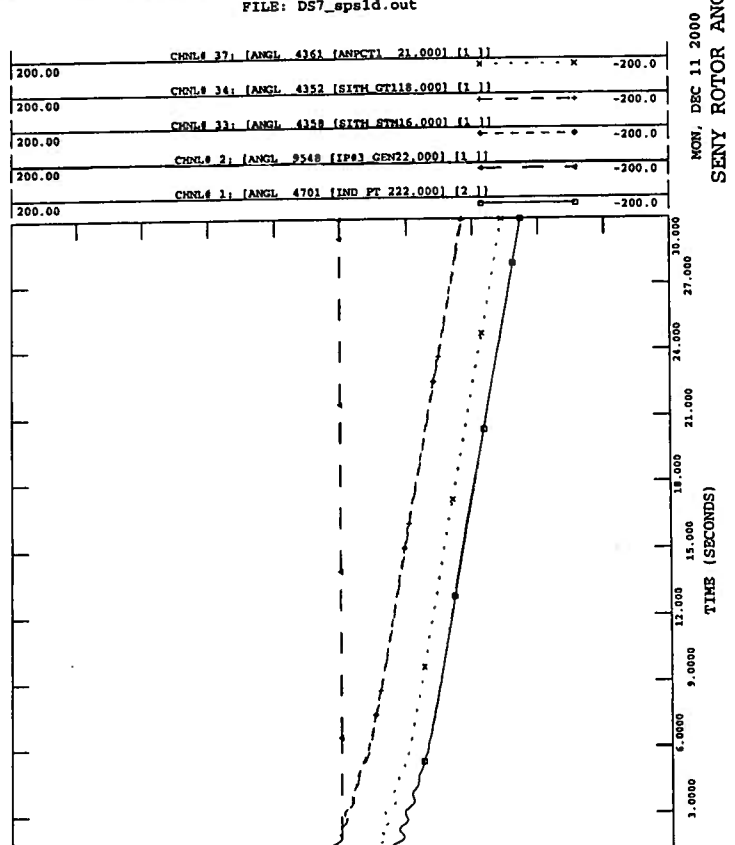
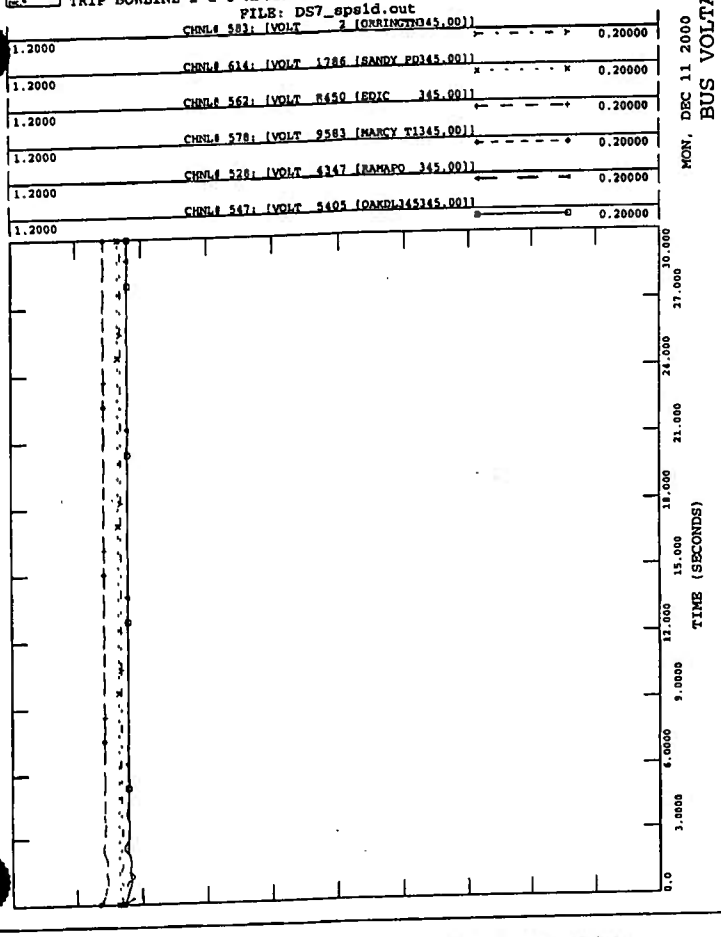


CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps1d.out

MON, DEC 11 2000 9:58

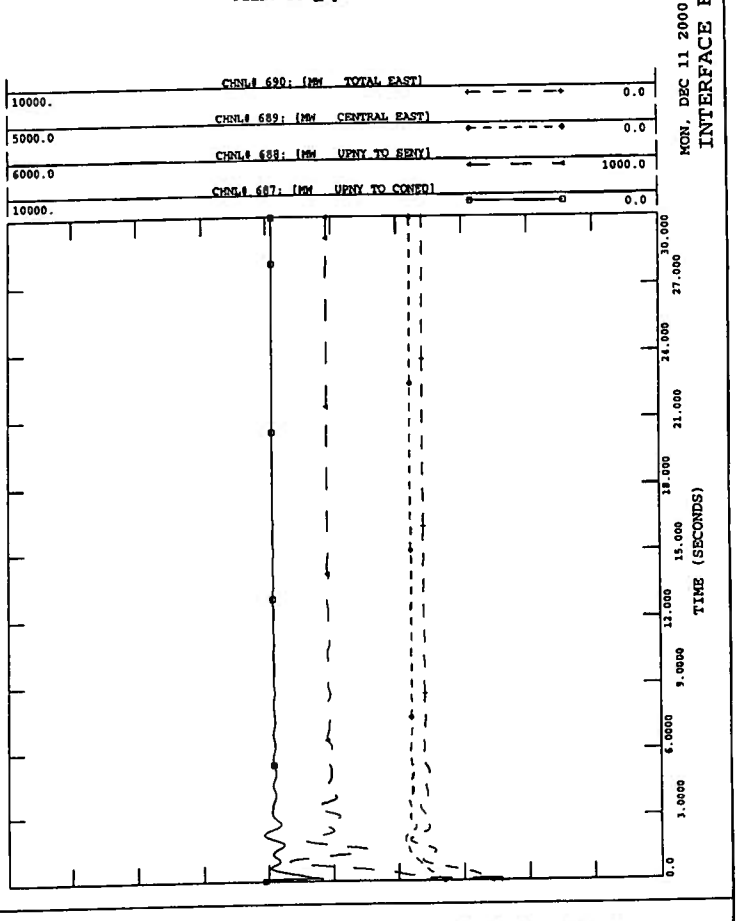
BUS VOLTAGES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps1d.out

MON, DEC 11 2000 9:58

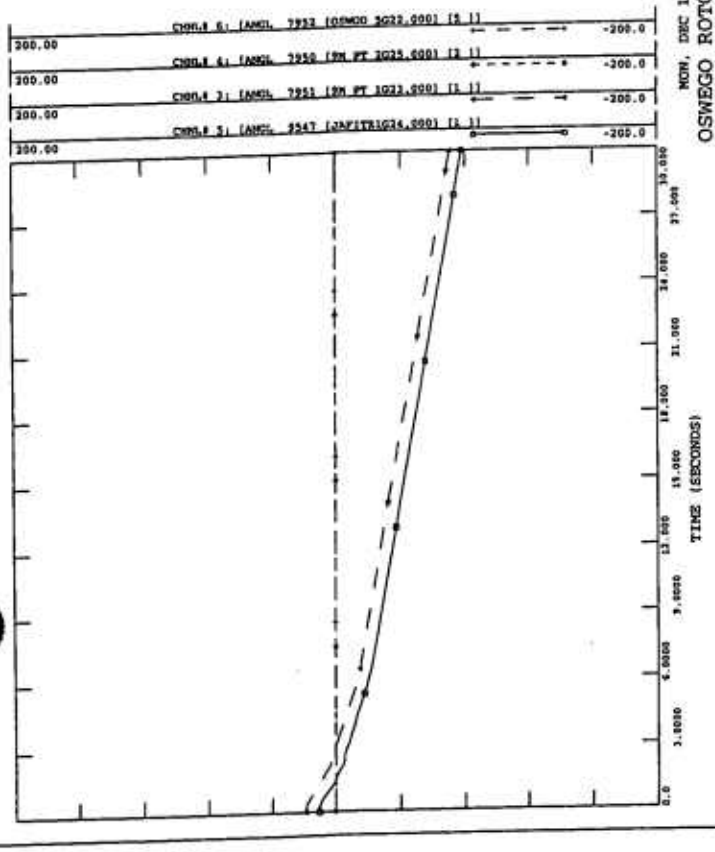
INTERFACE FLOWS



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps1d.out

MON, DEC 11 2000 9:58

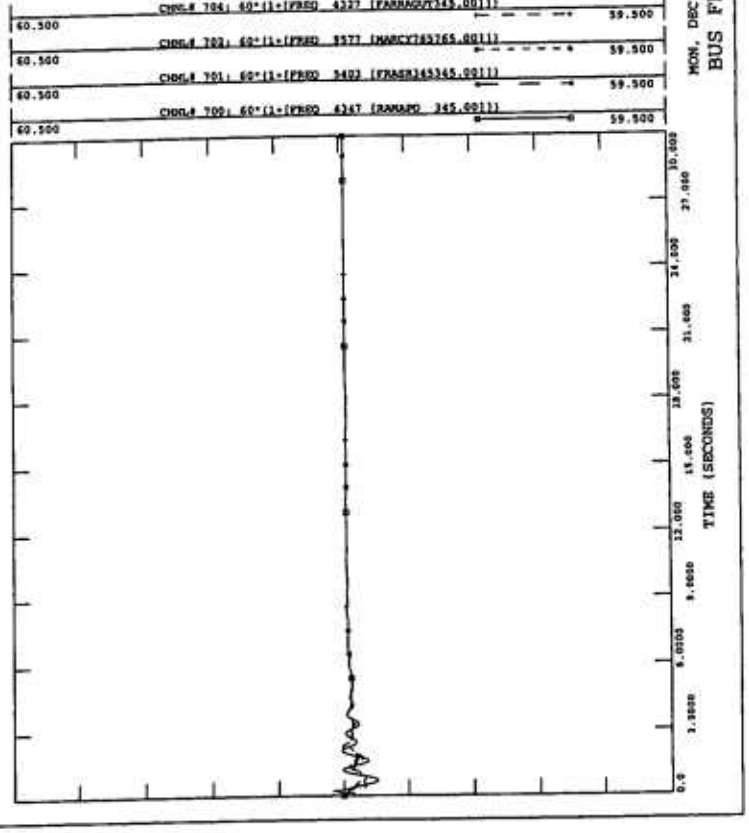
OSWEGO ROTOR ANGLES



CASE DS7: 2001 SUMMER PEAK REVISED BOWLINE SUB
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
OPEN Y88 AND W72, LADENTOWN RING BUS SPLIT
TRIP BOWLINE 2 & 3 AFTER 8 CYCLES
FILE: DS7_sps1d.out

MON, DEC 11 2000 9:58

BUS FREQUENCIES



Appendix
E

Transfer Capability

[redacted]

[redacted]	[redacted]
DS7_runUC26.out	CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

[redacted]

[redacted]	[redacted]
DS7_100_TErunUC26.out	CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW
DS7_110_TErunUC26.out	CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

File: DS7_runUC26.psa

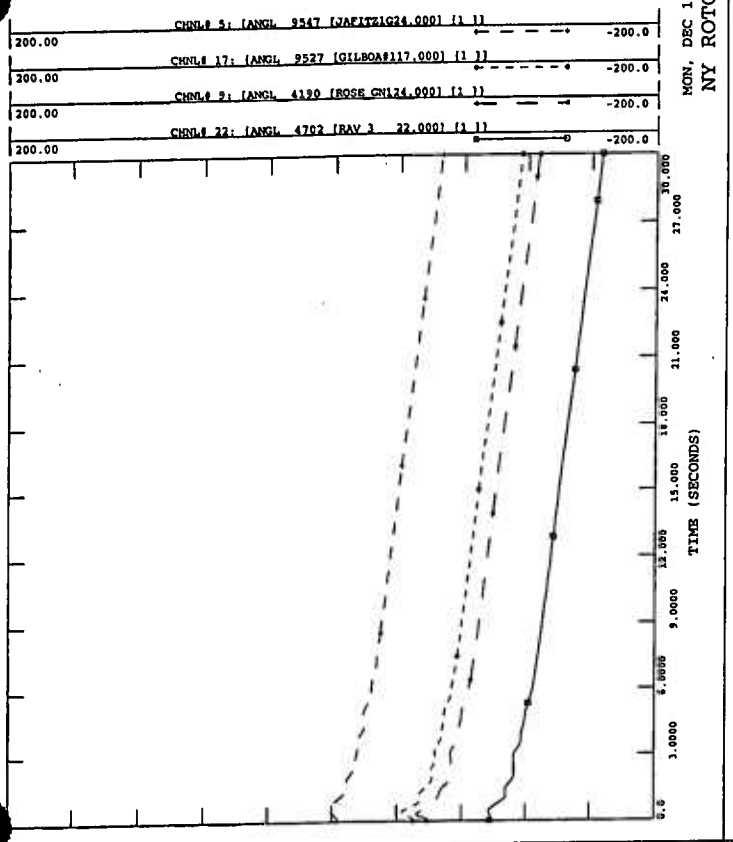
```
/    LLG L/O TOWER LADENTOWN-W.HAVERSTRAW /REJ BOWLINE
/       CLEAR LADENT (67/68)@ 3.5~ (TRIPS LADNTWN-RAMAPO)
/       REJECT BOWLINE #1&2 @ 3.5~
/       CLEAR W.HAVER 138KV @ 4.5~

RECOVER FROM D2.snp AND DS7_ny2650.cnv

START OUTPUT DS7_runUC26.out
RUN TO .1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT LADENTWN 345KV BUS 4340 Y 5163 -52049 MVA
RUN FOR  3.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO W.HAV345 345KV BUS 9300
CKT 1
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO RAMAPO 345KV BUS 4347 CKT
1
  DISCONNECT BUS 9391
  DISCONNECT BUS 9390
  DISCONNECT BUS 4308
  DISCONNECT BUS 4309
  DISCONNECT BUS 9301
  CLEAR FAULT
  APPLY FAULT AT W.HAV345 345KV BUS 9300 Y 225.9 -3027.8 MVA
RUN FOR  1.0 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  DISCONNECT BUS 9300
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

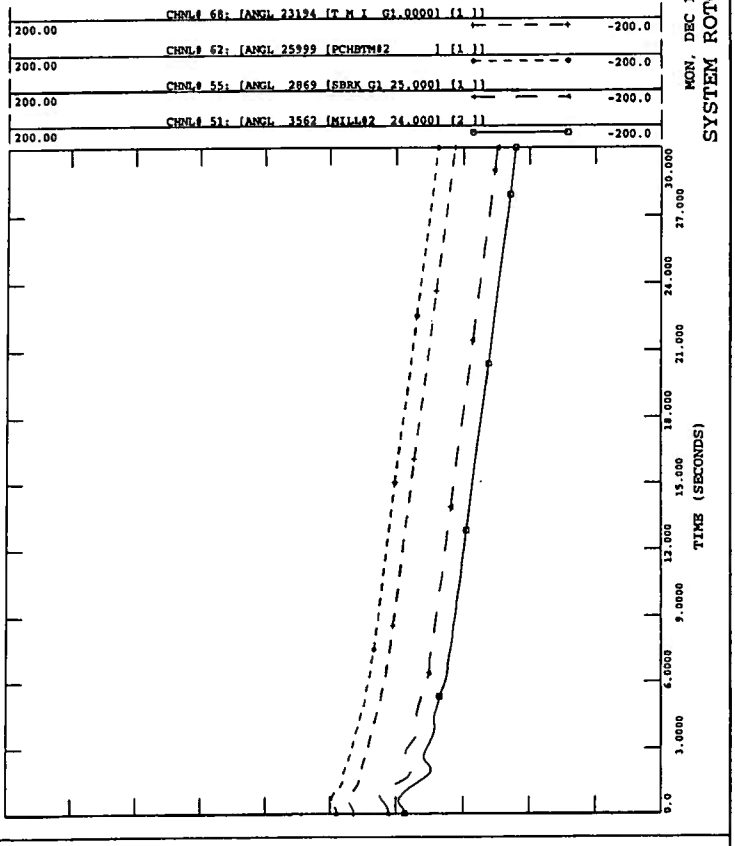
CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out



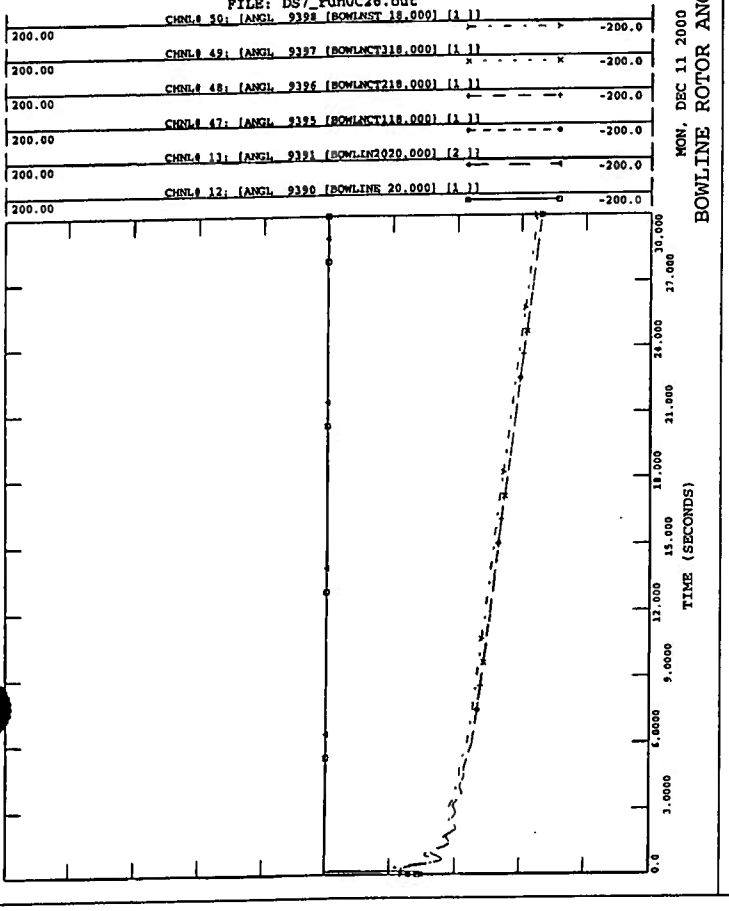
CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out



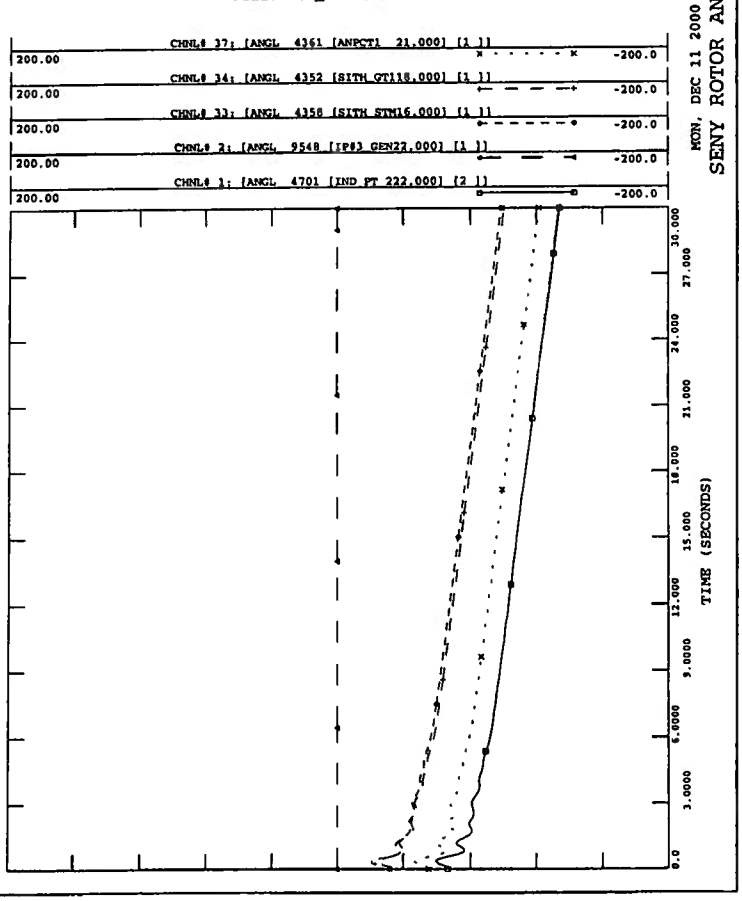
CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out



CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out



CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out

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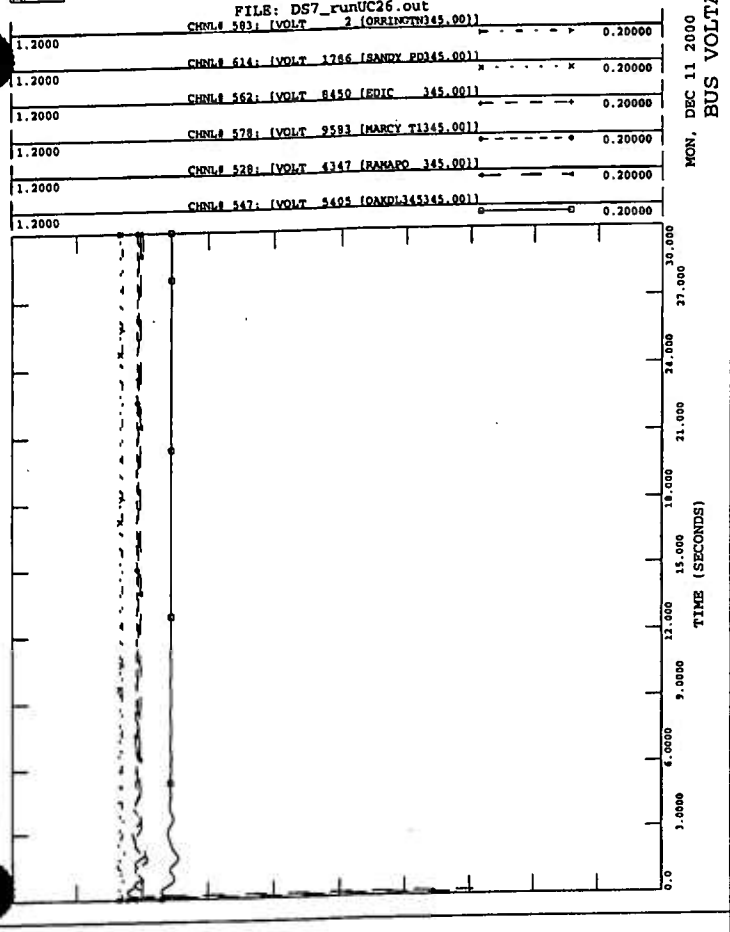
BUS VOLTAGES

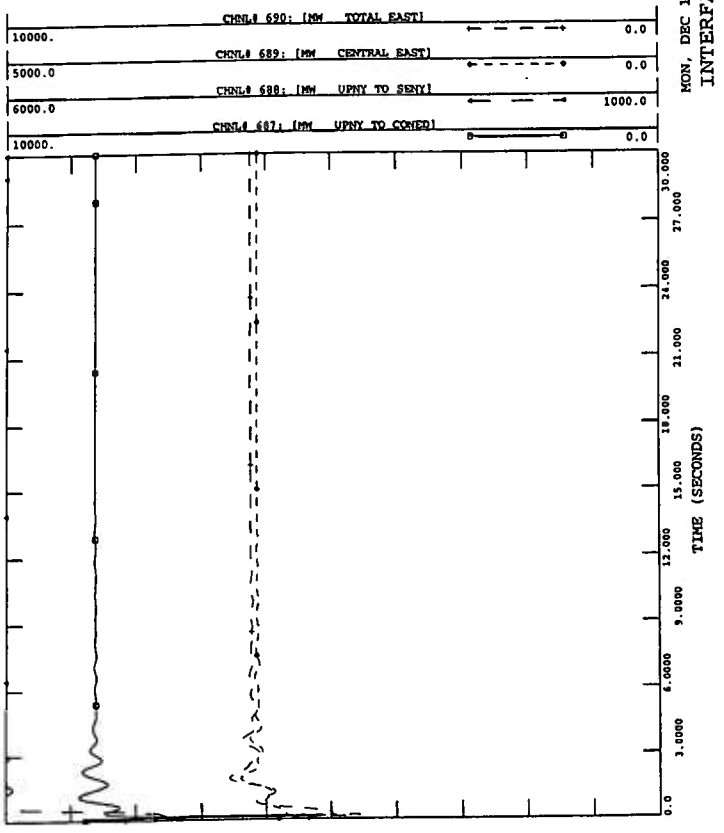


CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out

MON, DEC 11 2000 10:13

INTERFACE FLOWS

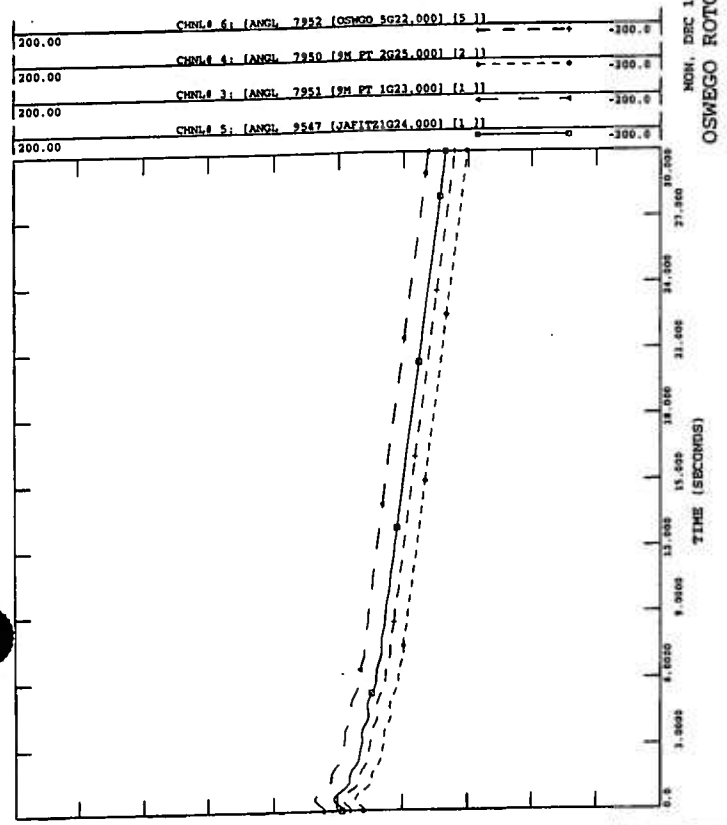


CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out

MON, DEC 11 2000 10:13

OSWEGO ROTOR ANGLES

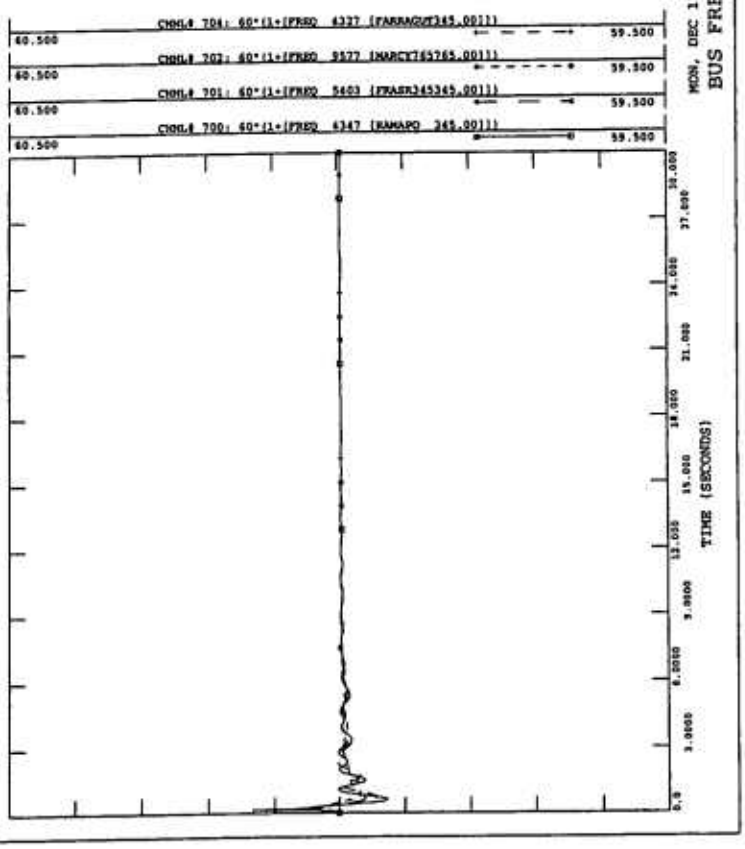


CASE DS7: STRESSED TRANSFER CASE, UPNY-CONED @ 8768 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_runUC26.out

MON, DEC 11 2000 10:13

BUS FREQUENCIES



File: DS7_100_TErunUC26.psa

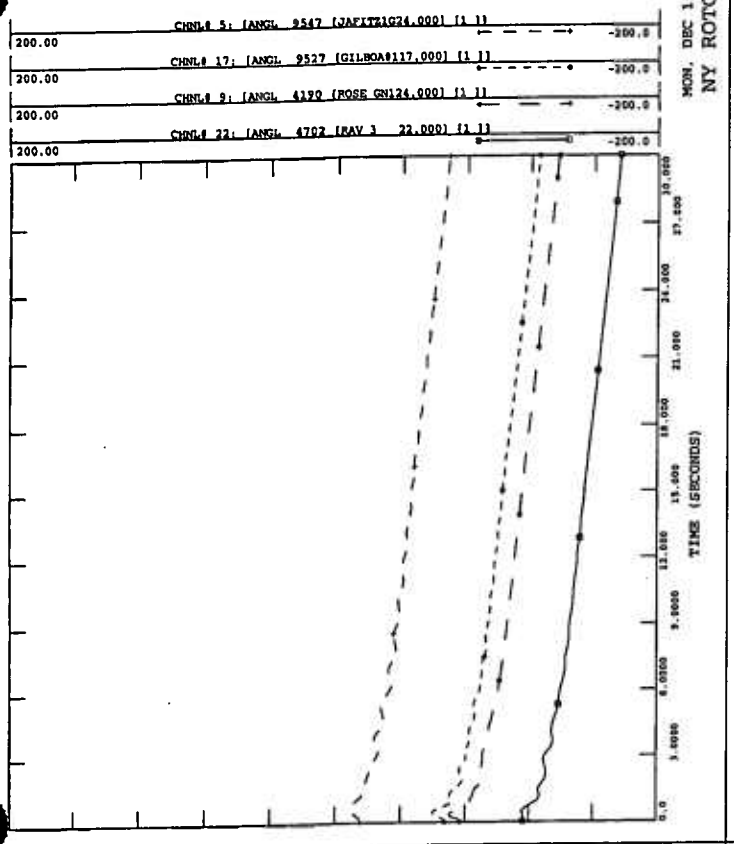
```
/    LLG L/O TOWER LADENTOWN-W.HAVERSTRAW /REJ BOWLINE
/       CLEAR LADENT (67/68)@ 3.5~ (TRIPS LADNTWN-RAMAPO)
/       REJECT BOWLINE #1&2 @ 3.5~
/       CLEAR W.HAVER 138KV @ 4.5~

RECOVER FROM D2.snp AND DS7_ne1000_ny2500.cnv

START OUTPUT DS7_100_TErunUC26.out
RUN TO .1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT LADENTWN 345KV BUS 4340 Y 5163 -52049 MVA
RUN FOR  3.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO W.HAV345 345KV BUS 9300
CKT 1
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO RAMAPO 345KV BUS 4347 CKT
1
  DISCONNECT BUS 9391
  DISCONNECT BUS 9390
  DISCONNECT BUS 4308
  DISCONNECT BUS 4309
  DISCONNECT BUS 9301
  CLEAR FAULT
  APPLY FAULT AT W.HAV345 345KV BUS 9300 Y 225.9 -3027.8 MVA
RUN FOR  1.0 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  DISCONNECT BUS 9300
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

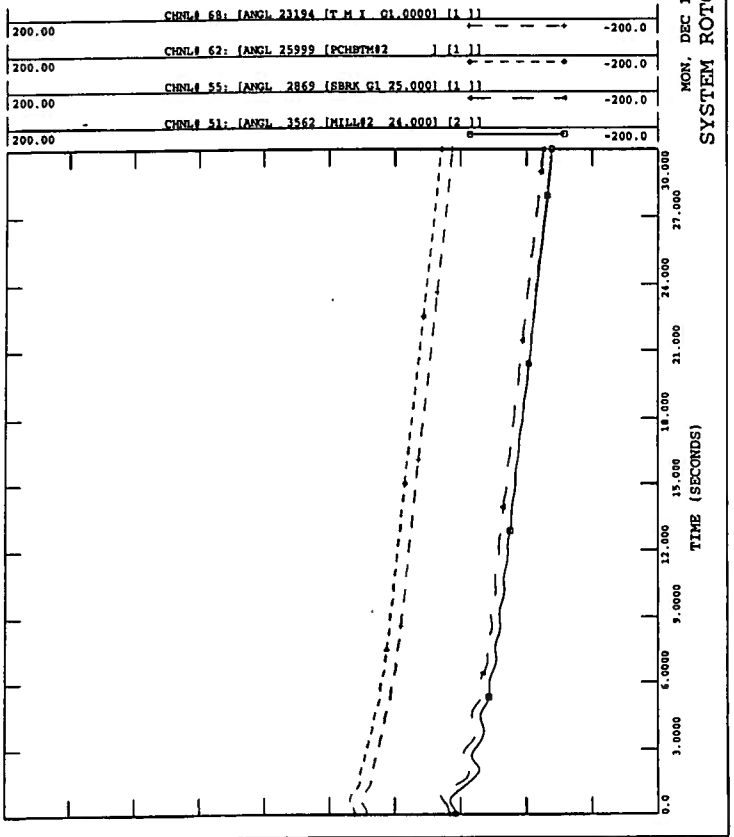
CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out



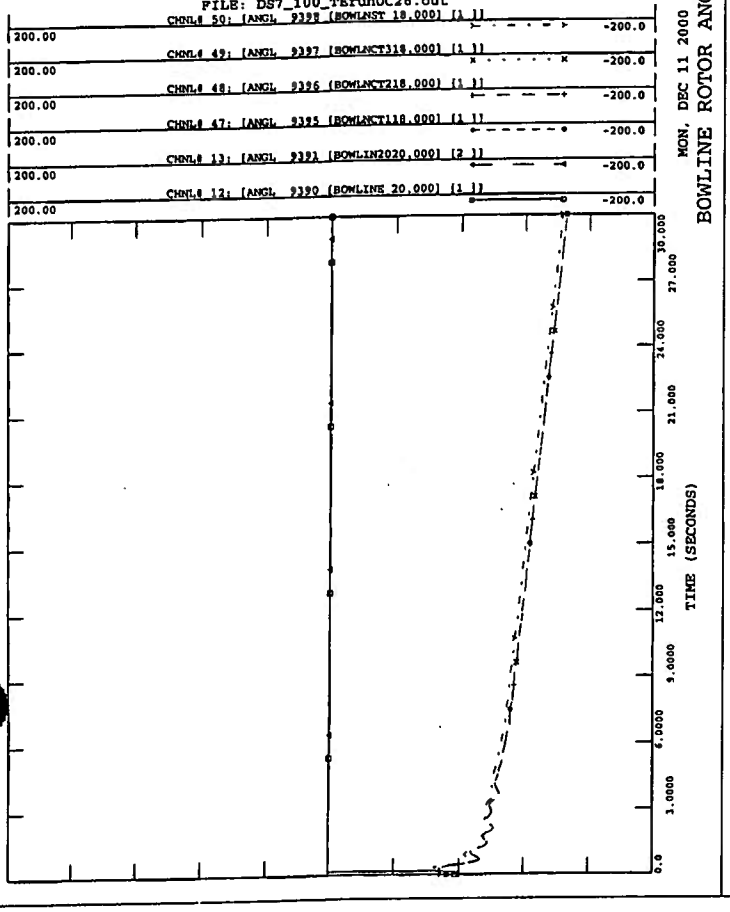
CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out



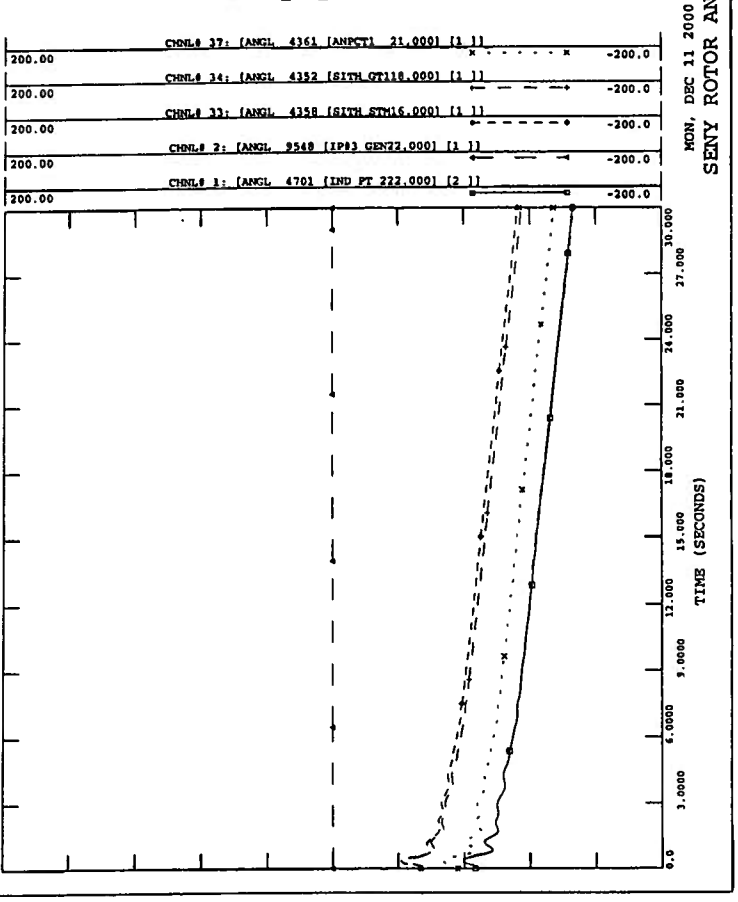
CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out



CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out

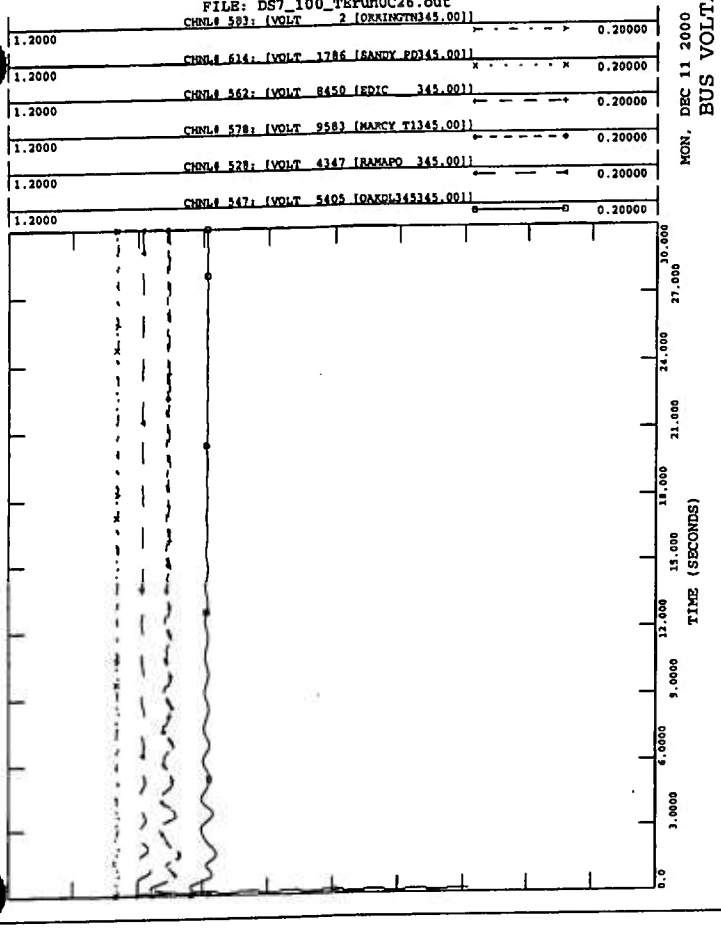


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out

MON, DEC 11 2000 10:13

BUS VOLTAGES

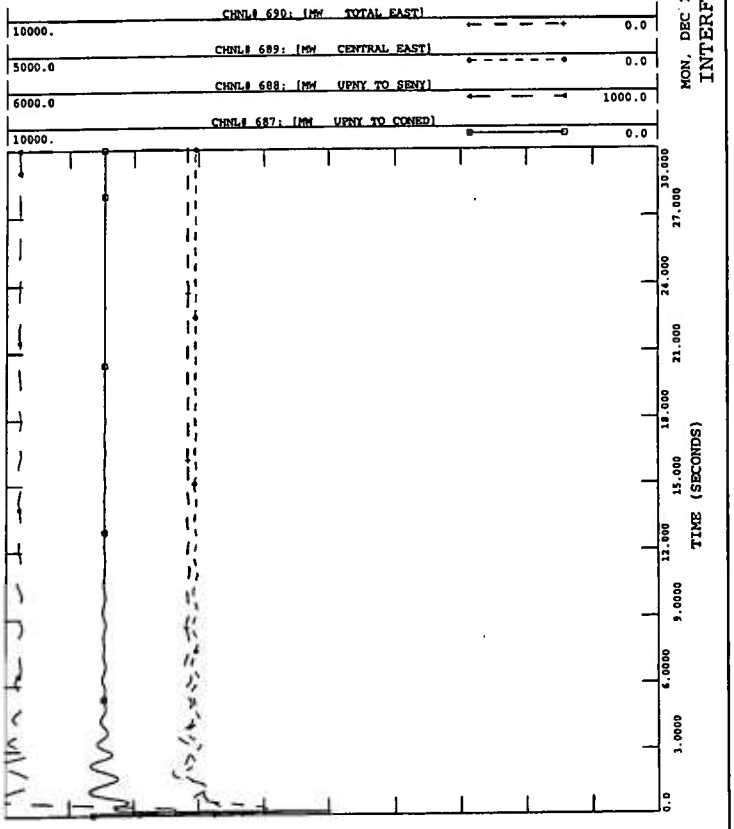


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out

MON, DEC 11 2000 10:13

INTERFACE FLOWS

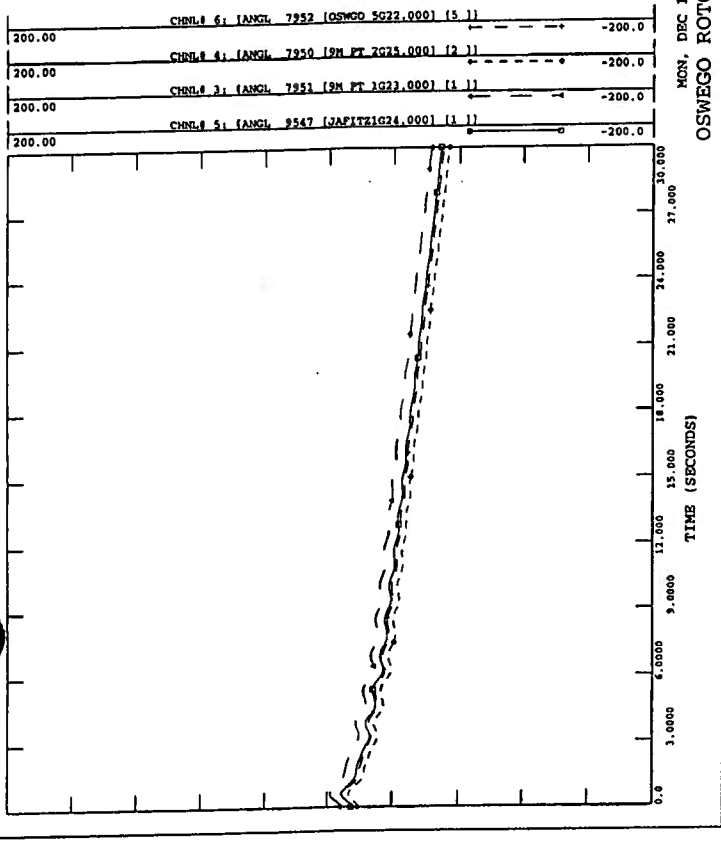


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out

MON, DEC 11 2000 10:13

OSWEGO ROTOR ANGLES

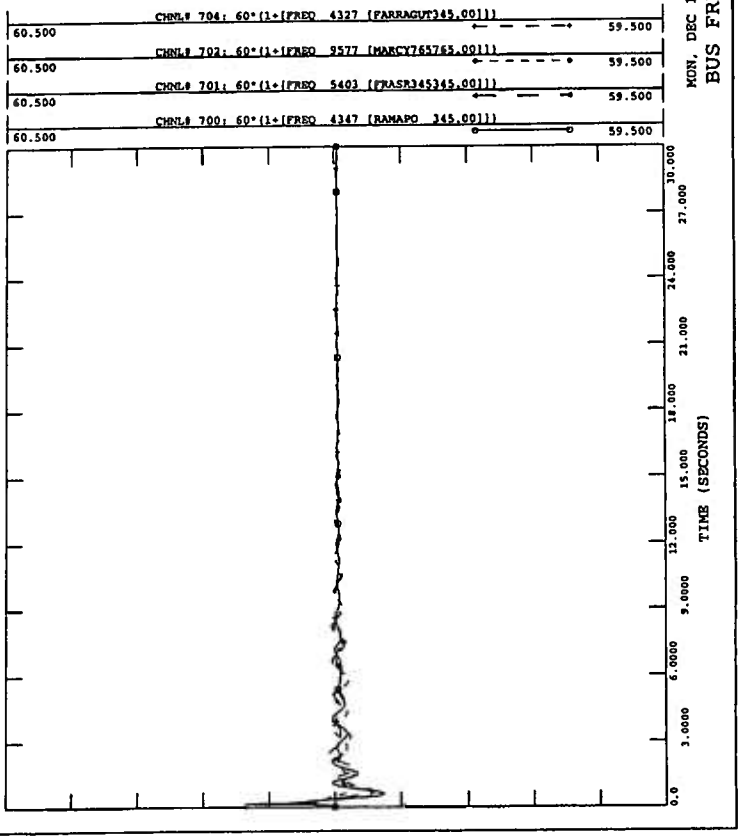


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6328 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_100_TErunUC26.out

MON, DEC 11 2000 10:13

BUS FREQUENCIES



File: DS7_110_TErunUC26.psa

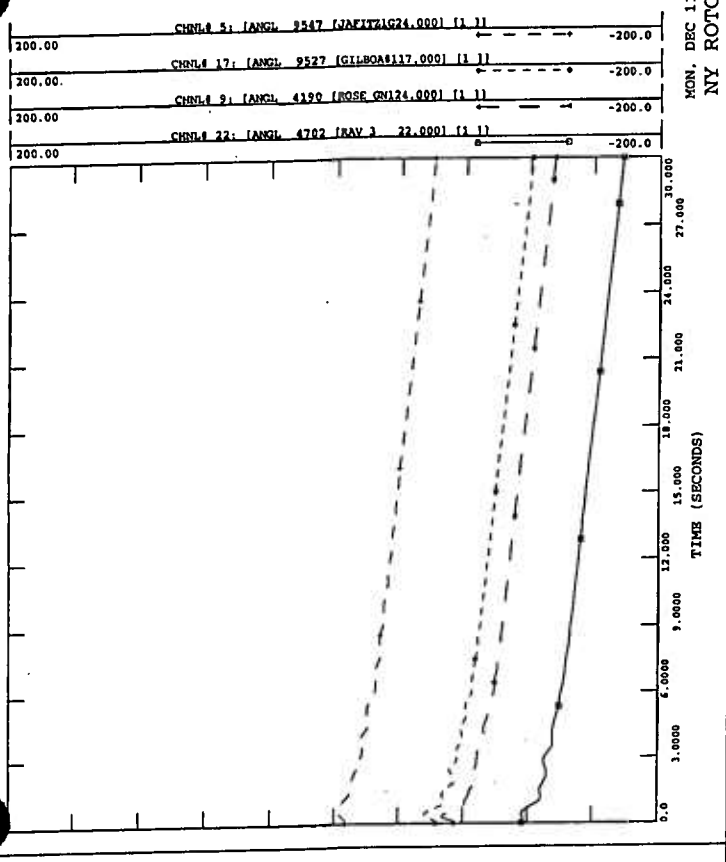
```
/    LLG L/O TOWER LADENTOWN-W.HAVERSTRAW /REJ BOWLINE
/       CLEAR LADENT (67/68)@ 3.5~ (TRIPS LADNTWN-RAMAPO)
/       REJECT BOWLINE #1&2 @ 3.5~
/       CLEAR W.HAVER 138KV @ 4.5~

RECOVER FROM D2.snp AND DS7_ne1425_ny2500.cnv

START OUTPUT DS7_110_TErunUC26.out
RUN TO .1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT LADENTWN 345KV BUS 4340 Y 5163 -52049 MVA
RUN FOR  3.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO W.HAV345 345KV BUS 9300
CKT 1
  TRIP LINE FROM LADENTWN 345KV BUS 4340 TO RAMAPO 345KV BUS 4347 CKT
1
  DISCONNECT BUS 9391
  DISCONNECT BUS 9390
  DISCONNECT BUS 4308
  DISCONNECT BUS 4309
  DISCONNECT BUS 9301
  CLEAR FAULT
  APPLY FAULT AT W.HAV345 345KV BUS 9300 Y 225.9 -3027.8 MVA
RUN FOR  1.0 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  DISCONNECT BUS 9300
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

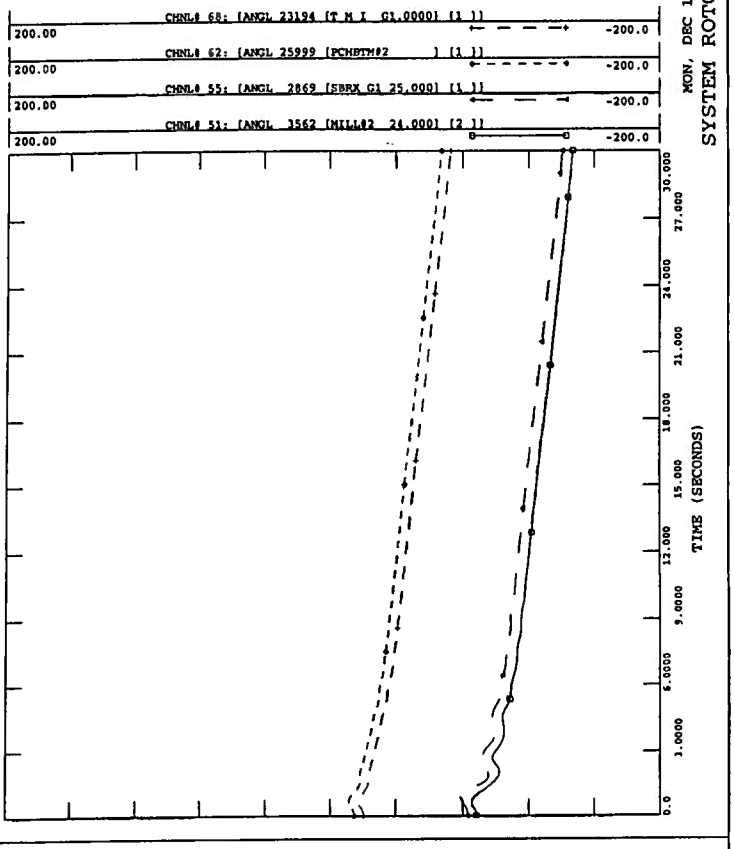
CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out



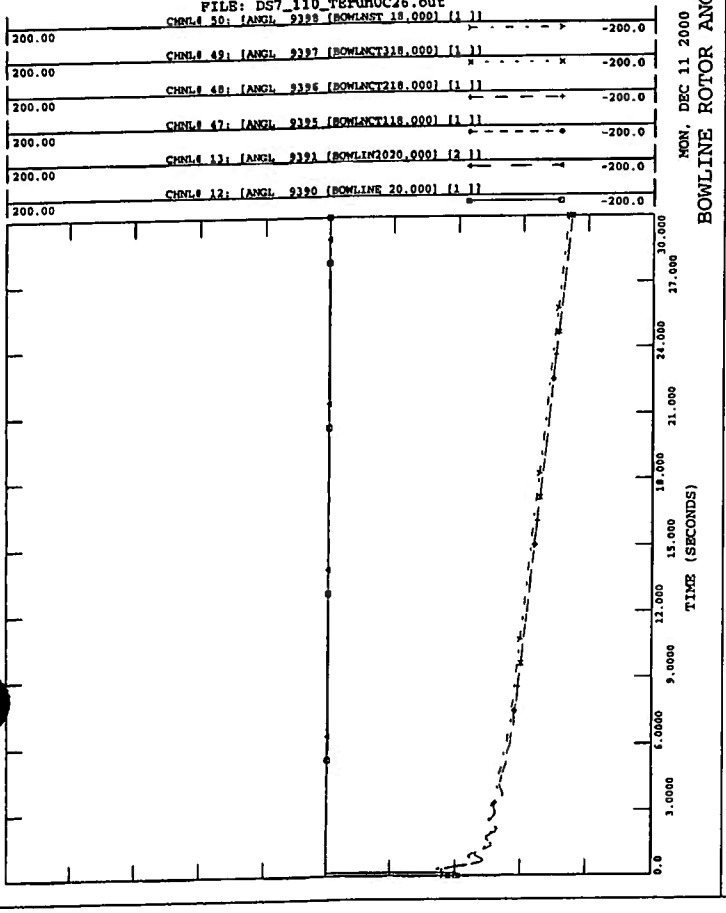
CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out



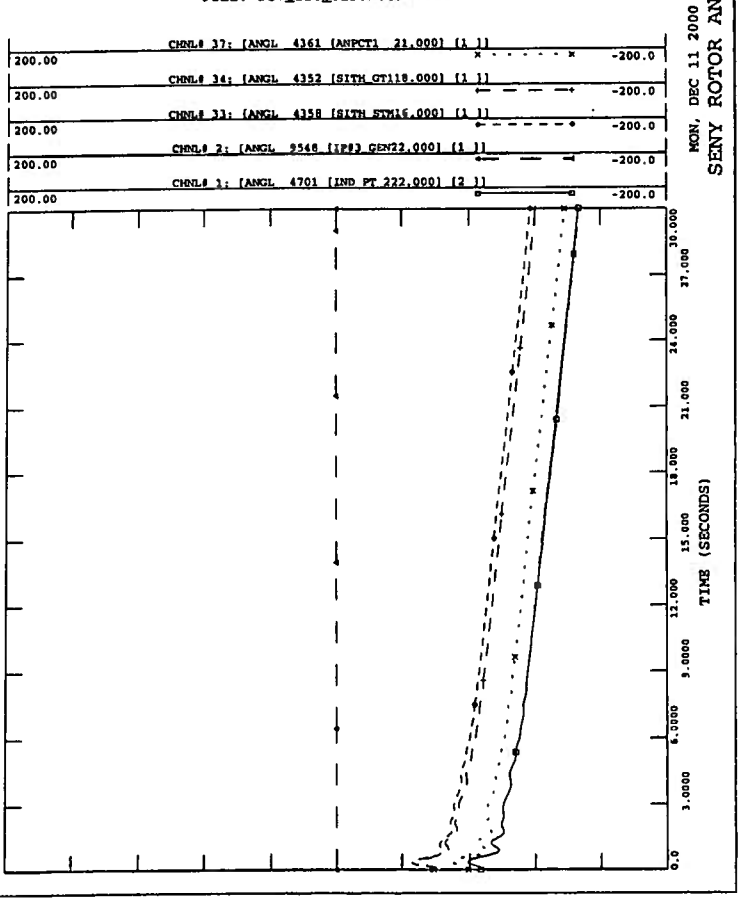
CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out



CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out

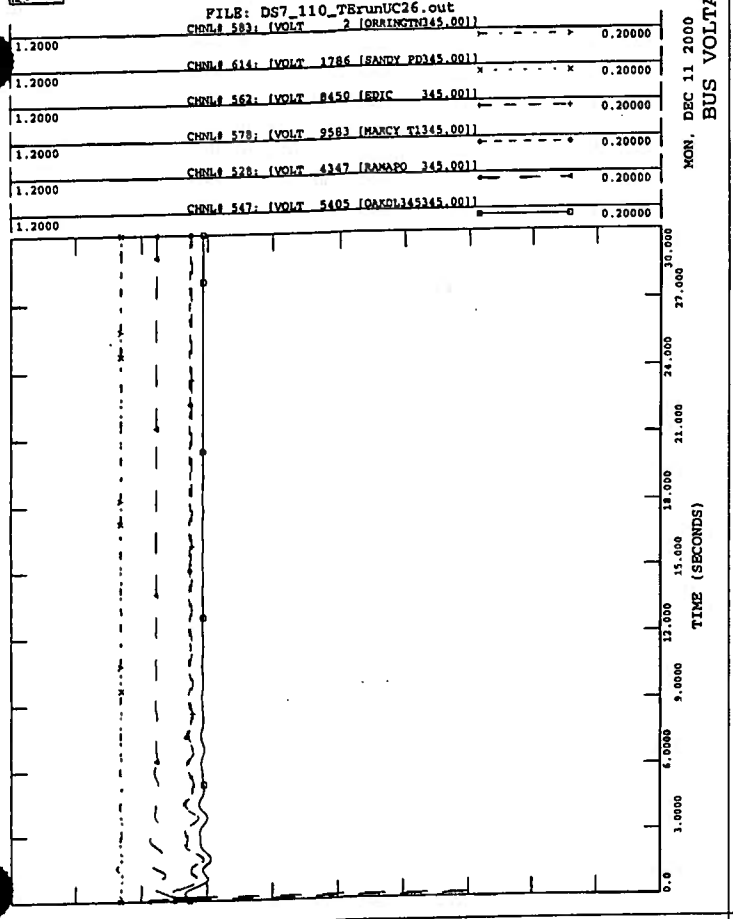


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out

MON, DEC 11 2000 10:13

BUS VOLTAGES

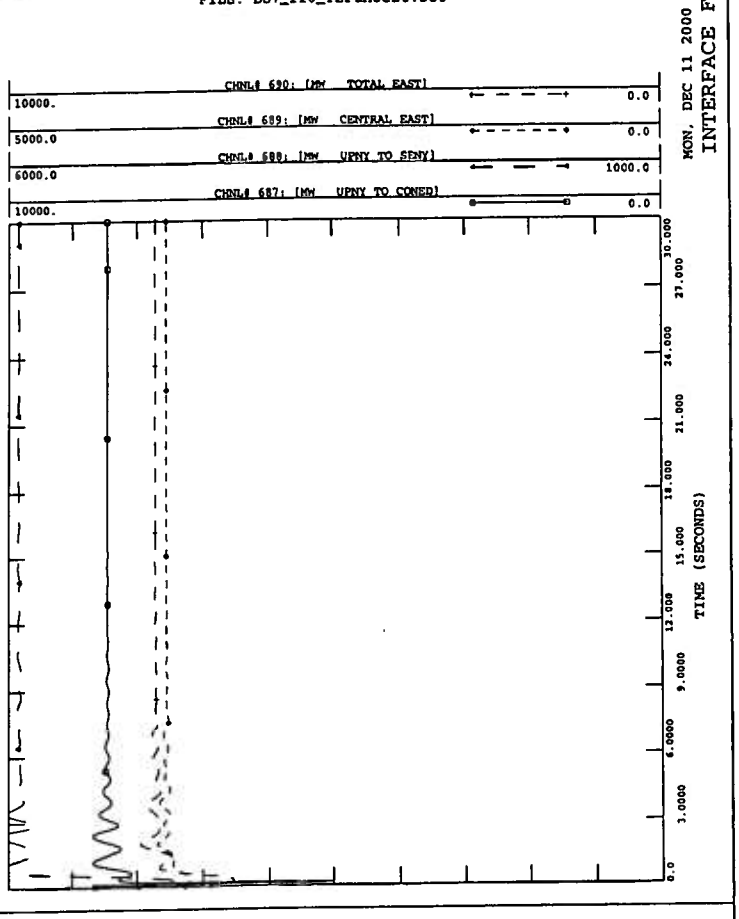


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out

MON, DEC 11 2000 10:13

INTERFACE FLOWS

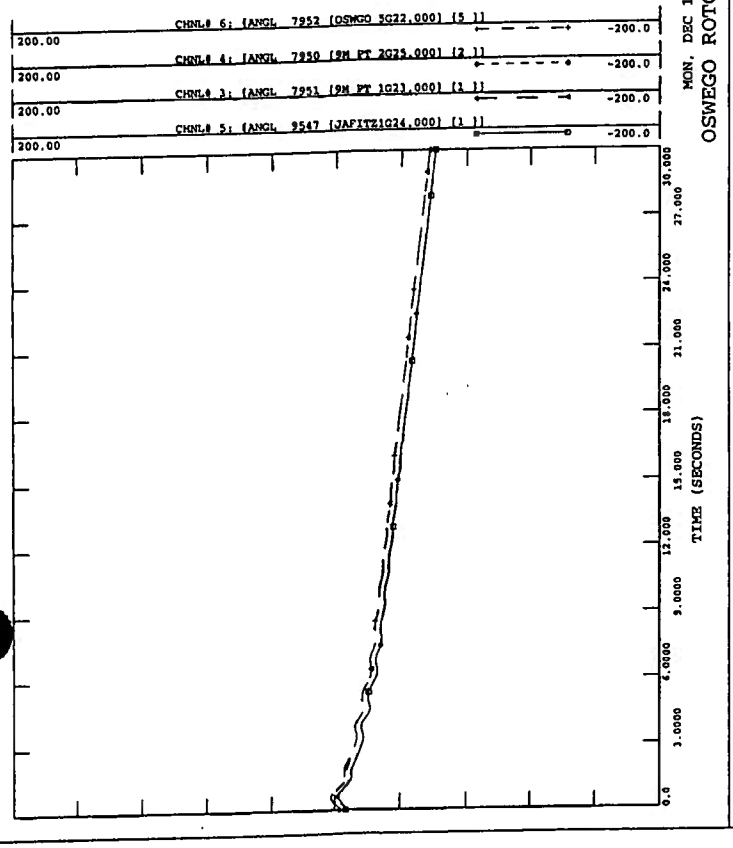


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out

MON, DEC 11 2000 10:13

OSWEGO ROTOR ANGLES

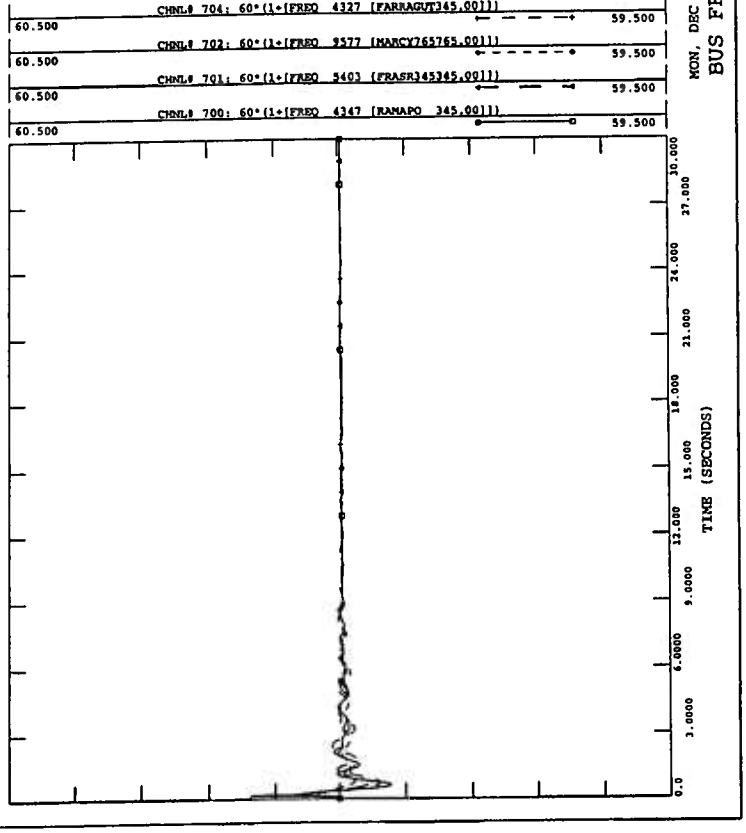


CASE DS7: STRESSED TRANSFER CASE, TOTAL EAST @ 6883 MW
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
LLG L/O TOWER 67/68 LADENTOWN-W.HAVERSTRAW

FILE: DS7_110_TErunUC26.out

MON, DEC 11 2000 10:13

BUS FREQUENCIES



Appendix
F

ISO Transmittal

POWER TECHNOLOGIES
A Shaw Group Company

MEMORANDUM

Date: November 13, 2000

To: Eric Allen

cc: Francesco Elmi, Jack Pousty, Don Gray

From: Douglas Brown, Johnny Willis

Subject: Bowline 3 SRIS, Conference Call with NYISO

On November 6, PTI participated in a conference call with the NYISO to discuss the Bowline 3 SRIS. During the course of that call, Eric Allen requested some additional information and clarifications.

This memo contains the information and clarifications that Eric requested. The memo consists of three distinct sections:

1. Voltage Analysis
2. Extreme Contingency Stability Analysis
3. SPS Analysis

1 Voltage Analysis

This section summarizes analysis conducted to address the following NYISO comments:

- Increase the precision of the estimated voltage-constrained transfer limits shown in Supplement 2, Table 3-11.
- Include loss of the Buchanan River Crossing (Y88/Y94) in the UPNY-ConEd analysis.
- Simulate most recent SPS design in loss of lines 67/68 contingency.

There is an incorrect statement in Supplement 2, Section 3.2.1 about the status of switched shunts in post-contingency load flows. The voltage analysis summarized in Supplement 2 and in this memo was conducted using response files provided by the NYISO. In these response files, switched shunts are held fixed in post-contingency load flows.

The Bowline SPS modeled in Supplement 2 tripped approximately 1380 MW of Bowline generation. The SPS was revised in Supplement 3 to trip approximately 1625 MW of generation. The simulation of the tower 67/68 contingency in this memo assumes operation of an SPS that transfer trips approximately 1625 MW of Bowline generation.

One of the ISO requests was to increase the precision of the estimated voltage-constrained transfer limits shown in Supplement 2, Table 3-11. In Supplement 2, the estimated voltage-constrained transfer limit of the Total East interface was shown limited by voltage collapse following the loss of lines 67 and 68. This voltage collapse was not due to Total East transfers but due to transfers on the UPNY-ConEd interface in excess of the UPNY-ConEd emergency limits. In this memo, the generation shifts shown in Supplement 2, Table 3-1 were used for UPNY-Coned analysis. For Total East analysis, the UPNY-ConEd interface was loaded to approximately 105% of the estimated voltage-constrained transfer limit and transfers to New England were used to complete the shift. This shift pattern is similar to that used in the stability analysis.

1.1 Results

Results of the voltage analysis are summarized in Table 1-1 below. Complete results including P-V curves may be found in Appendix A at the end of this memo.

Table 1-1: Estimated Voltage-Constrained Transfer Limits

[illegible]	[illegible]		[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bowline 3 Off				
Normal Limit	7278	1	6135	3
Emergency Limit	7278	1	6135	3
Indian Point 3				
Normal Limit	7552	2	6085	3
Emergency Limit	7884	1	6085	3

1. Limited by Dunwoodie 345 kV and Millwood 345 kV following loss of Ravenswood 3 (post-contingency low voltage).
2. Limited by Buchanan S, 345 kV and Millwood 345 kV following loss of tower Y88/Y94 (post-contingency low-voltage)
3. Limited by loss of PH II DC (post-contingency voltage stability).

As explained in Supplement 2, Section 3.2.4, Bowline 3 increases the estimated UPNY-ConEd voltage constrained transfer limits (both normal and emergency). The increase is due in part to the location of Bowline 3 and Indian Point 3 relative to the UPNY-ConEd interface.

Bowline 3 has a small impact on the estimated Total East voltage constrained transfer limits. In the case with Bowline 3 displacing Indian Point 3, the limit due to loss of the 67/68 tower is within 55 MW of the limit due to loss of Phase II DC at 1200 MW as shown in the table on page A-7 in Appendix A.

1.2 Controlling Transfer Limits

Controlling (thermal or voltage limited) transfer limits were estimated in Supplement 2. Incorporating the analysis presented in Section 1.1, the revised controlling limits are shown in Table 1-2 below:

Table 1-2: Estimated Transfer Capability

[redacted]	[redacted]		[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Bowline 3 Off				
Normal Limit	7041	Thermal	5711	Thermal
Emergency Limit	7278	Voltage, Low	6135	Voltage, Stability
Indian Point 3				
Normal Limit	6638	Thermal	5702	Thermal
Emergency Limit	7884	Voltage, Low	6085	Voltage, Stability

2 Extreme Contingency Stability Analysis

This section summarizes analysis conducted to address the following ISO, ConEd and O&R comments:

- Extend simulation of Extreme Contingency E3 in Supplement 3 to show system is stable.

Contingency E3 is described in Supplement 3, Table 3-1. Plots of system response may be found in Appendix B at the end of this memo.

3 SPS Analysis

This section summarizes analysis conducted to address the following ISO, ConEd and O&R comments:

- Extend simulation of run DS6_SPS1 in Supplement 3, Appendix E to show system is stable.
- Show consequences of SPS failure for Type III SPS summarized in Supplement III, Table 4-5.

3.1 Simulation DS6_SPS1

Simulation DS6_SPS1 is described in Supplement 3, Table 4-4. Plots of system response may be found in Appendix C at the end of this memo. The plots in Appendix C confirm that system response is transiently stable but poorly damped. Damping for this case could be improved by simulating power system stabilizers on the Bowline 3 generators.

3.2 Type III SPS Failure

Three Type III SPS are summarized in Supplement III, Table 4-5. One SPS would detect the loss of line 67 between West Haverstraw and Ladentown. A second SPS would detect the loss of line 68 between Bowline and Ladentown including the West Haverstraw 345/138 kV transformer. The third SPS would detect the loss of either line 1 or line 2 between Bowline and West Haverstraw.

3.2.1 Failure of Line 67 SPS

Appendix E in Supplement 3 contains a simulation of the failure of the line 67 SPS (DS6_HAVER.out). The simulation shows the system is stable following failure of the SPS. A fault on line 67 followed by normal clearing and failure of the line 67 SPS results in an overload of line 3 as shown in Table 3-1 below:

Table 3-1: Failure of Line 67 SPS

[redacted]	[redacted]	[redacted]	[redacted]
Bowline – West Haverstraw Line #3	1800	1000[1]	180%

1. Estimated rating

Failure of the line 67 SPS does not result in any bulk system bus voltages below post-contingency limits.

3.2.2 Failure of Line 68 SPS

Appendix C (at the end of this memo) contains a simulation of the failure of the line 68 SPS (DS6_68SPS_Fail.out). In simulation DS6_68SPS_Fail, a three phase fault is applied at Bowline on line 68 and cleared normally. The simulation shows the system is stable following failure of the SPS. SPS failure results in overloads on line 1 and line 2 between Bowline and West Haverstraw:

Table 3-2: Failure of Line 68 SPS

[redacted]	[redacted]	[redacted]	[redacted]
Bowline – West Haverstraw Line #1	882	747	118%
Bowline – West Haverstraw Line #2	882	747	118%

Failure of the line 68 SPS does not result in any bulk system bus voltages below post-contingency limits.

3.2.3 Failure of Line 1/2 SPS

Appendix E in Supplement 3 contains a simulation of the failure of the line 67 SPS. From a stability standpoint, failure of the line 67 SPS would be more severe than failure of an SPS that detects the loss of either line 1 or line 2 between Bowline and West Haverstraw.

A fault on line 1 followed by normal clearing and failure of the line 1 SPS results in an overload of line 2 as shown in Table 3-3. Because of the configuration of the system, a fault on line 2 followed by an SPS failure would result in a similar overload on line 1.

Table 3-3: Failure of Line 1 SPS

[redacted]	[redacted]	[redacted]	[redacted]
Bowline – West Haverstraw Line #2	874	747	117%

Failure of the SPS does not result in any bulk system bus voltages below post-contingency limits.

Appendix

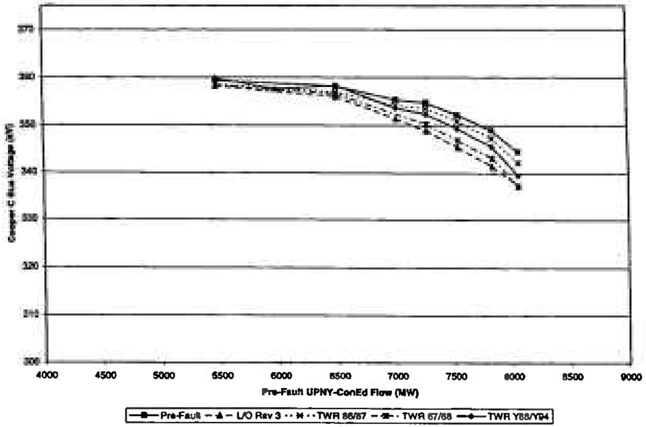
A

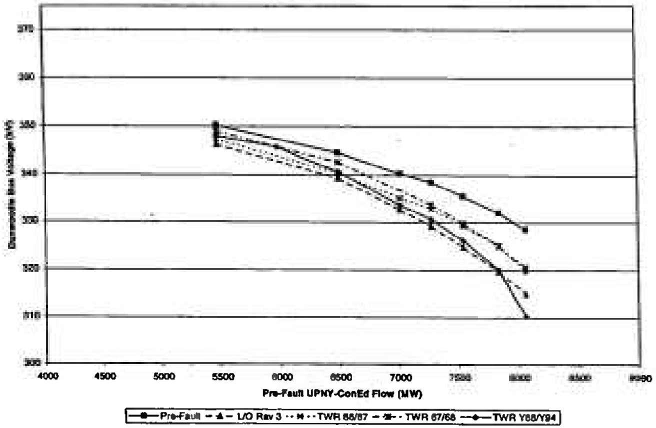
Transfer Capability - Voltage Analysis

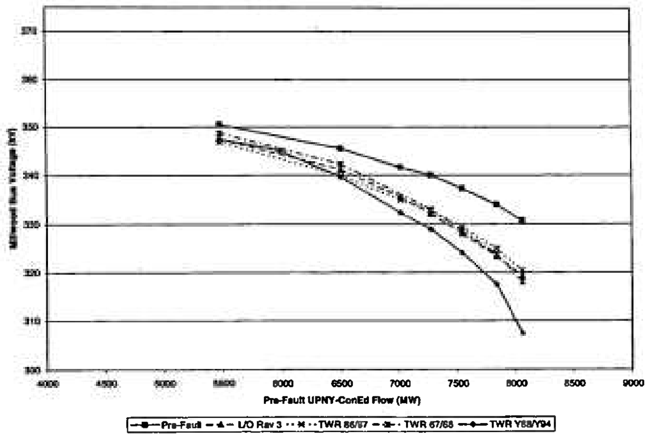
Estimated Voltage Constrained Transfer Limits
Interface: UPNY-ConEd
Case: Bowline 3 Off-Line

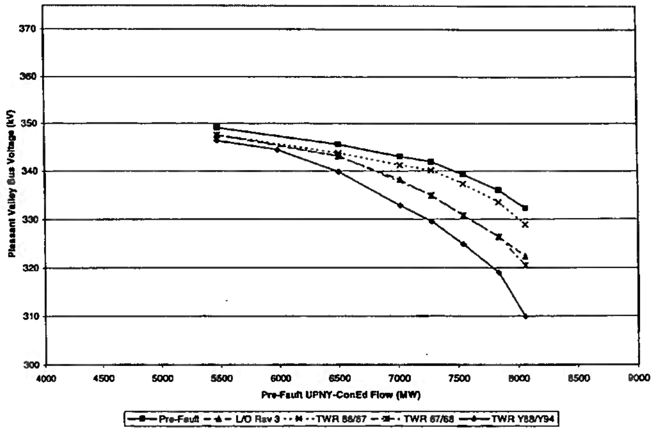
[illegible]	[illegible]	[illegible]	[illegible]
6247 MW	DUNWODIE	PRE-FAULT	346 kV
6506 MW	MILLWOOD	PRE-FAULT	344 kV
6506 MW	PLTVLLEY	PRE-FAULT	343 kV
7020 MW	BUCH S	PRE-FAULT	346 kV
7278 MW	DUNWODIE	L/O RAV 3	328 kV
7278 MW	MILLWOOD	L/O RAV 3	328 kV
7363 MW	PLTVLLEY	TWR Y88/Y94	328 kV
7377 MW	MILLWOOD	TWR Y88/Y94	328 kV
7463 MW	BUCH S	TWR Y88/Y94	328 kV
7436 MW	DUNWODIE	TWR Y88/Y94	328 kV
7545 MW	ROSETON	PRE-FAULT	345 kV
7545 MW	PLTVLLEY	L/O RAV 3	328 kV
7545 MW	DUNWODIE	TWR 86/87	328 kV
7545 MW	MILLWOOD	TWR 86/87	328 kV
7545 MW	BUCH S	TWR 67/68	328 kV
7545 MW	DUNWODIE	TWR 67/68	328 kV
7545 MW	MILLWOOD	TWR 67/68	328 kV
7545 MW	PLTVLLEY	TWR 67/68	328 kV

Bowline 3 Off-line, UPNY-Coned Interface





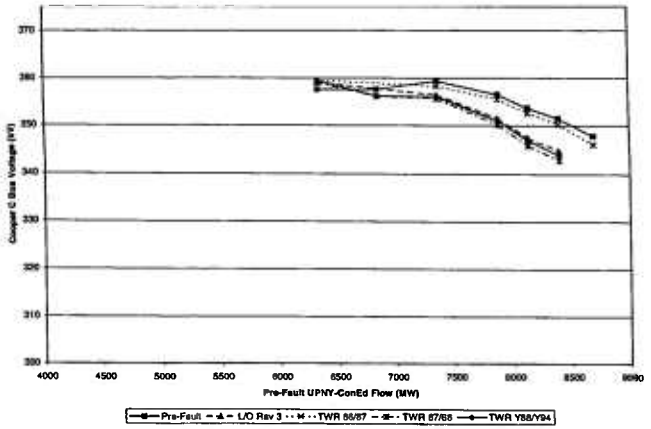


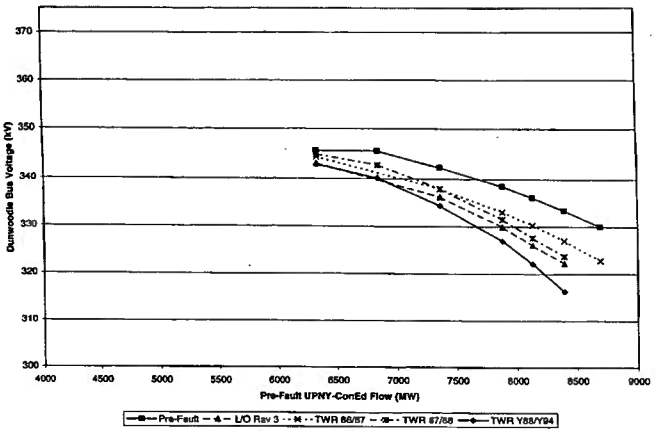


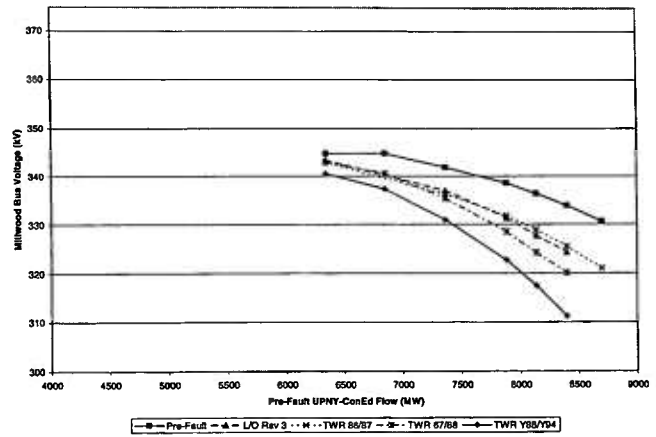
Estimated Voltage Constrained Transfer Limits
Interface: UPNY-ConEd
Case: Bowline 3 On-Line Displacing Indian Point 3

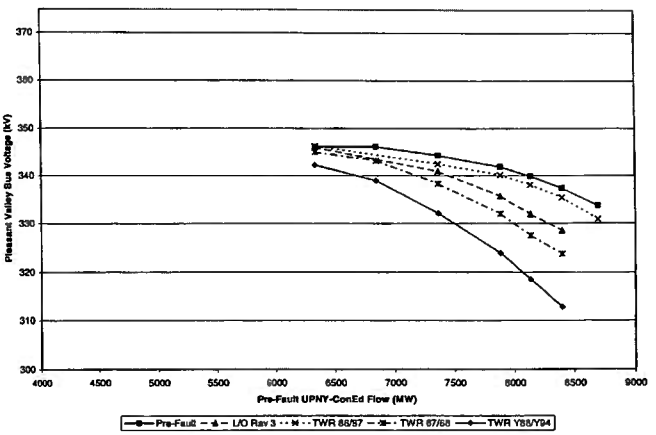
[illegible]	[illegible]	[illegible]	[illegible]
6593 MW	DUNWODIE	PRE-FAULT	346 kV
6850 MW	BUCH S	PRE-FAULT	346 kV
6850 MW	MILLWOOD	PRE-FAULT	344 kV
7367 MW	PLTVLLEY	PRE-FAULT	343 kV
7552 MW	BUCH S	TWR Y88/Y94	328 kV
7552 MW	MILLWOOD	TWR Y88/Y94	328 kV
7622 MW	PLTVLLEY	TWR Y88/Y94	328 kV
7808 MW	DUNWODIE	TWR Y88/Y94	328 kV
7884 MW	DUNWODIE	L/O RAV 3	328 kV
7884 MW	MILLWOOD	L/O RAV 3	328 kV
7884 MW	BUCH S	TWR 67/68	328 kV
7884 MW	DUNWODIE	TWR 67/68	328 kV
7884 MW	MILLWOOD	TWR 67/68	328 kV
7884 MW	PLTVLLEY	TWR 67/68	328 kV
8134 MW	DUNWODIE	TWR 86/87	328 kV
8134 MW	MILLWOOD	TWR 86/87	328 kV

BowLine 3 On-line, UPNY-Coned Interface







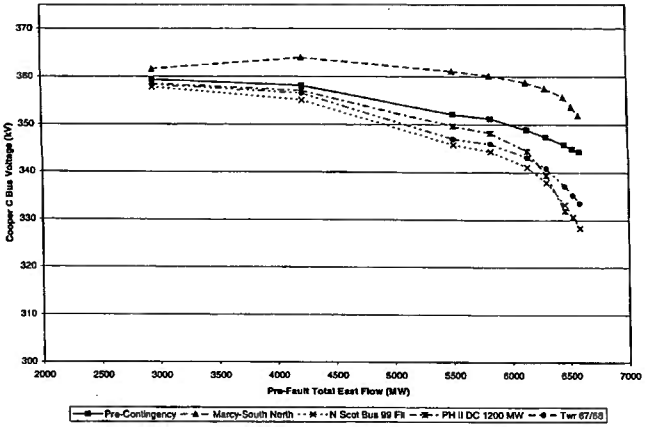


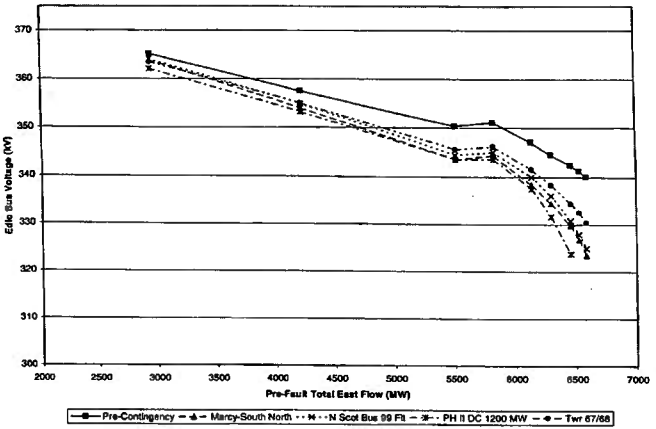
Estimated Voltage Constrained Transfer Limits
Interface: Total East
Case: Bowline 3 Off-Line

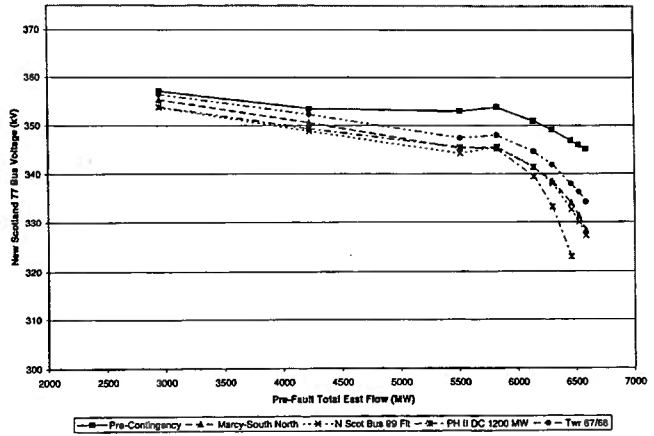
Interface Limit	Loading	Contingency	Voltage Limit
6135 MW[1]		PH II DC 1200	
6140 MW	MARCY T1 345	PRE-FAULT	348 kV
6229 MW	OAKDL345 345	MARCY-SOUTH N	320 kV
6299 MW	EDIC 345	PRE-FAULT	347 kV
6299 MW	OAKDL345 345	PRE-FAULT	335 kV
6359 MW	OAKDL345 345	PH II DC 1200	320 kV
6371 MW	EDIC 345	PH II DC 1200	328 kV
6379 MW	N.SCOT77 345	PH II DC 1200	328 kV
6379 MW	N.SCOT99 345	PH II DC 1200	328 kV
6393 MW	MARCY T1 345	PH II DC 1200	328 kV
6458 MW	N.SCOT77 345	PRE-FAULT	348 kV
6458 MW	N.SCOT99 345	PRE-FAULT	348 kV

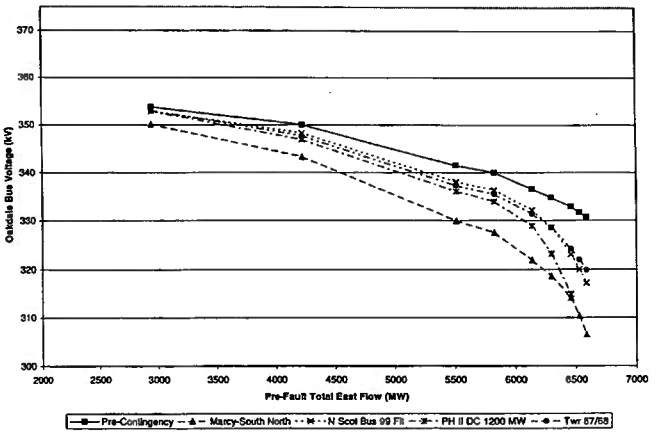
1. Interface limit is 95 % of highest transfer level achieved for this contingency. Limit is at least 5% below the critical point on the PV curve.

Bowline 3 Off-line, Total East Interface







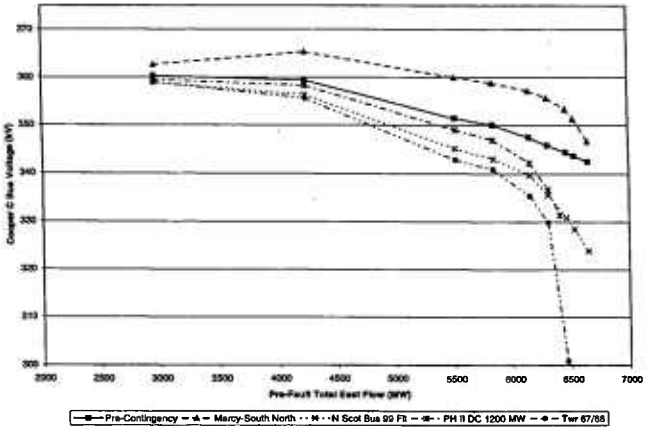


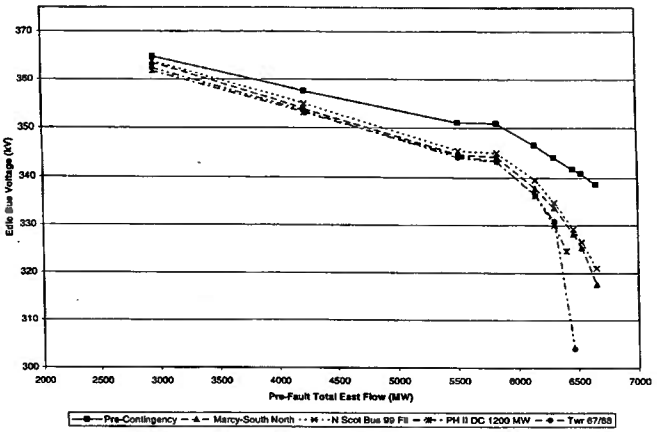
Estimated Voltage Constrained Transfer Limits
Interface: Total East
Case: Bowline 3 On-Line Displacing Indian Point 3

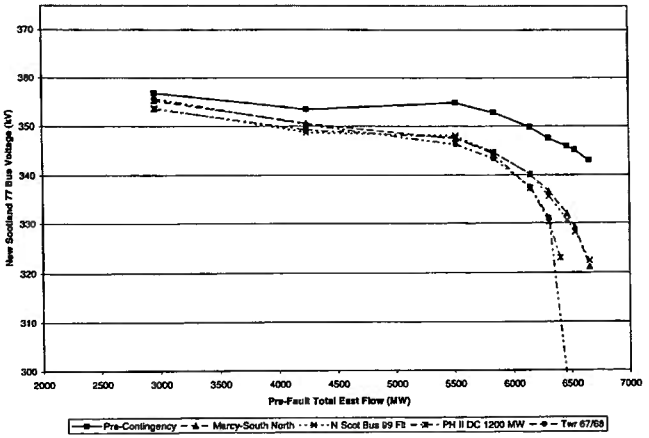
[illegible]	[illegible]	[illegible]	[illegible]
6085 MW[1]		PH II DC 1200	
6140 MW[1]		TWR 67/68	
6150 MW	EDIC 345	PRE-FAULT	347 kV
6150 MW	MARCY T1 345	PRE-FAULT	348 kV
6212 MW	OAKDL345 345	MARCY-SOUTH N	320 kV
6306 MW	N.SCOT77 345	PRE-FAULT	348 kV
6306 MW	N.SCOT99 345	PRE-FAULT	348 kV
6306 MW	OAKDL345 345	PRE-FAULT	335 kV
6306 MW	OAKDL345 345	TWR 67/68	320 kV
6310 MW	COOPC345 345	TWR 67/68	328 kV
6320 MW	N.SCOT77 345	TWR 67/68	328 kV
6320 MW	N.SCOT99 345	TWR 67/68	328 kV
6321 MW	LEEDS 3 345	TWR 67/68	328 kV
6324 MW	EDIC 345	TWR 67/68	328 kV
6329 MW	MARCY T1 345	TWR 67/68	328 kV
6334 MW	N.SCOT77 345	PH II DC 1200	328 kV
6334 MW	N.SCOT99 345	PH II DC 1200	328 kV
6340 MW	ROCK TAV 345	TWR 67/68	328 kV
6343 MW	EDIC 345	PH II DC 1200	328 kV
6344 MW	FRASR345 345	TWR 67/68	328 kV
6347 MW	GILB 345 345	TWR 67/68	328 kV
6365 MW	MARCY T1 345	PH II DC 1200	328 kV

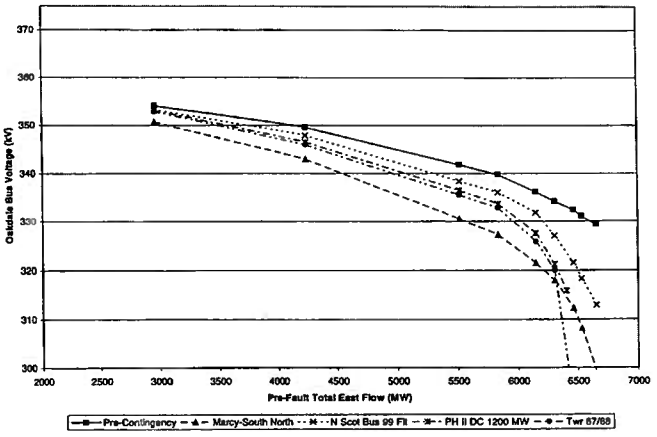
1. Interface limit is 95 % of highest transfer level achieved for this contingency. Limit is at least 5% below the critical point on the PV curve.

Bowline 3 On-line, Total East Interface









Appendix

B

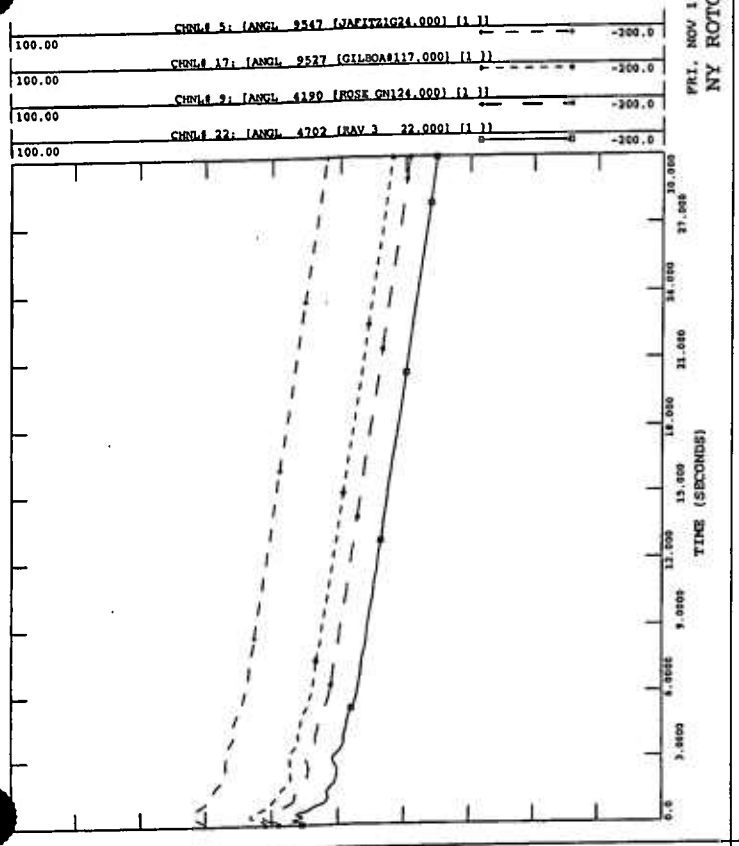
Extreme Contingency Stability Analysis

DS5_runEX03.out	CASE DS5: 2001 SUMMER PEAK ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF EXTREME CONTINGENCY 3 LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
DS6_runEX03.out	CASE DS6: 2001 SUMMER PEAK ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3 EXTREME CONTINGENCY 3 LOSS OF BUCHANAN-MILLWOOD 345 KV ROW

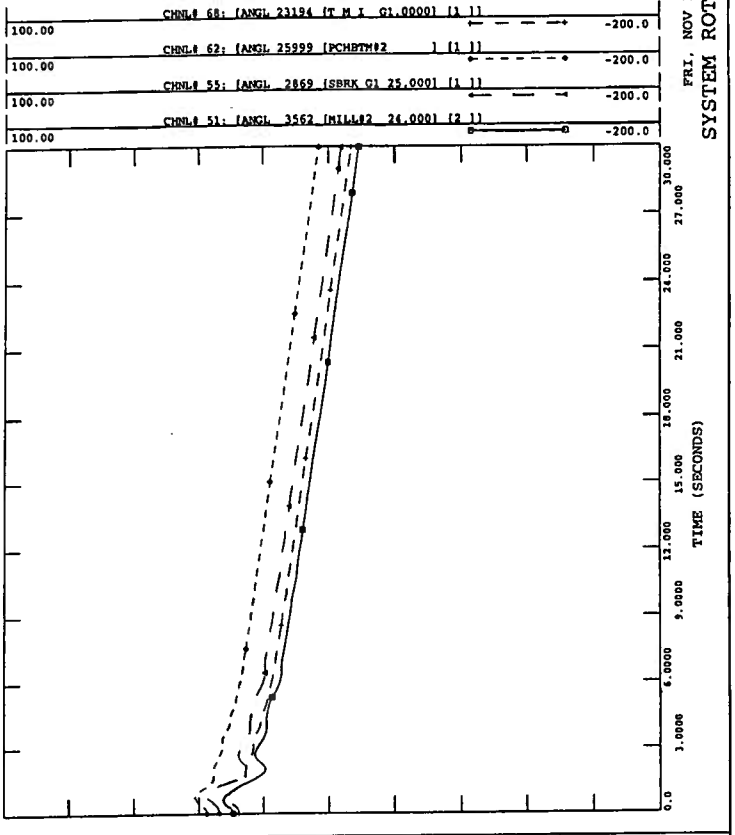
```
TEXT,   EXTREME CONTINGENCY E3, LOSS OF BUCHANAN-MILLWOOD ROW
TEXT,      CLEAR BUCHANAN-MILLWOOD W97 @ 3.5~
TEXT,      CLEAR BUCHANAN-MILLWOOD W98 @ 3.5~
TEXT,      CLEAR IP3 GENERATION @ 3.5~
PSAS
1
PSAS0.DAT
RECOVER FROM D2.snp AND DS5.cnv

START OUTPUT DS5_runEX03.out
RUN TO .1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT BUCHANAN  345KV BUS 4313
RUN FOR 3.5 CYCLES PRINT 0 PLOT 3
  TRIP LINE FROM BUCHANAN 345 KV BUS 4313 TO MILLWOOD 345 KV BUS 4341 CKT 1
  TRIP LINE FROM BUCHANAN 345 KV BUS 4313 TO MILLWOOD 345 KV BUS 4341 CKT 2
  DISCONNECT BUS 9582 / IP3
  DISCONNECT BUS 9548 / IP3
CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

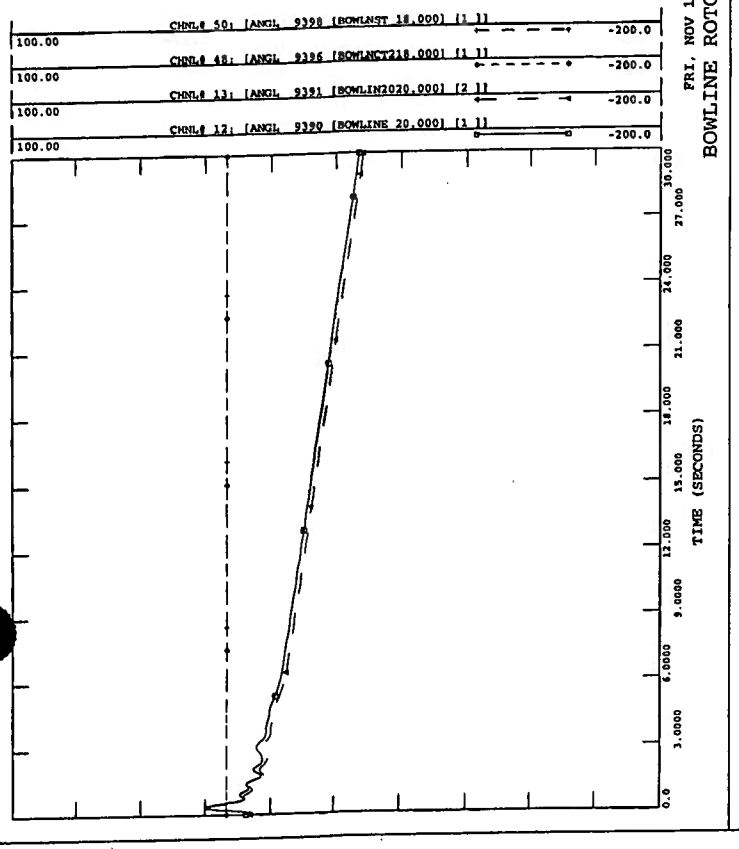
CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out



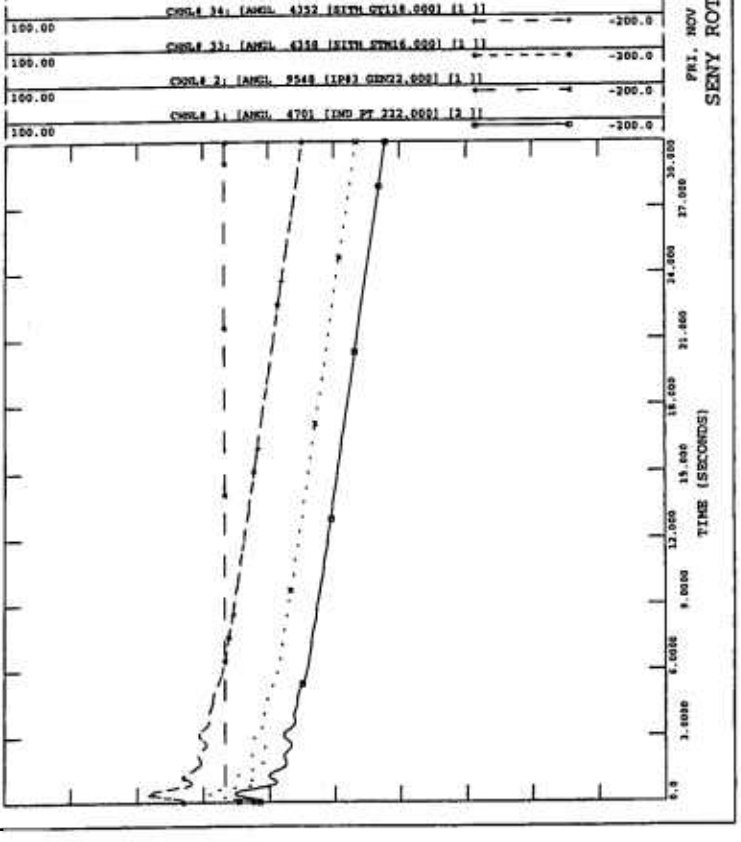
CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out



CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out



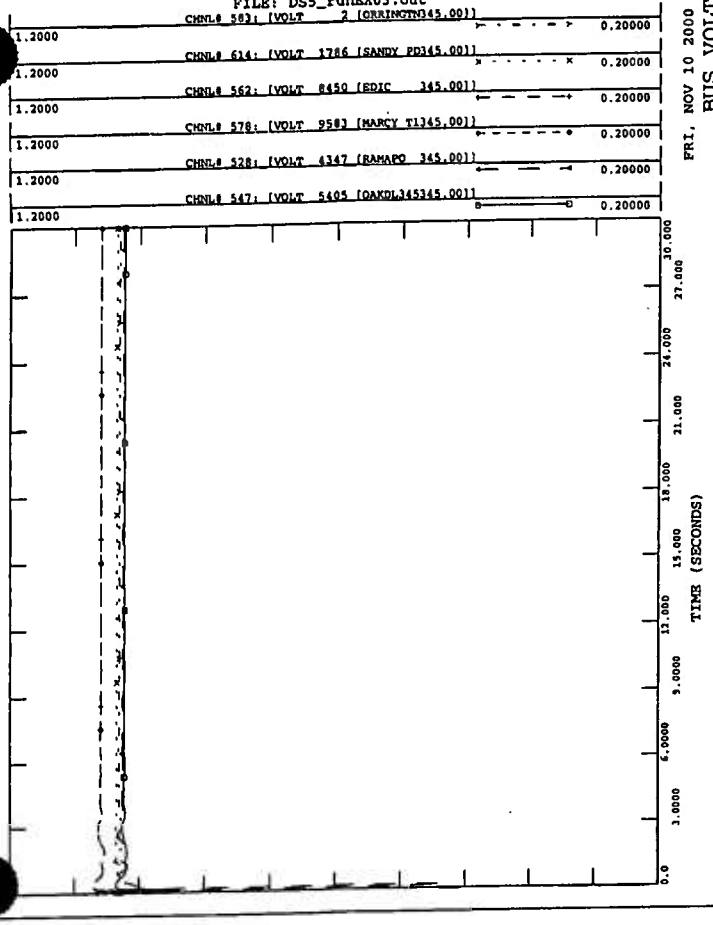
CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out



CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out

FRI, NOV 10 2000 7:09

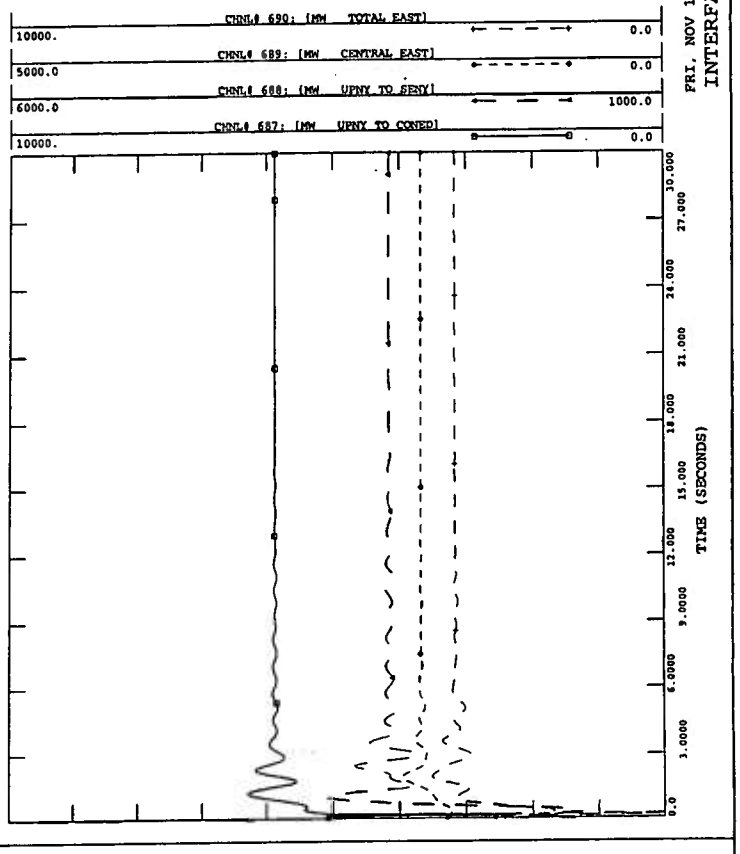
BUS VOLTAGES



CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out

FRI, NOV 10 2000 7:09

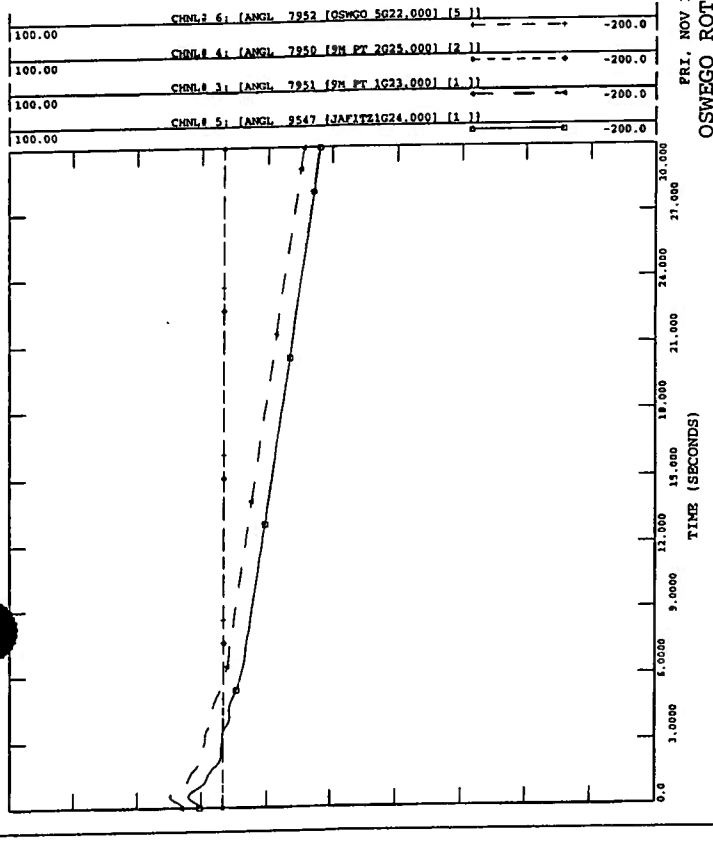
INTERFACE FLOWS



CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out

FRI, NOV 10 2000 7:09

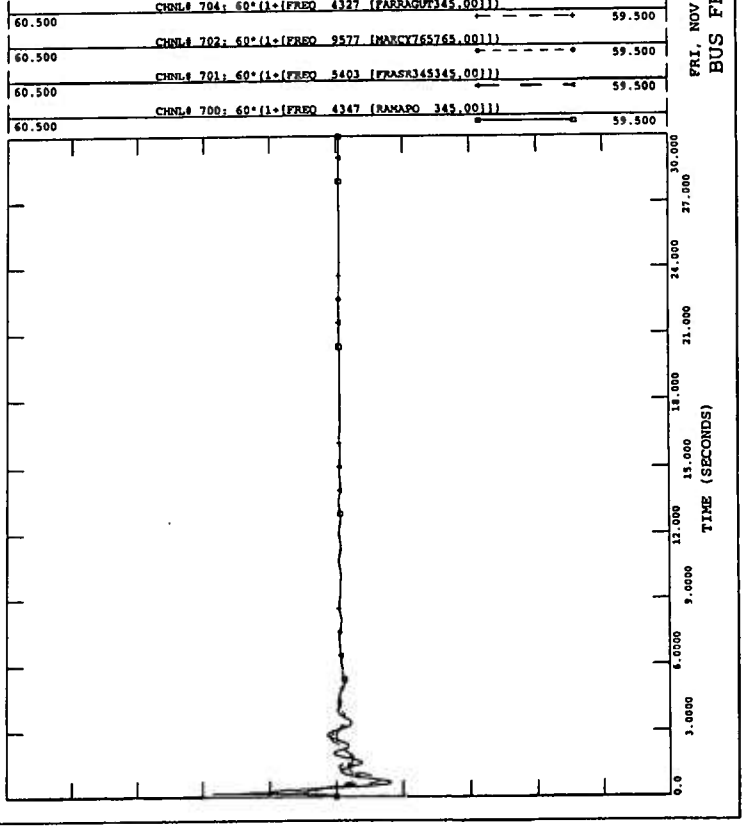
OSWEGO ROTOR ANGLES



CASE DS5: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 OFF
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS5_runEX03.out

FRI, NOV 10 2000 7:09

BUS FREQUENCIES



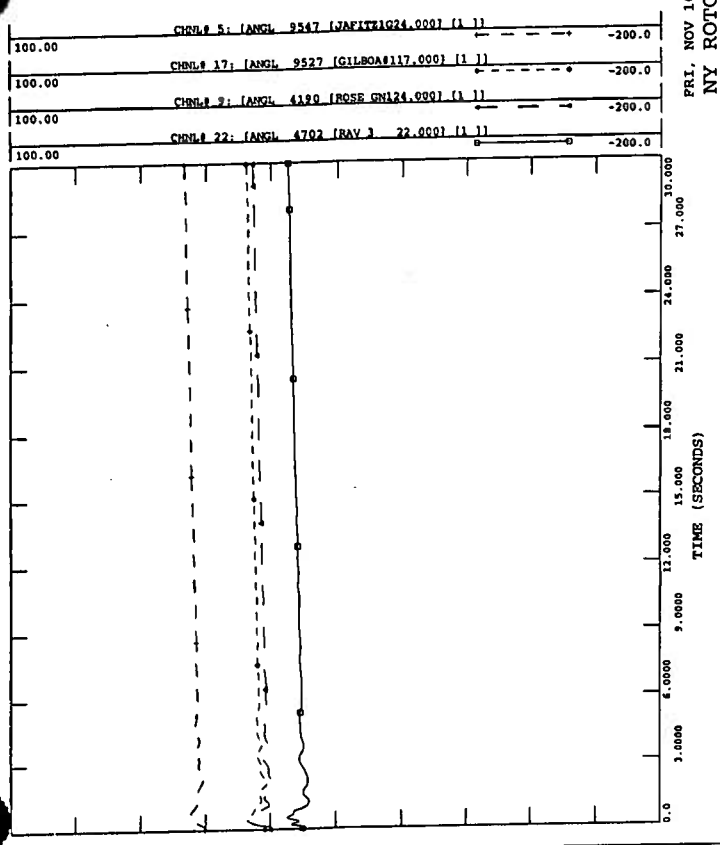
```
TEXT,    EXTREME CONTINGENCY E3, LOSS OF BUCHANAN-MILLWOOD ROW
TEXT,       CLEAR BUCHANAN-MILLWOOD W97 @ 3.5~
TEXT,       CLEAR BUCHANAN-MILLWOOD W98 @ 3.5~
TEXT,       CLEAR IP3 GENERATION @ 3.5~
PSAS
1
PSAS0.DAT
RECOVER FROM D2.snp AND DS6.cnv

START OUTPUT DS6_runEX03.out
RUN TO .1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT BUCHANAN  345KV BUS 4313
RUN FOR 3.5 CYCLES PRINT 0 PLOT 3
  TRIP LINE FROM BUCHANAN 345 KV BUS 4313 TO MILLWOOD 345 KV BUS 4341 CKT 1
  TRIP LINE FROM BUCHANAN 345 KV BUS 4313 TO MILLWOOD 345 KV BUS 4341 CKT 2
  DISCONNECT BUS 9582 / IP3
  DISCONNECT BUS 9548 / IP3
CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

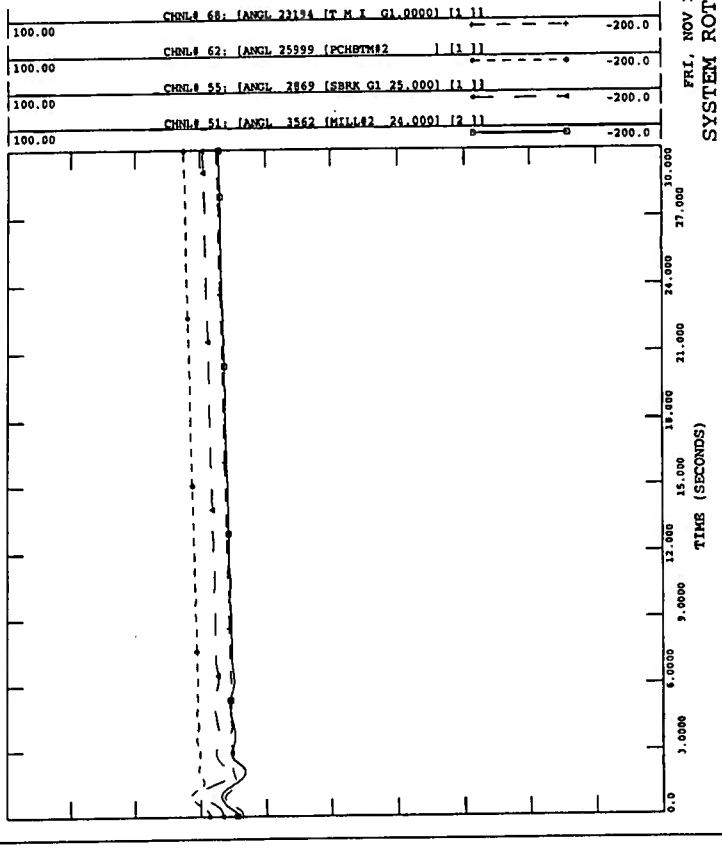
NY ROTOR ANGLES



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

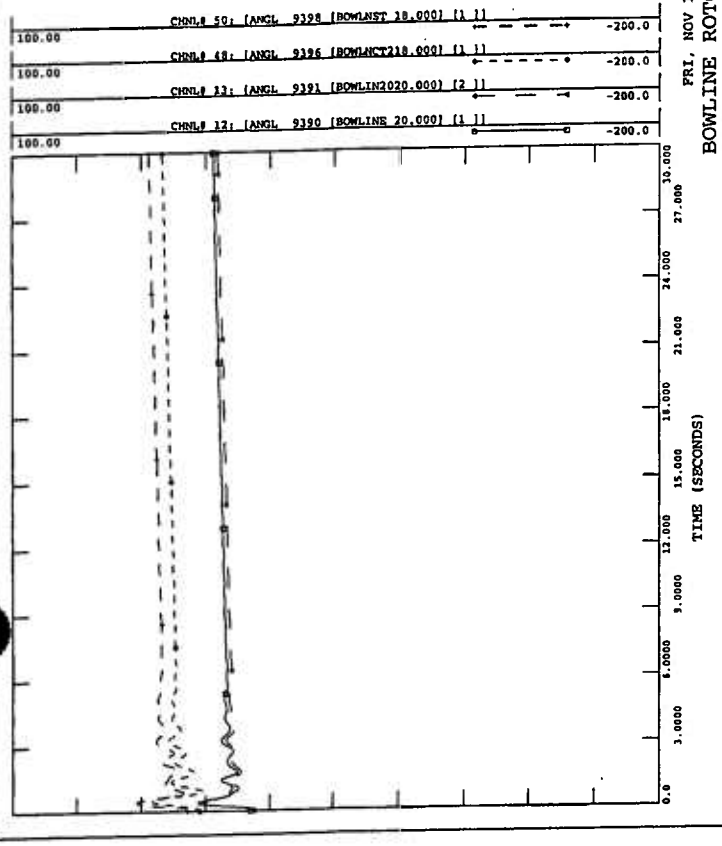
SYSTEM ROTOR ANGLES



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

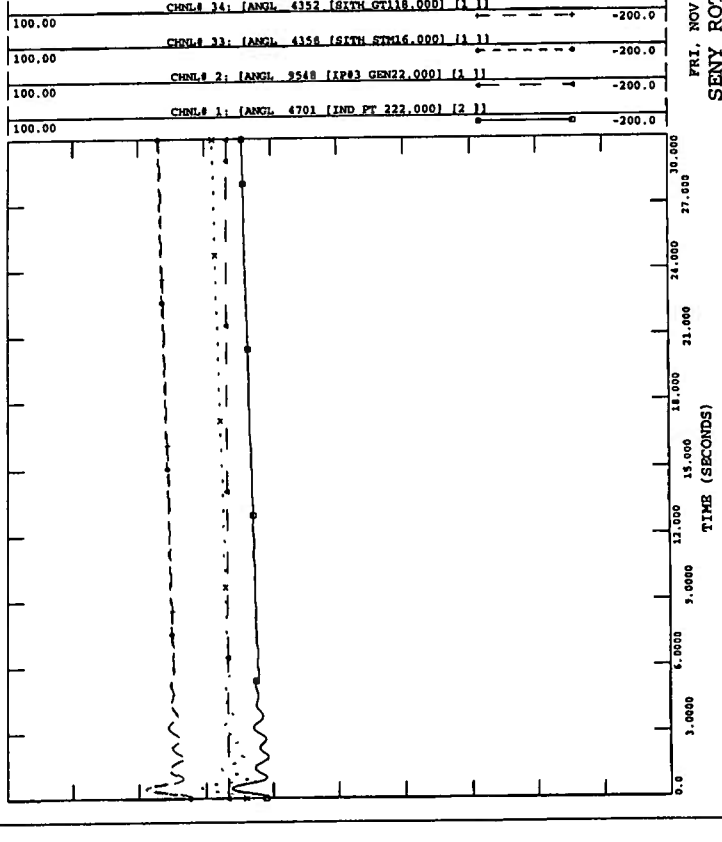
BOWLINE ROTOR ANGLES



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

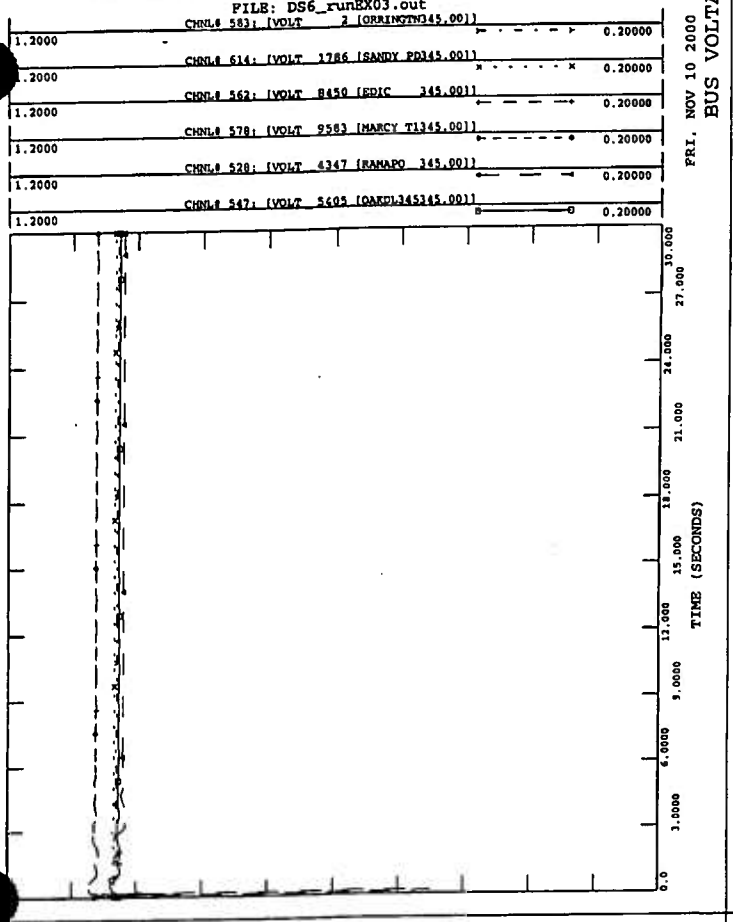
SENY ROTOR ANGLES



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

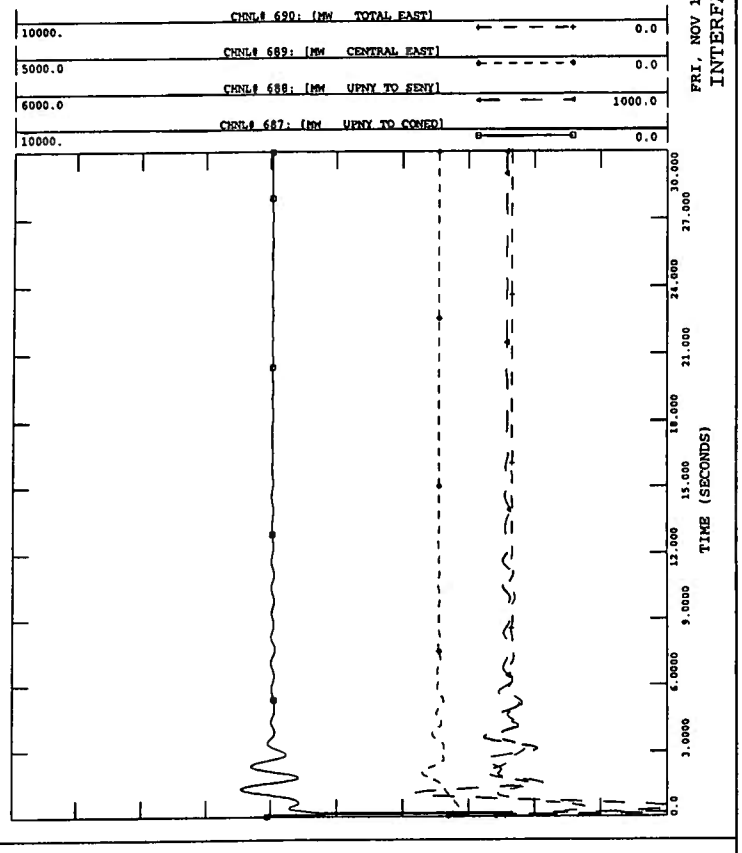
BUS VOLTAGES



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

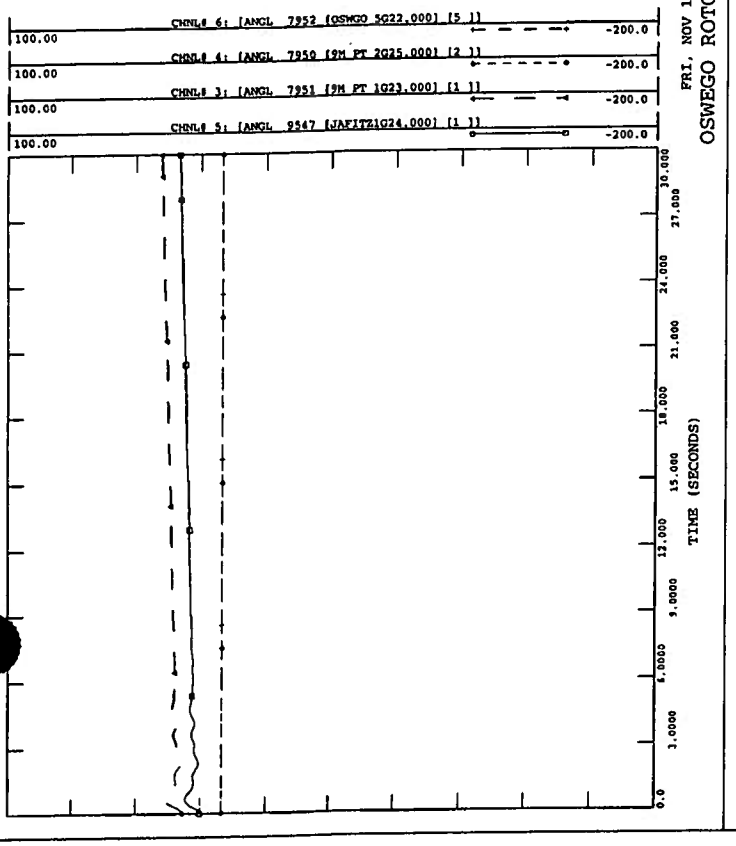
INTERFACE FLOWS



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

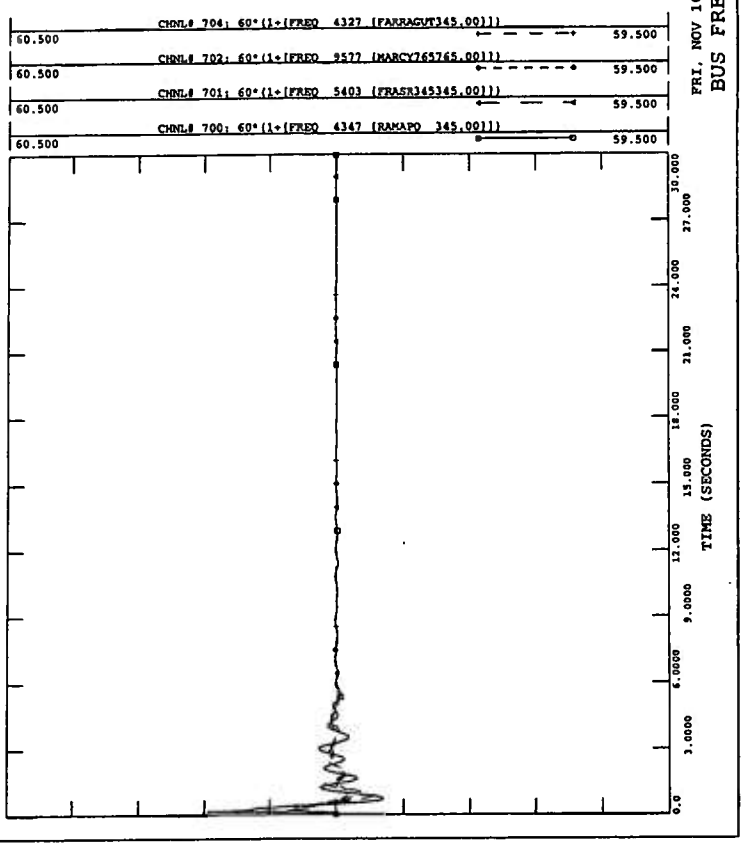
OSWEGO ROTOR ANGLES



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
EXTREME CONTINGENCY 3
LOSS OF BUCHANAN-MILLWOOD 345 KV ROW
FILE: DS6_runEX03.out

FRI, NOV 10 2000 7:09

BUS FREQUENCIES



Appendix

C

SPS Analysis

DS6A_SPS1.out	CASE DS6A: 2001 SUMMER PEAK ATHENS, SITHE, ANP, BOWLINE 1&2 ON – BOWLINE 3 DISPLACNG IP3 L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
DS6_68SPS_Fail.out	CASE DS6: 2001 SUMMER PEAK ATHENS, SITHE, ANP, BOWLINE 1&2 ON – BOWLINE 3 DISPLACNG IP3 3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

```
RECOVER FROM D2.snp AND DS6A.cnv
START OUTPUT DS6A_SPS1.out
RUN TO 0.5 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT LADENTWN 345KV BUS 4340 Y 5163 -52049 MVA
RUN FOR  3.5 CYCLES PRINT 120 PLOT 3 CRTPLT 0
  DISCONNECT BUS 4340 / LADENTOWN 345
  DISCONNECT BUS 9300 / W. HAVERSTRAW NEW CABLE & TRANSFORMER
RUN FOR 8 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  DISCONNECT BUS 9390 / BOWLINE 1
  DISCONNECT BUS 9391 / BOWLINE 2
  DISCONNECT BUS 9395 / BOWLINE 3 CT 1
  DISCONNECT BUS 9396 / BOWLINE 3 CT 2
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0
END
```

CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

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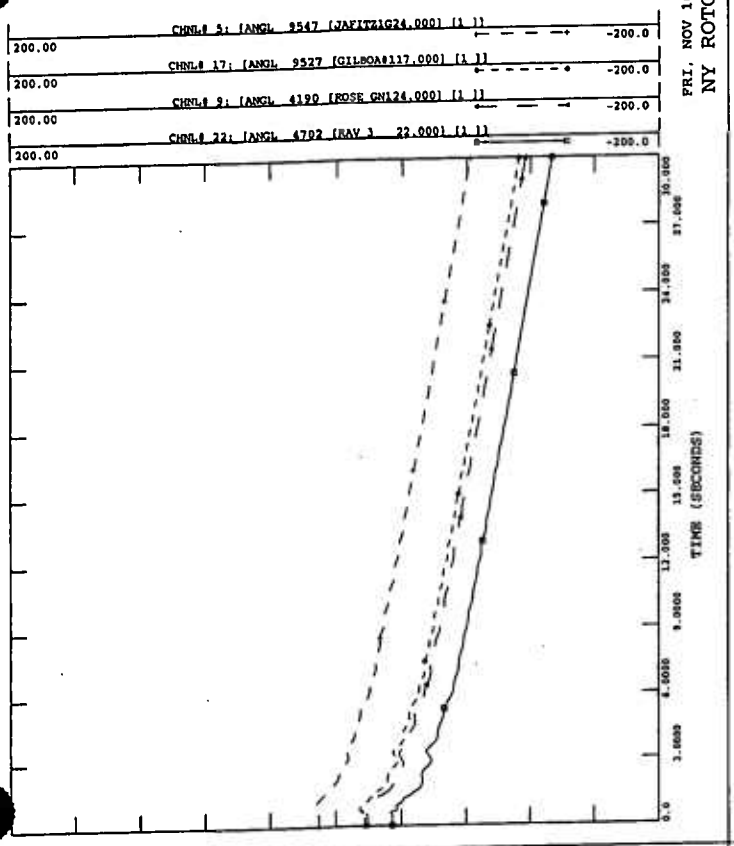
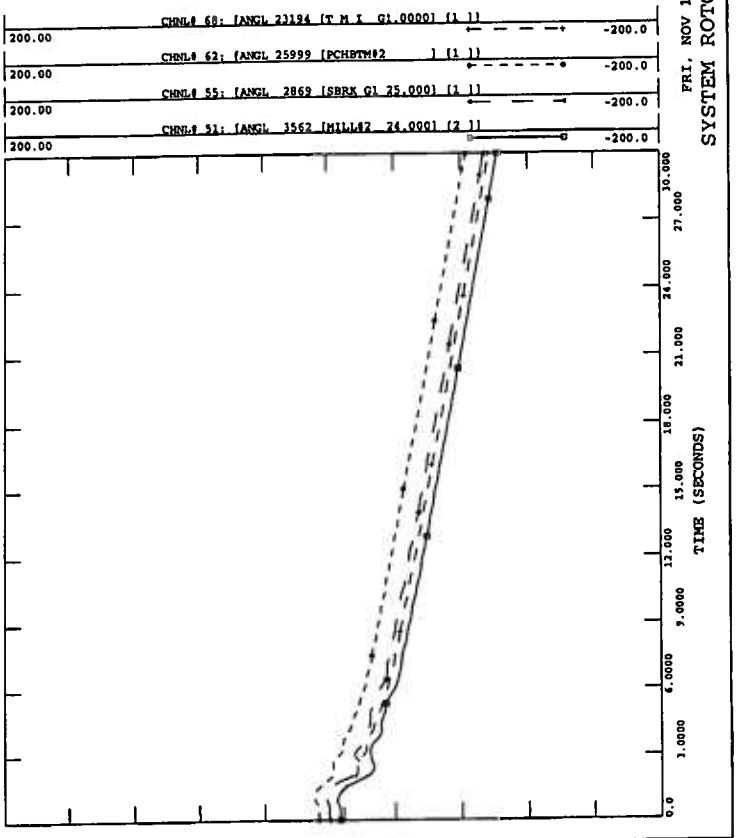
NY ROTOR ANGLES



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

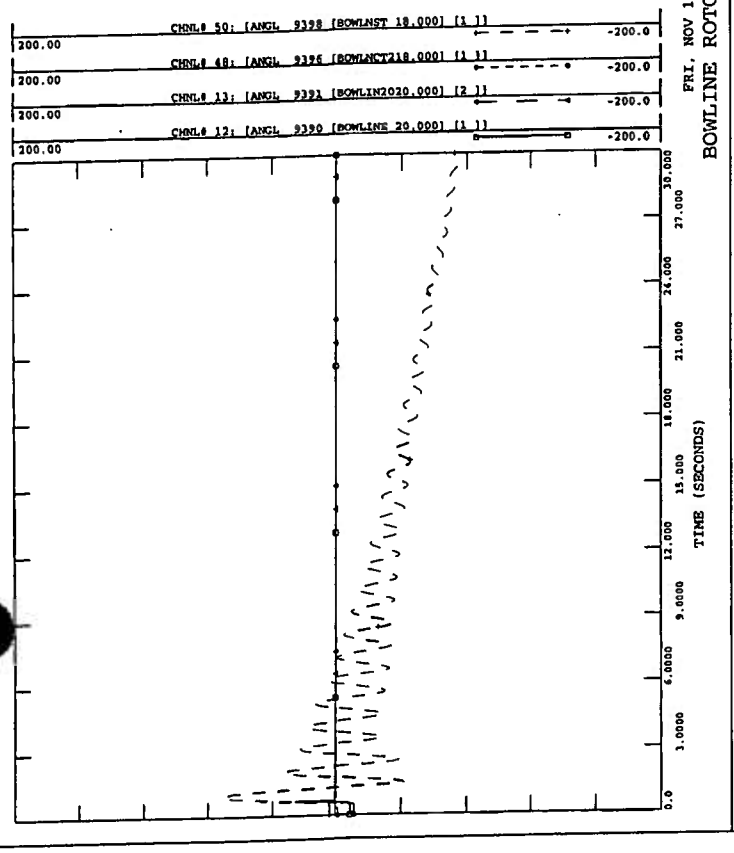
SYSTEM ROTOR ANGLES



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

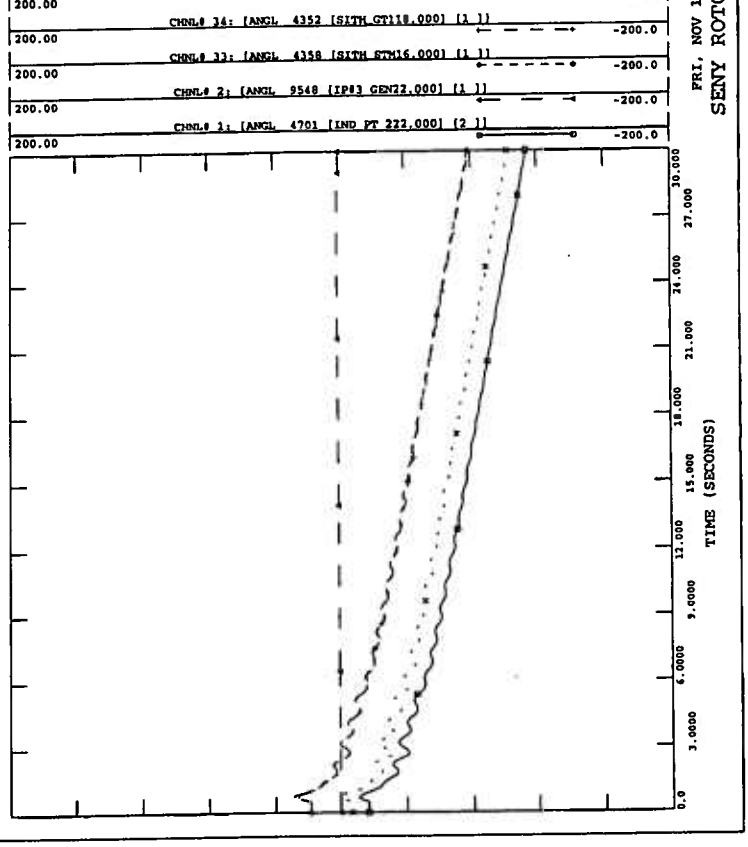
BOWLINE ROTOR ANGLES



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

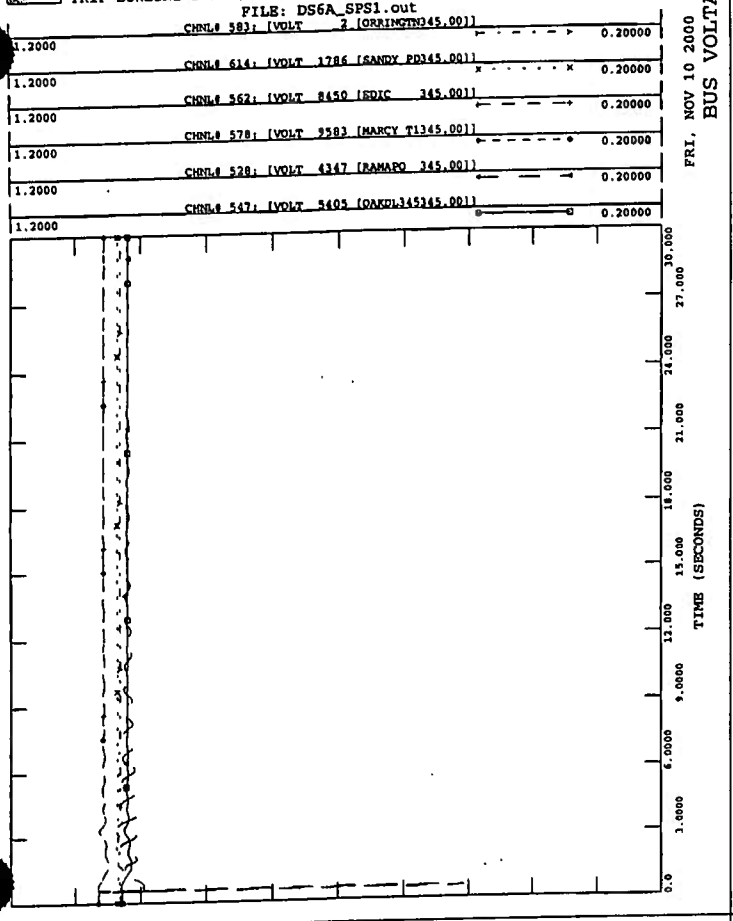
SENY ROTOR ANGLES



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

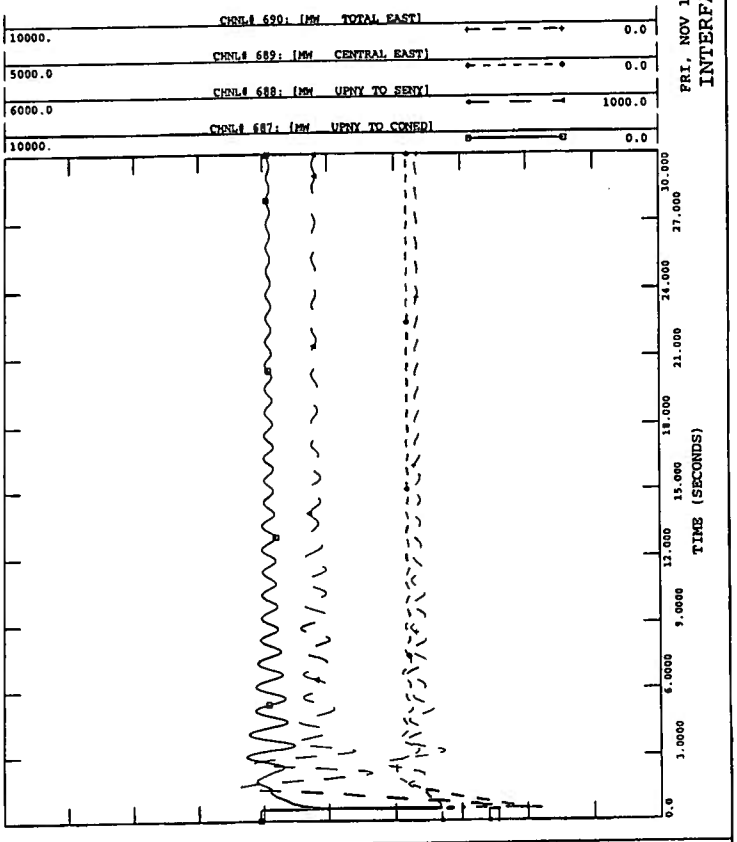
BUS VOLTAGES



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

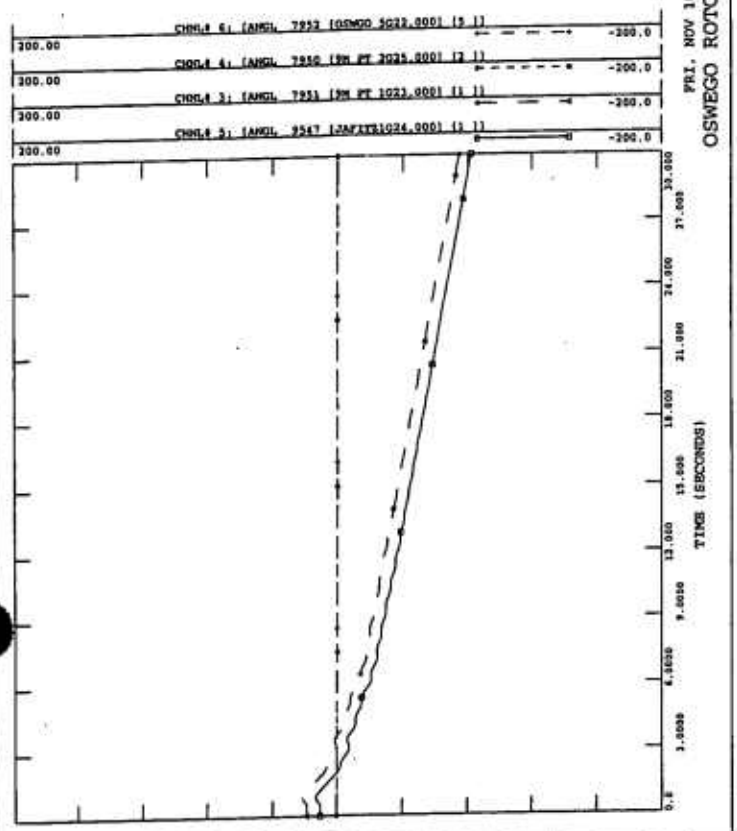
INTERFACE FLOWS



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

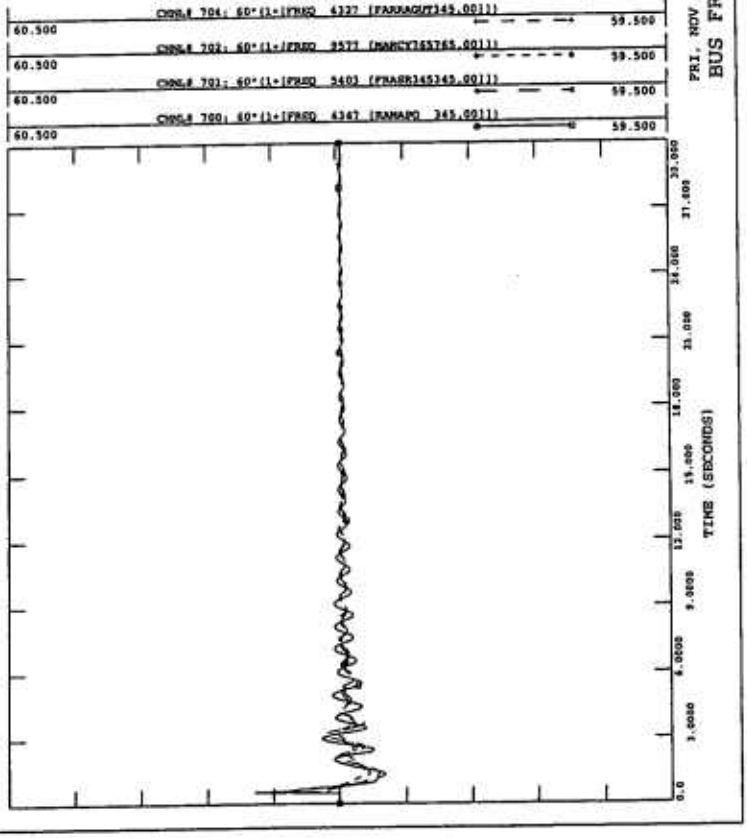
OSWEGO ROTOR ANGLES



CASE DS6A: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
L-G FAULT ON 67 & 68 LINES, CLEAR IN 3.5 CYCLES
TRIP BOWLINE 1 & 2, BOWLINE 3 CT1 & CT2 AFTER 8 CYCLES
FILE: DS6A_SPS1.out

FRI, NOV 10 2000 9:16

BUS FREQUENCIES

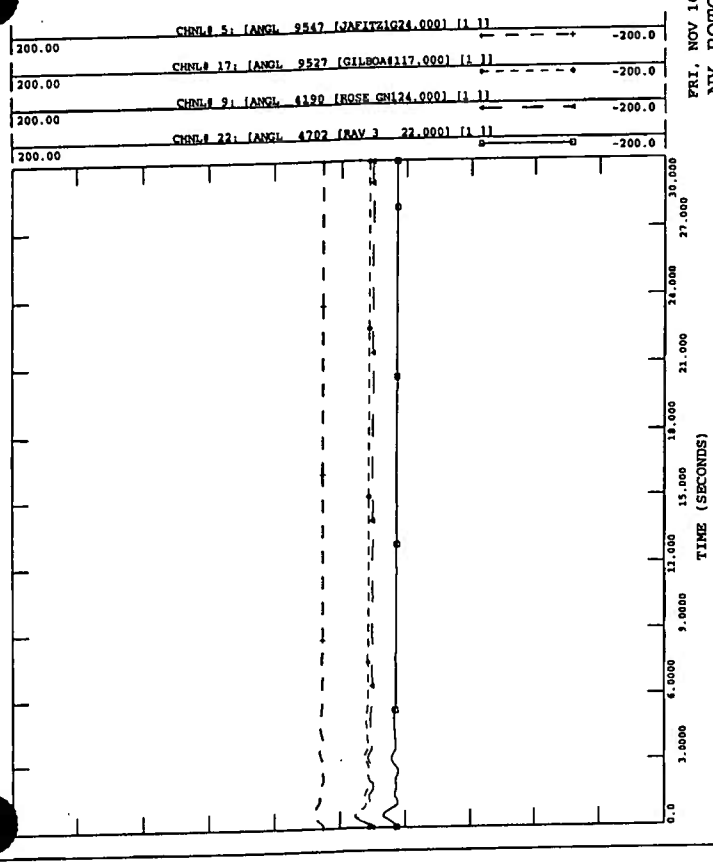


```
RECOVER FROM D2.snp AND DS6.cnv
START OUTPUT DS6_68SPS_Fail.out
RUN TO 0.1 SECOND PRINT 0 PLOT 3 CRTPLT 0
  APPLY FAULT AT BOWLINE 345KV BUS 4310
RUN FOR  3.5 CYCLES PRINT 0 PLOT 3 CRTPLT 0
  DISCONNECT BUS 9300
  CLEAR FAULT
RUN FOR 2 SECONDS PRINT 0 PLOT 5 CRTPLT 0
RUN TO 30 SECONDS PRINT 0 PLOT 7 CRTPLT 0

END
```

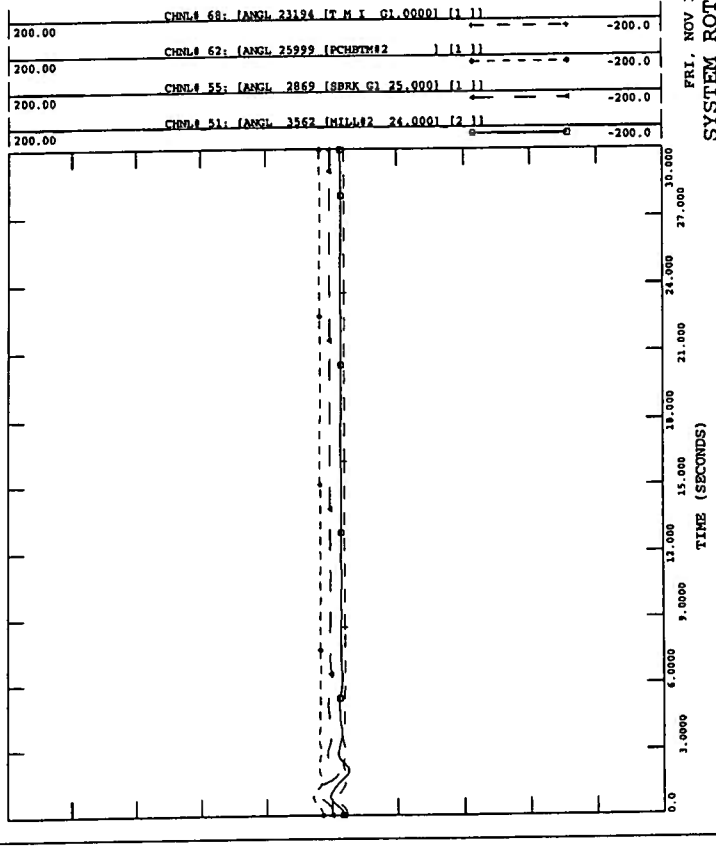
CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

FILE: DS6_68SPS_FAIL.out



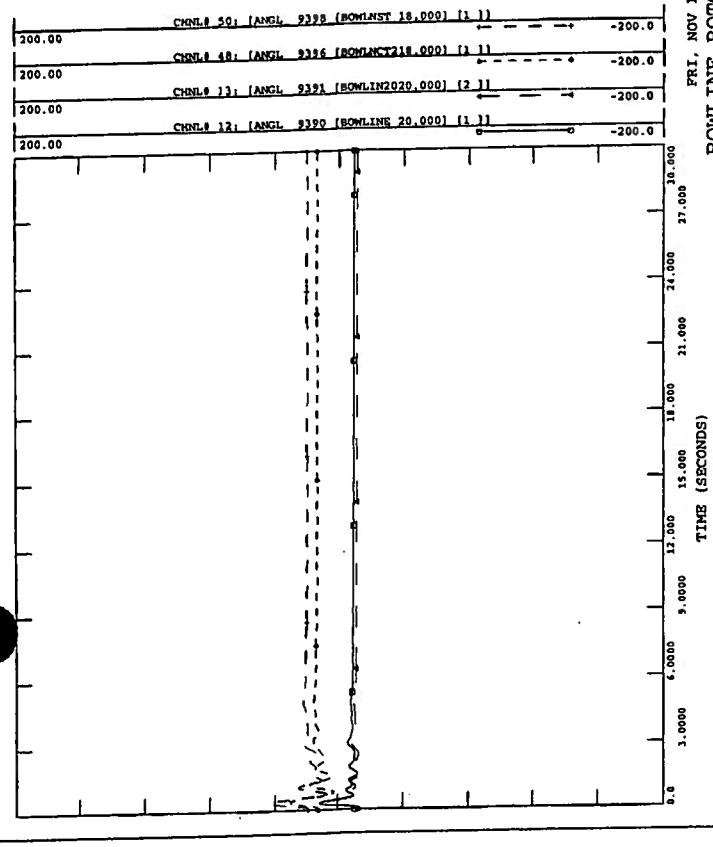
CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

FILE: DS6_68SPS_FAIL.out



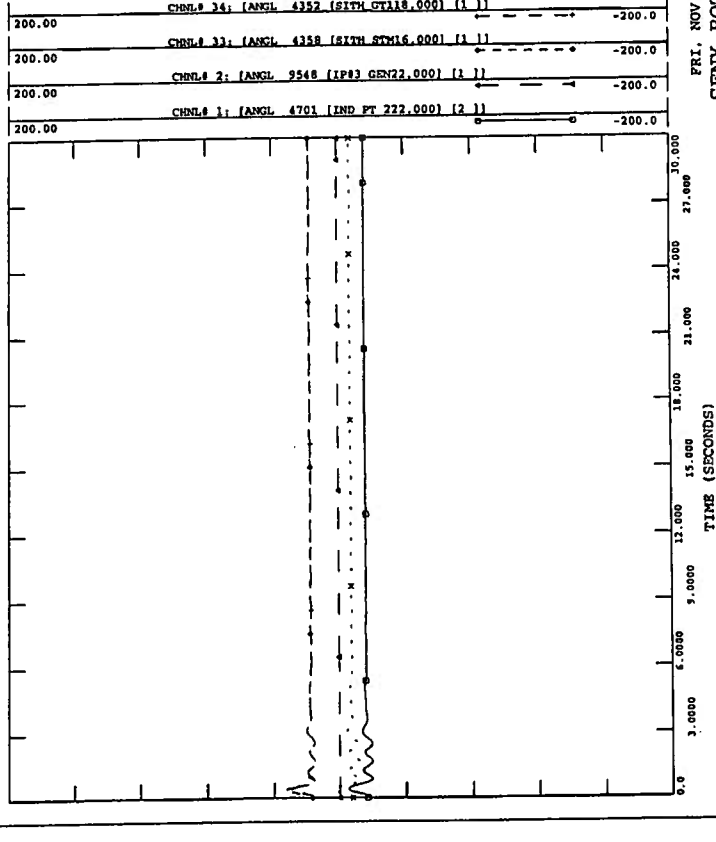
CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

FILE: DS6_68SPS_FAIL.out



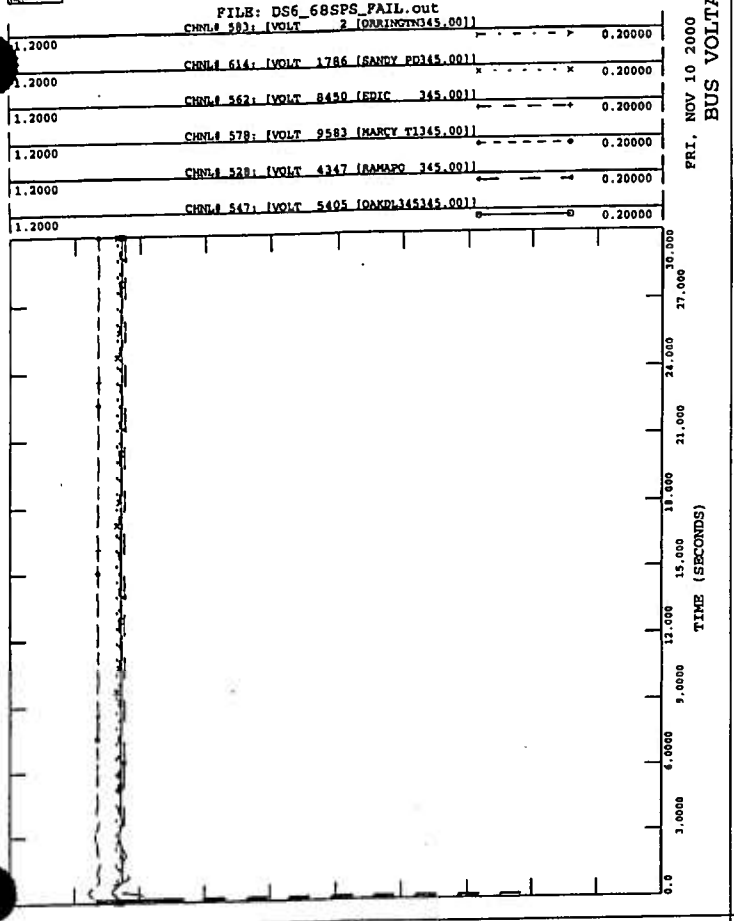
CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

FILE: DS6_68SPS_FAIL.out



CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

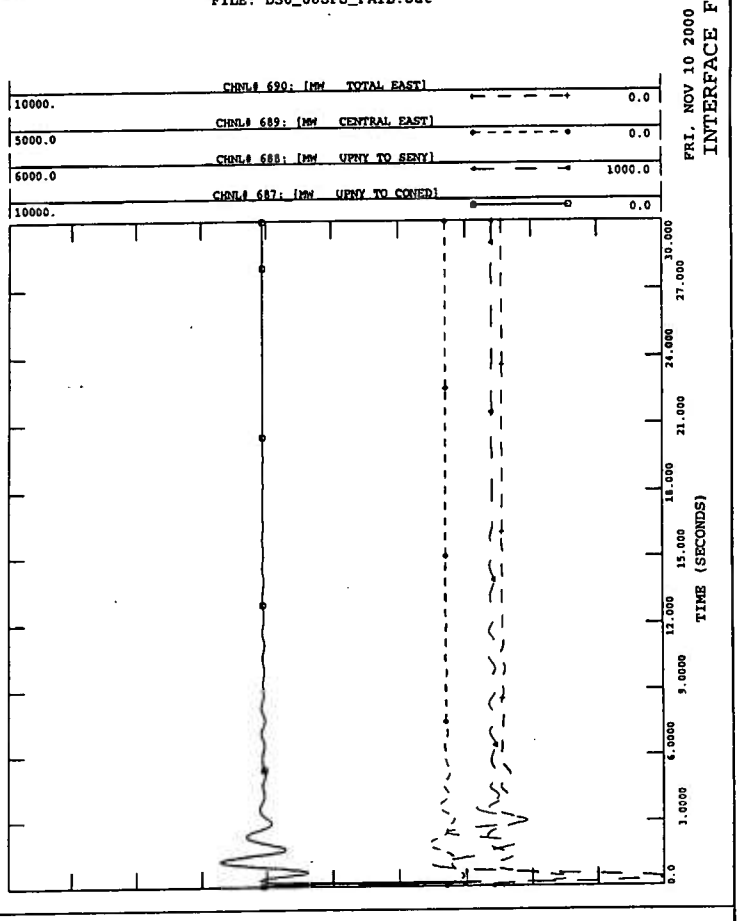
FILE: DS6_68SPS_FAIL.out



FRI, NOV 10 2000 11:35
BUS VOLTAGES

CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

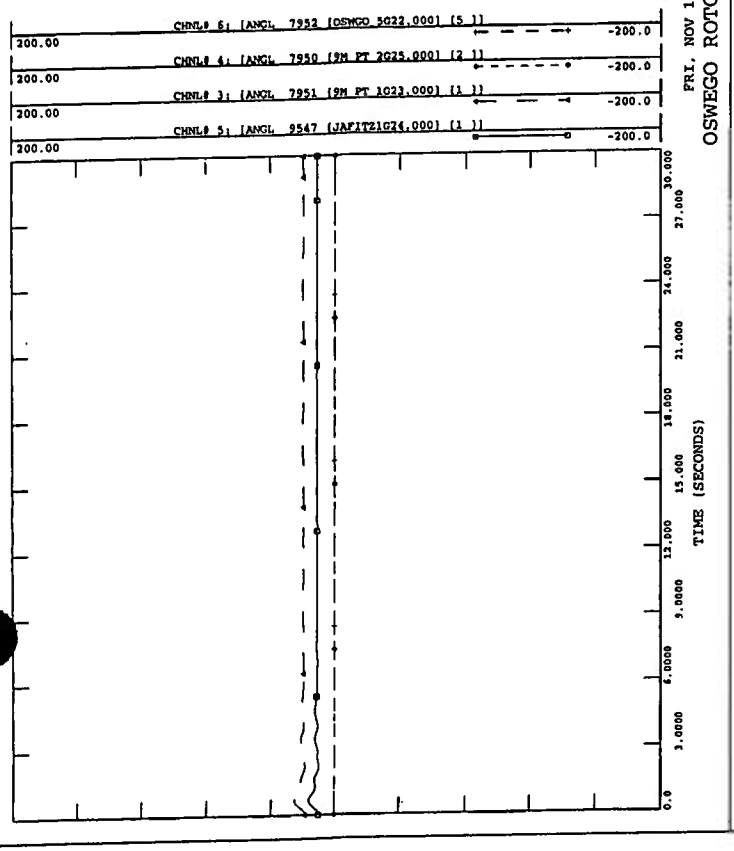
FILE: DS6_68SPS_FAIL.out



FRI, NOV 10 2000 11:35
INTERFACE FLOWS

CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

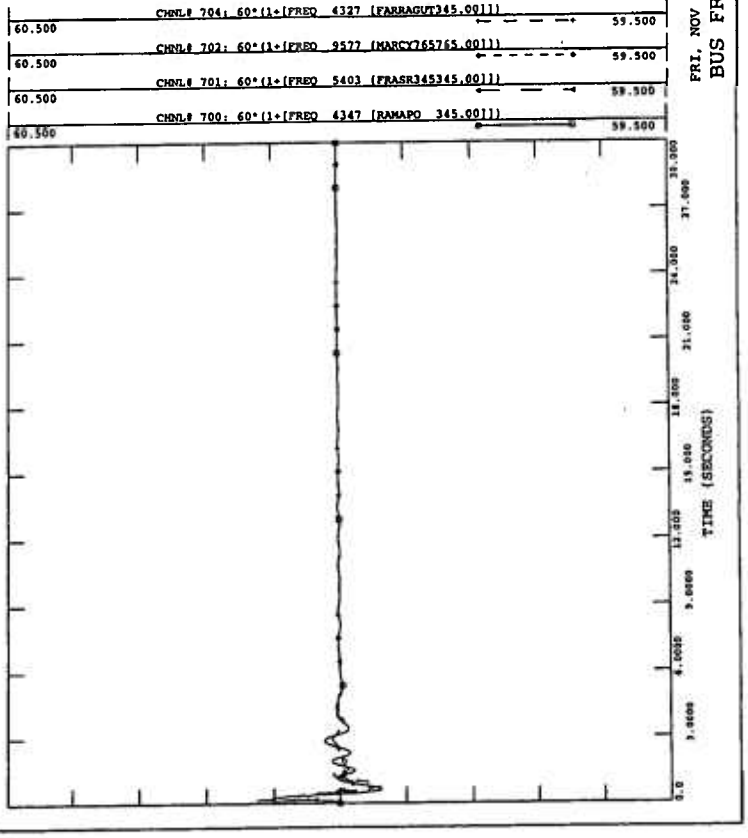
FILE: DS6_68SPS_FAIL.out



FRI, NOV 10 2000 11:35
OSWEGO ROTOR ANGLES

CASE DS6: 2001 SUMMER PEAK
ATHENS, SITHE, ANP, BOWLINE 1&2 ON - BOWLINE 3 DISPLACNG IP3
3-PH FAULT ON LINE 68 AT BOWLINE, CLEAR IN 3.5 CYCLES

FILE: DS6_68SPS_FAIL.out



FRI, NOV 10 2000 11:35
BUS FREQUENCIES