Appendix A

Apalachicola-Chattahoochee-Flint

Charts depicting flows and shortages relative to flow regime by planning node for current conditions model.

1. Whitesburg
2. Columbus
3. Columbia
4. Montezuma
5. Bainbridge

Chart type 1 is a pie chart that shows the percentage of daily flows above and below the adjusted flow regime. The percentage of time above the adjusted flow regime is an indication of how often the flow regime can be met and withdrawals can be made.

Chart type 2 shows the percentage of time that flows are below the adjusted flow regime for each month of the year, indicating months in which water availability is most constrained. The higher the percentage, the more often there are shortfalls, hence more water availability constraints.

Chart type 3 shows certain monthly statistics during periods of shortfalls. Namely, average simulated river flows, average adjusted flow regime flows, and average unimpaired flows are shown by line plots. In addition, each month's average shortfall and the range between the largest and smallest shortfall are shown by bar plots. This chart shows the magnitude of a shortfall for a given month relative to the typical flows available during the month only on the days shortfalls occur. Flows for days without shortfalls are not included in generating these statistics.

Chart type 4 shows plots of monthly values of the adjusted flow regime and the 10-percentile (the lowest 10 percent of unimpaired flows), the 50-percentile (mid-range flows), and 90-percentile (all but the top 10 percent) flows. This range of percentiles covers dry, median, and wet conditions, respectively. The chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream if there were no effects of human development.

Chart type 5 shows plots of monthly values of the adjusted flow regime and the lowest 10 percent of simulated flows, i.e., 10-percentile flows, 50-percentile flows, and 90-percentile flows. This chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream under current condition assumptions.

Chart type 6 shows the daily storage and seasonal top of conservation curve for a given reservoir over the period of record. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 7 shows the percentage of storage remaining relative to the seasonal top of conservation pool for a given reservoir over the period of record. The reservoir is 100 percent full when the level is at or above the rule curve. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 8 shows the percentage of time that the remaining storage of a given reservoir is above a given percentage relative to the rule curve. The reservoir is 100 percent full when the level is at or above the rule curve. Storage remaining in the reservoir reflects magnitude and timing of demands.

AFR = Adjusted Flow Regime

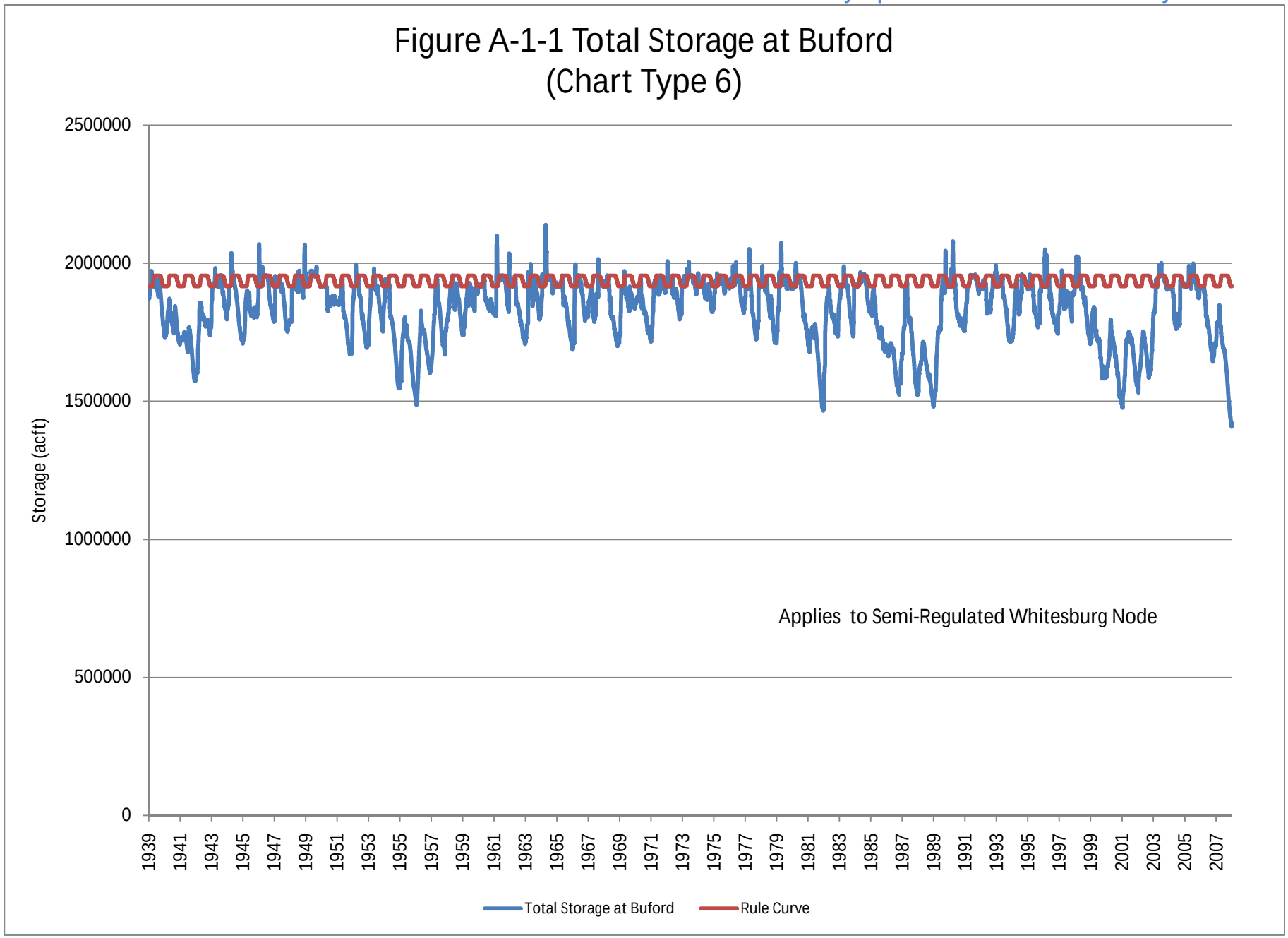


Figure A-1-1 Total Storage at Buford
(Chart Type 6)
Storage (acft)
2500000
2000000
1500000
1000000
500000
0
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Whitesburg Node
Total Storage at Buford
Rule Curve

Figure A-1-2 Percent of Total Storage at Buford Relative to Rule Curve
(Chart Type 7)

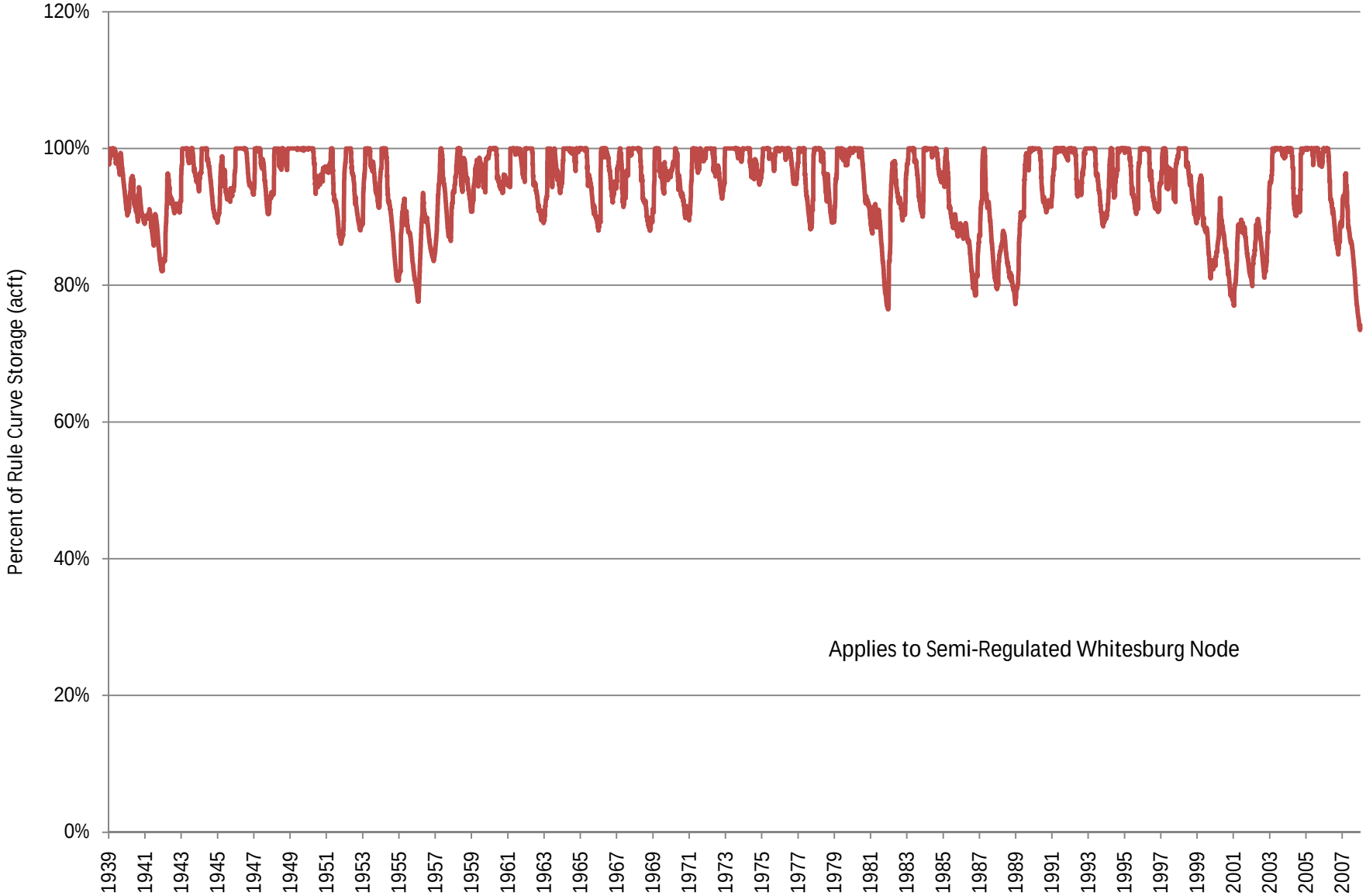
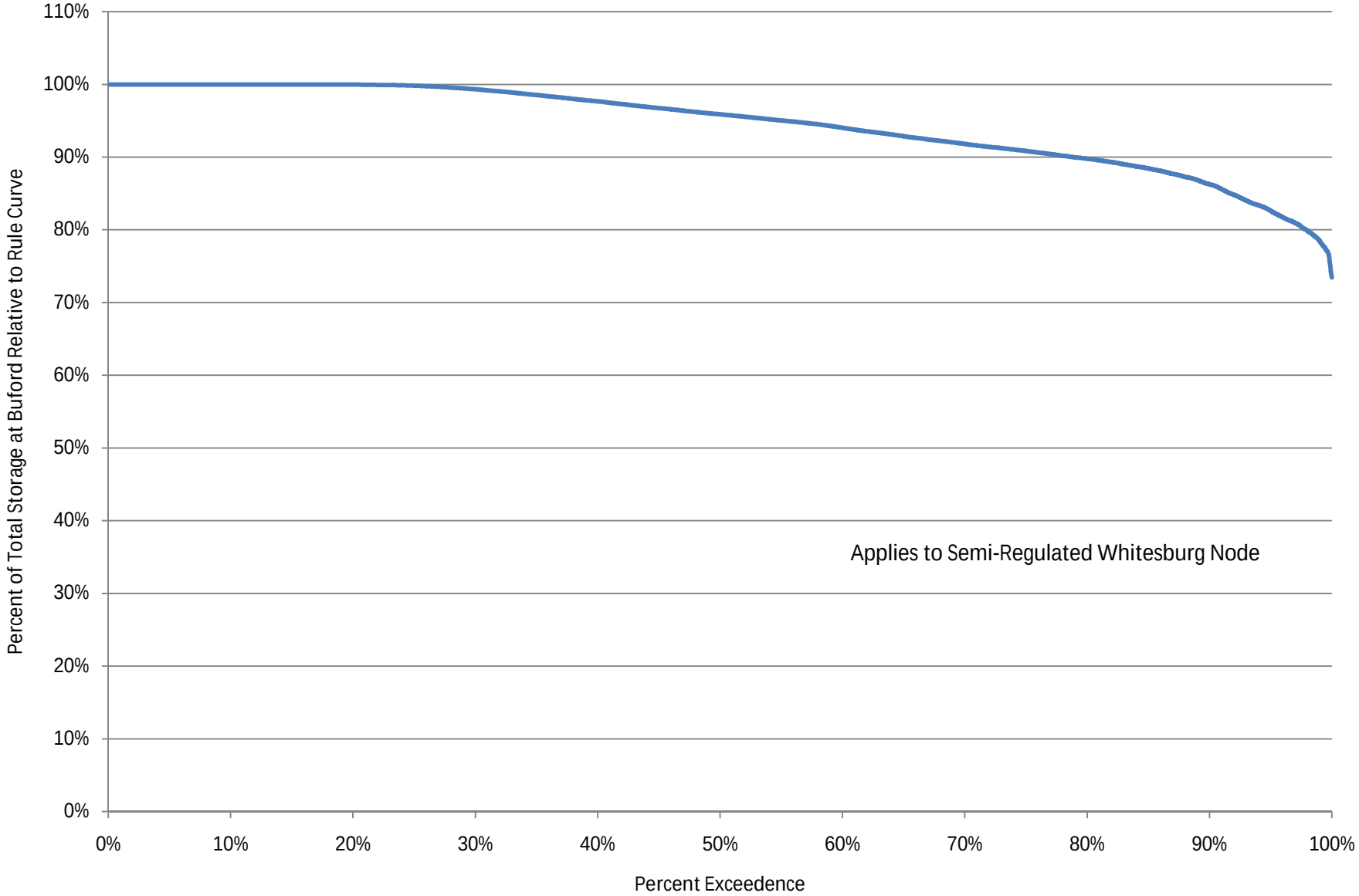


Figure A-1-3 Frequency of Exceedence of Percent Total Storage at Buford Relative to Rule Curve
(Chart Type 8)



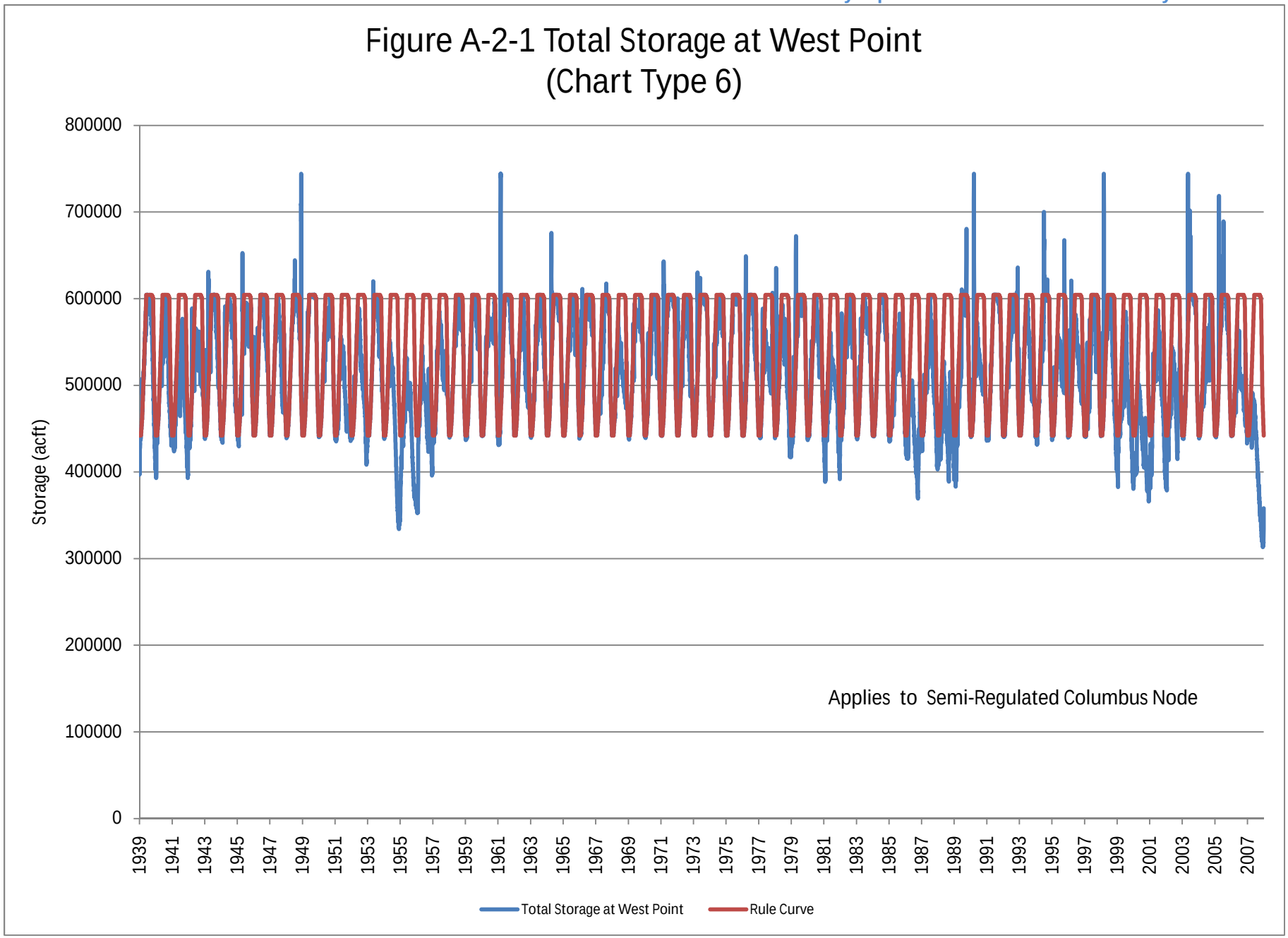


Figure A-2-1 Total Storage at West Point
(Chart Type 6)
Storage (acft)
800000
700000
600000
500000
400000
300000
200000
100000
0
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Columbus Node
Total Storage at West Point
Rule Curve

Figure A-2-2 Percent of Total Storage at West Point Relative to Rule Curve (Chart Type 7)

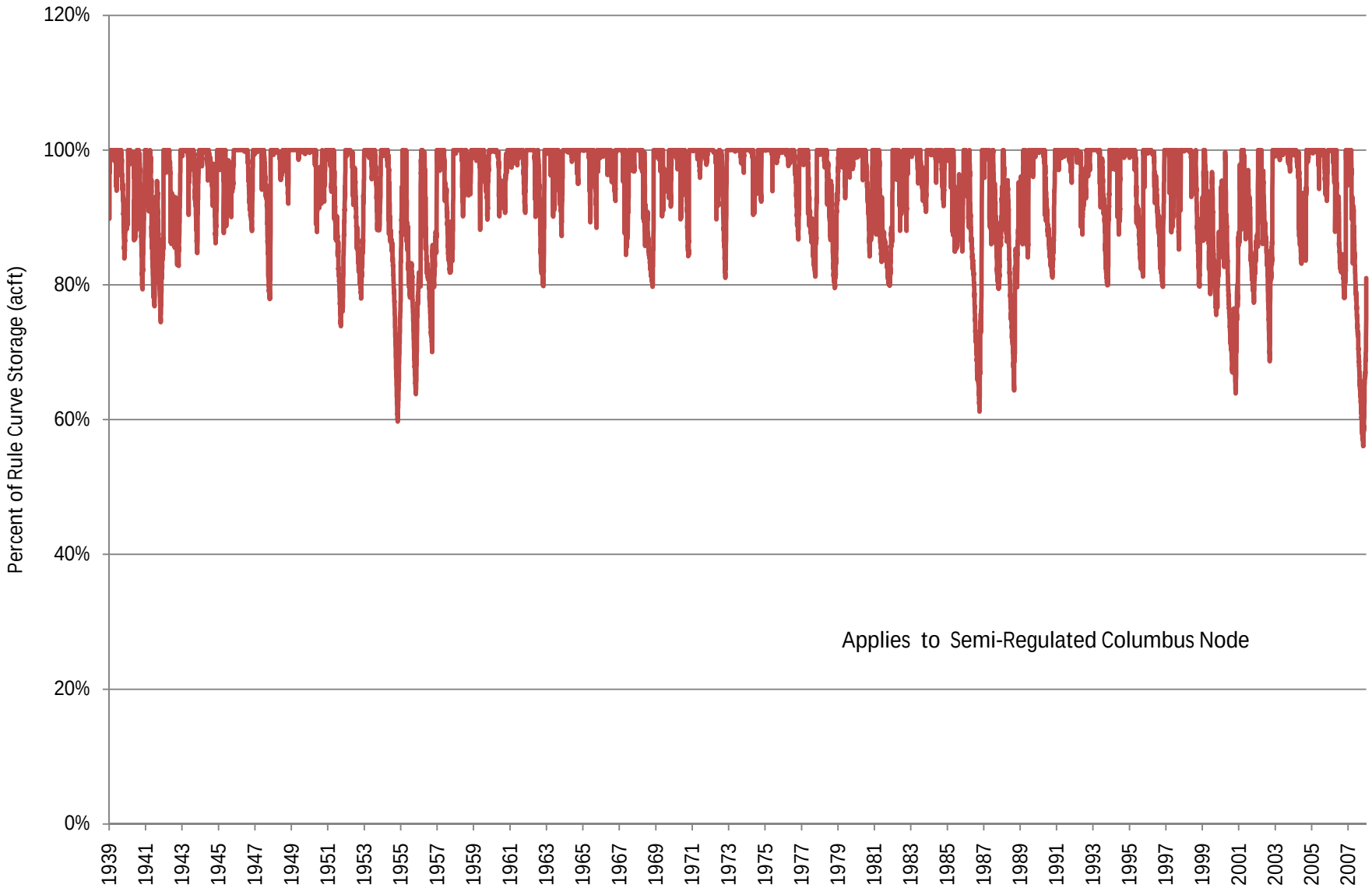
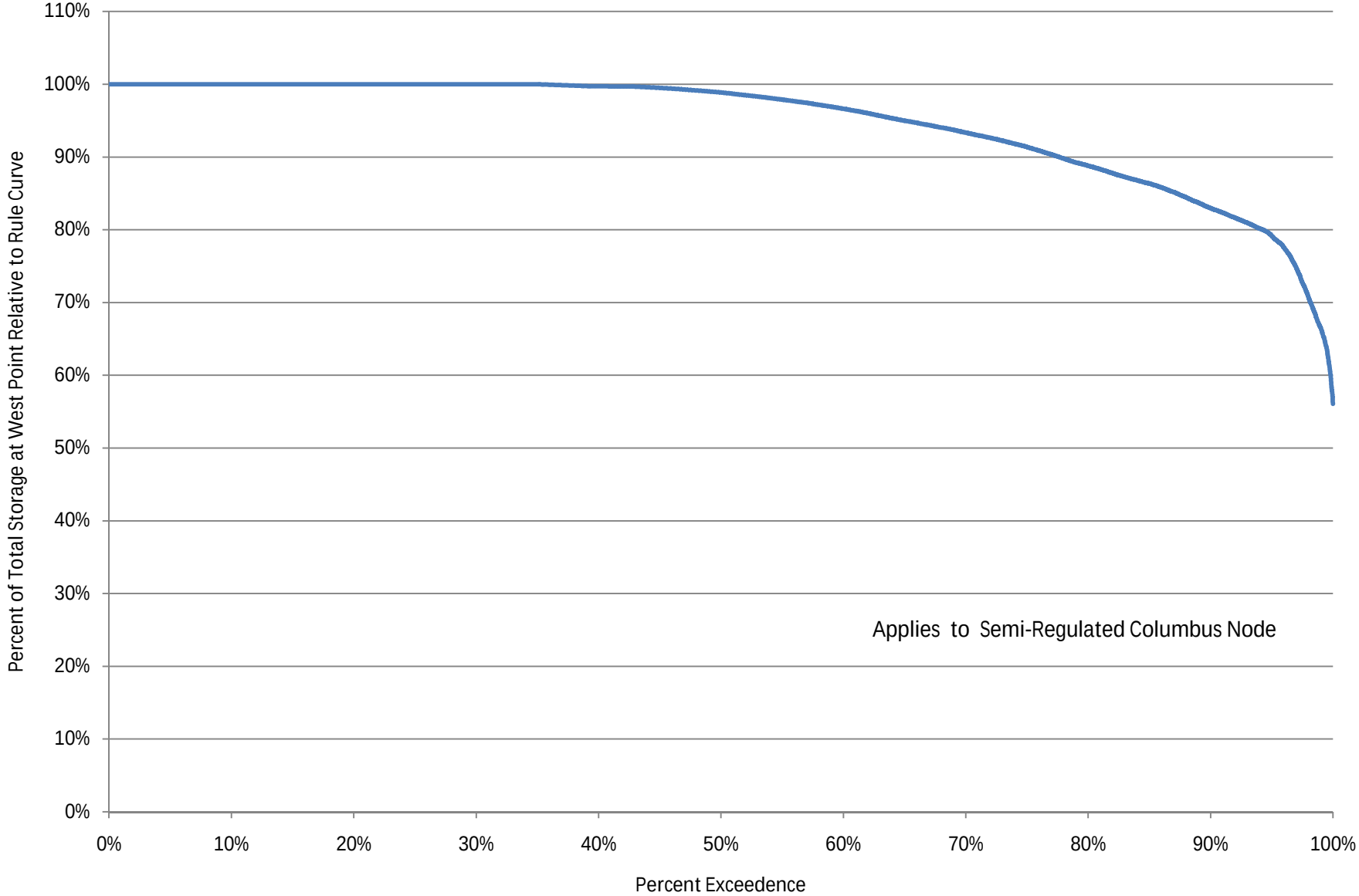


Figure A-2-3 Frequency of Exceedence of Percent Total Storage at West Point Relative to Rule Curve
(Chart Type 8)



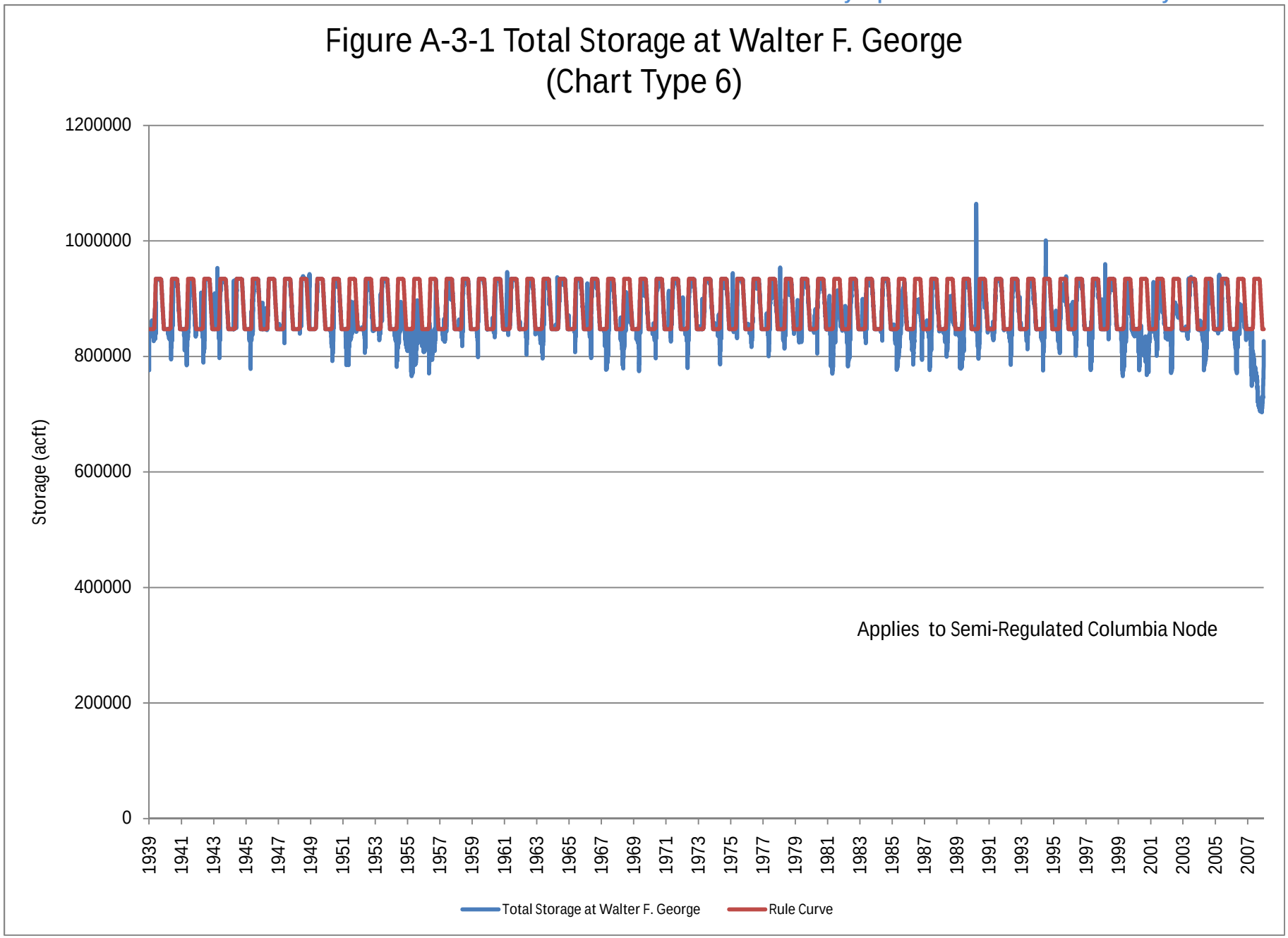


Figure A-3-1 Total Storage at Walter F. George
(Chart Type 6)
Storage (acft)
1200000
1000000
800000
600000
400000
200000
0
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Columbia Node
Total Storage at Walter F. George
Rule Curve

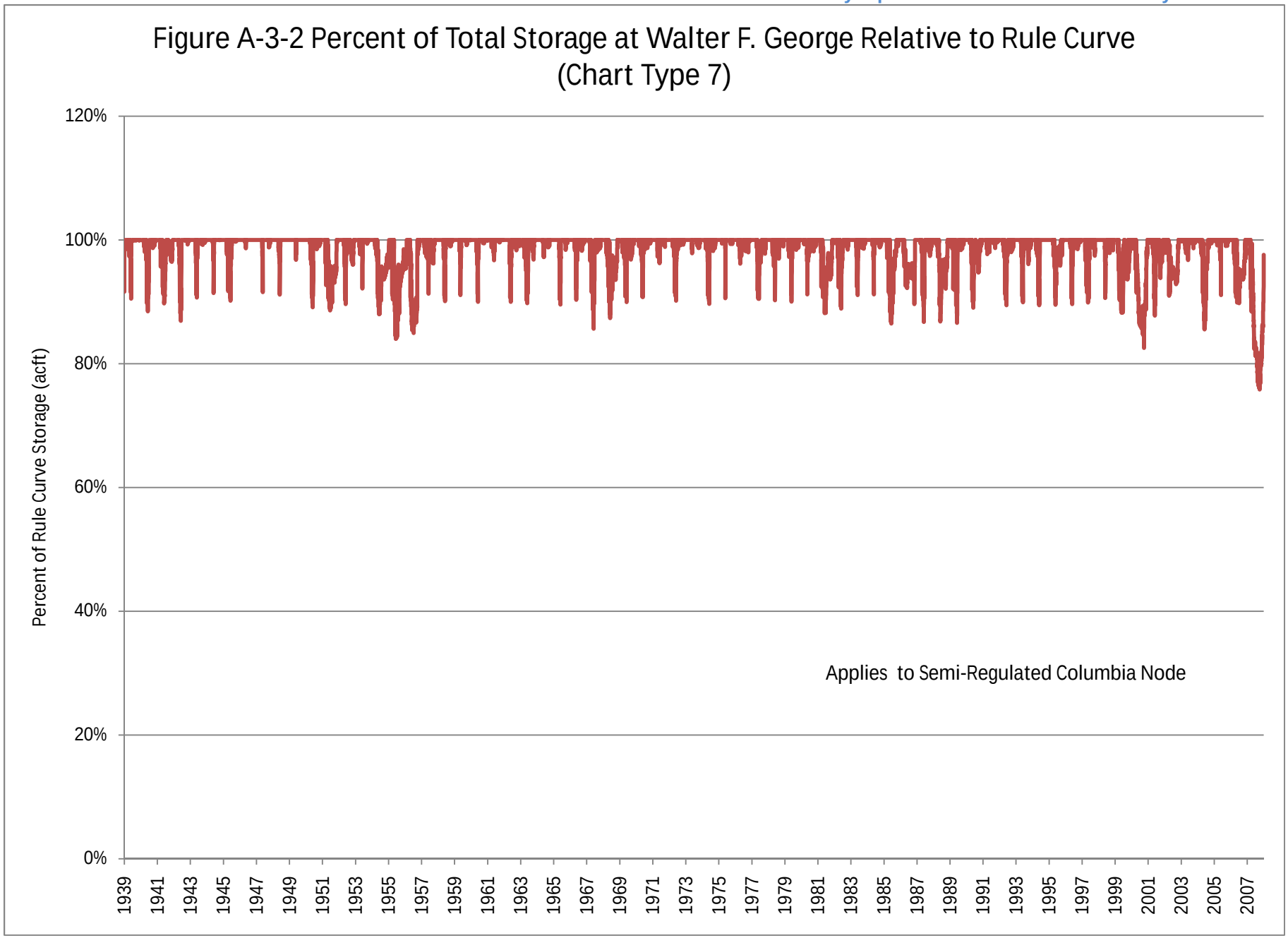


Figure A-3-2 Percent of Total Storage at Walter F. George Relative to Rule Curve
(Chart Type 7)
Percent of Rule Curve Storage (acft)
120%
100%
80%
60%
40%
20%
0%
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Columbia Node

Figure A-3-3 Frequency of Exceedence of Percent Total Storage at Walter F. George Relative to Rule Curve
(Chart Type 8)

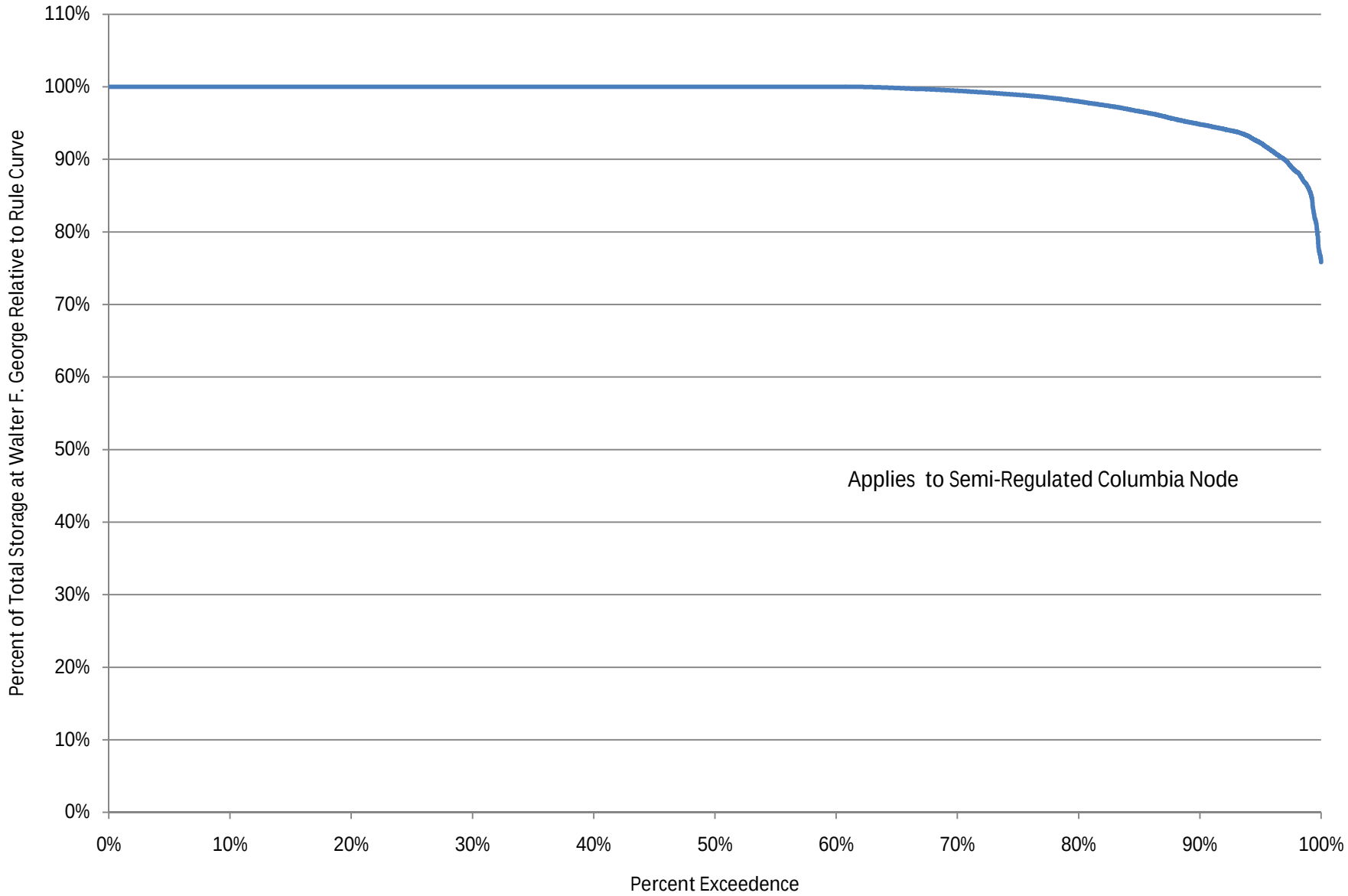


Figure A-4-1 Average Percentage of Flow Compared to Flow Regime at Montezuma (Chart Type 1)

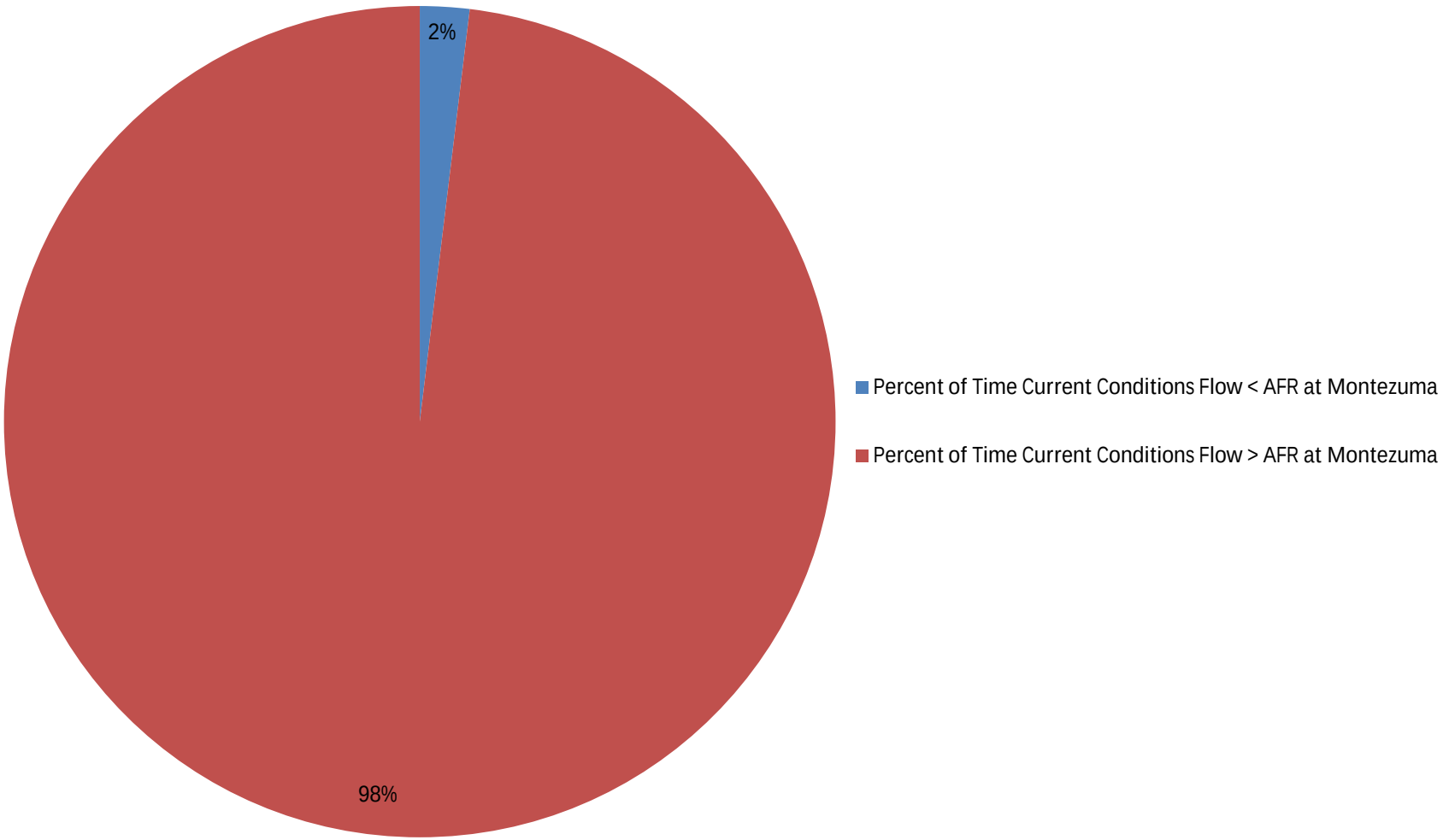


Figure A-4-2 Current Conditions Flows Less Than Adjusted Flow Regime at Montezuma (Chart Type 2)

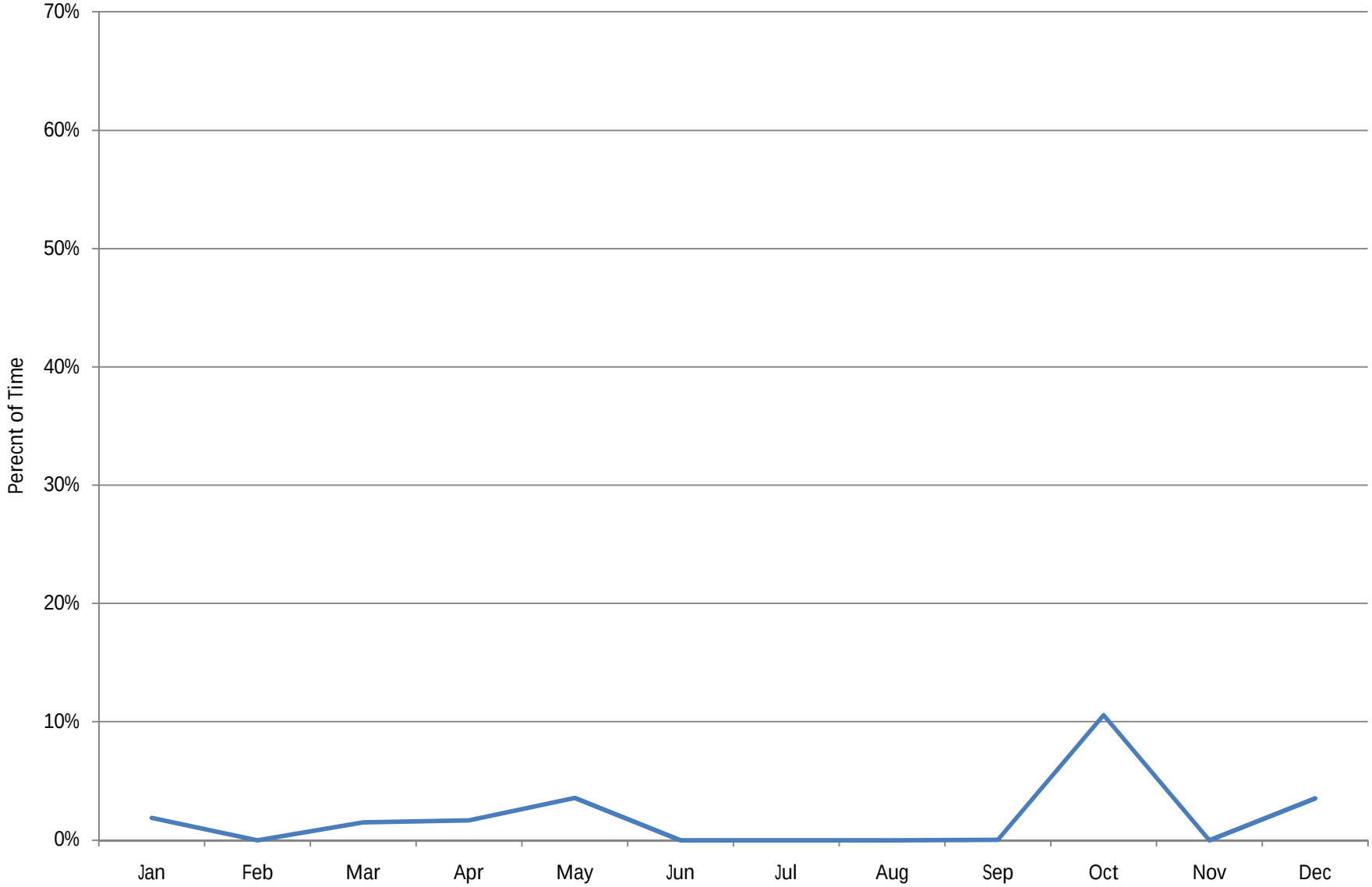


Figure A-4-3 Range of Deficit of Flow Regime at Montezuma (Chart Type 3)

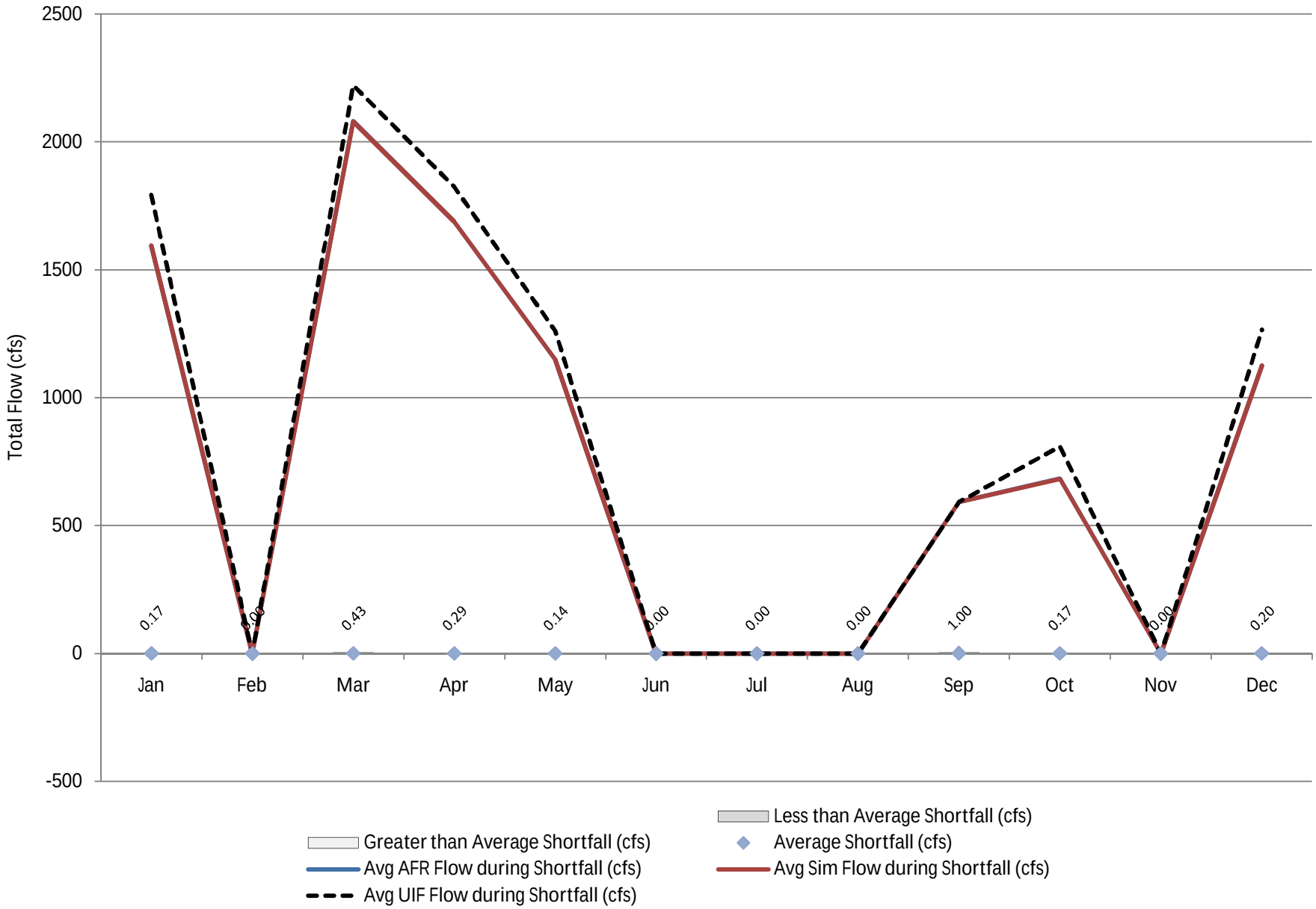


Figure A-4-4 Unimpaired Monthly Range of Flow at Montezuma (Chart Type 4)

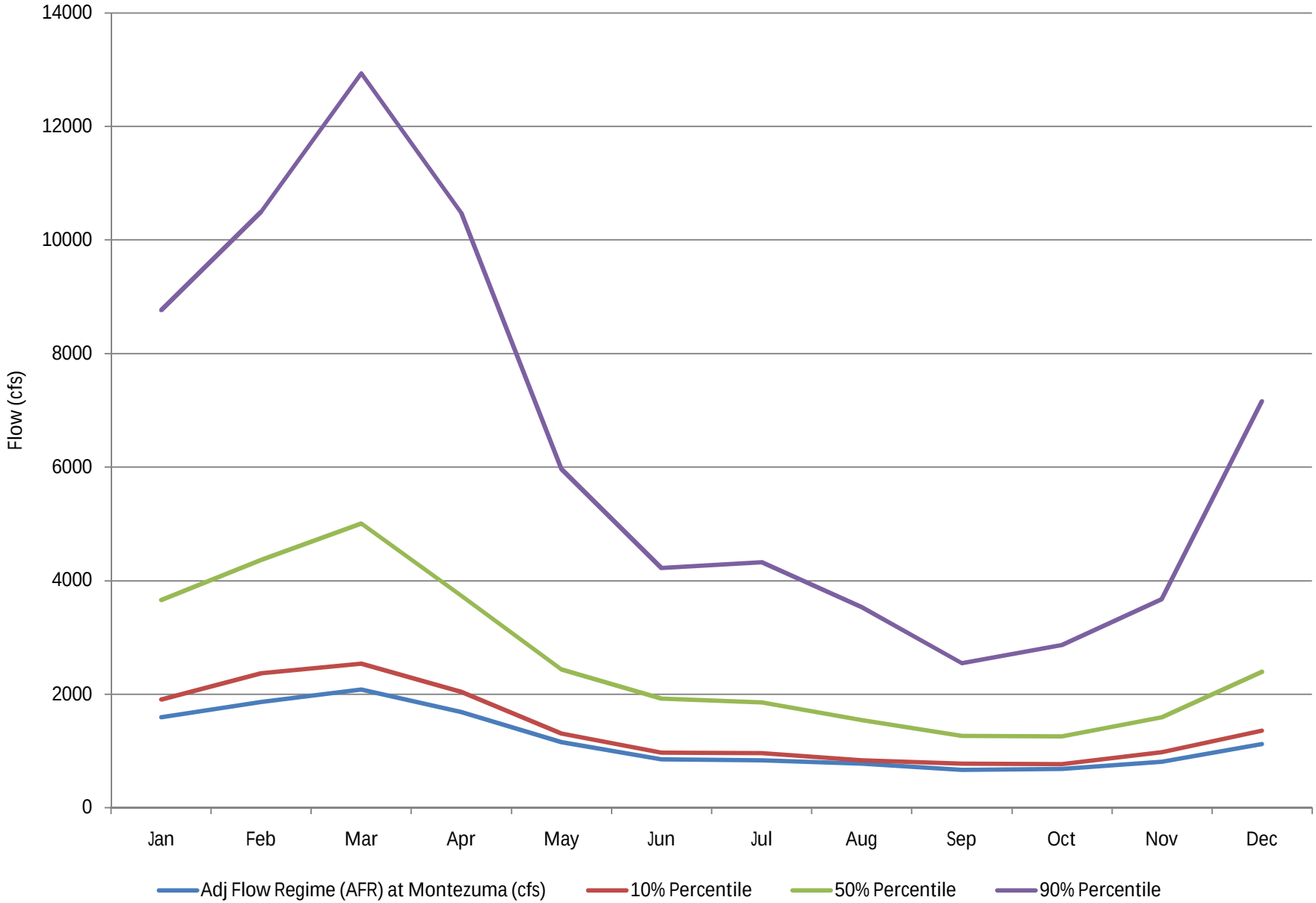


Figure A-4-5 Simulated Monthly Range of Flow at Montezuma (Chart Type 5)

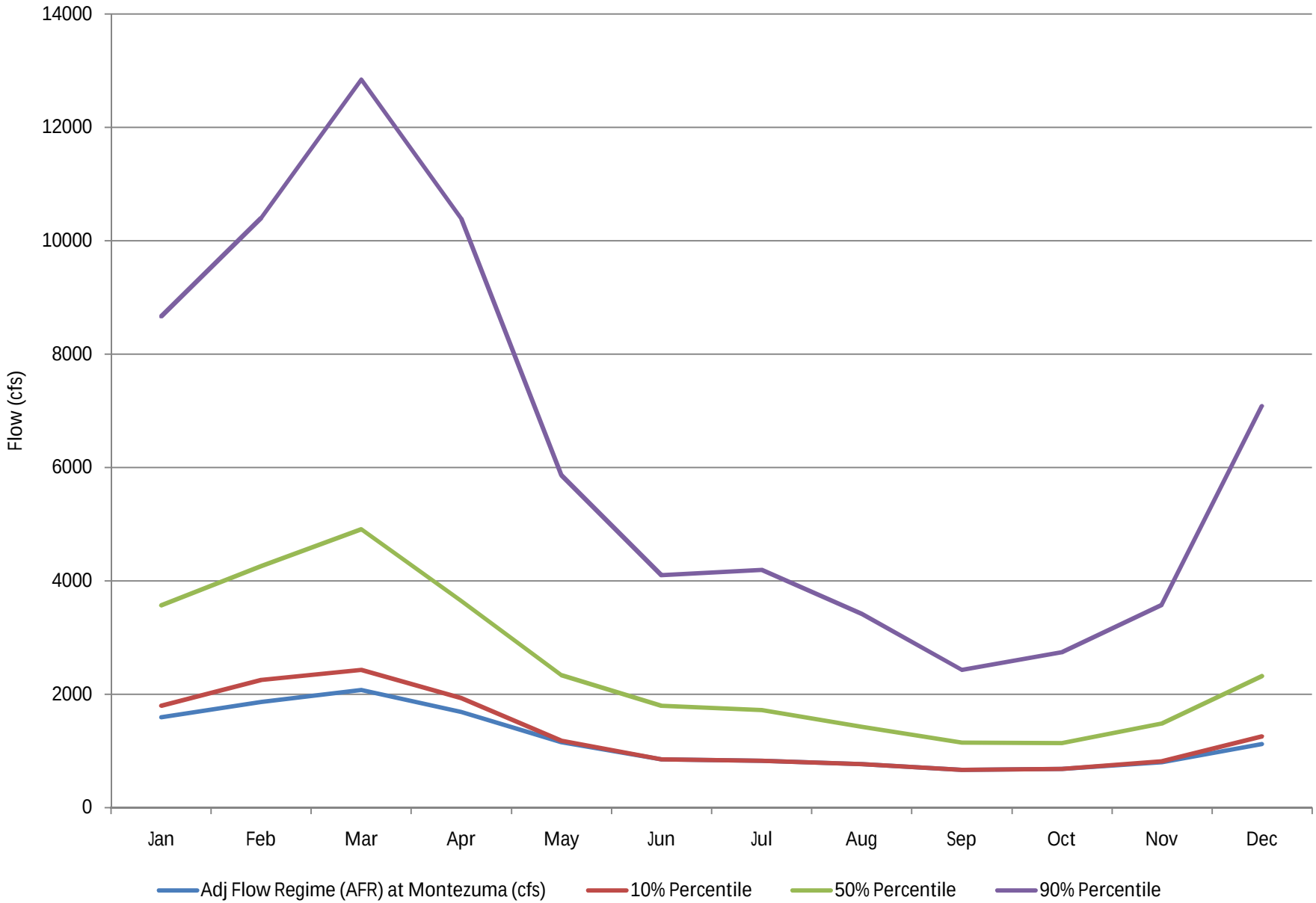


Figure A-5-1 Average Percentage of Flow Compared to Flow Regime at Bainbridge (Chart Type 1)

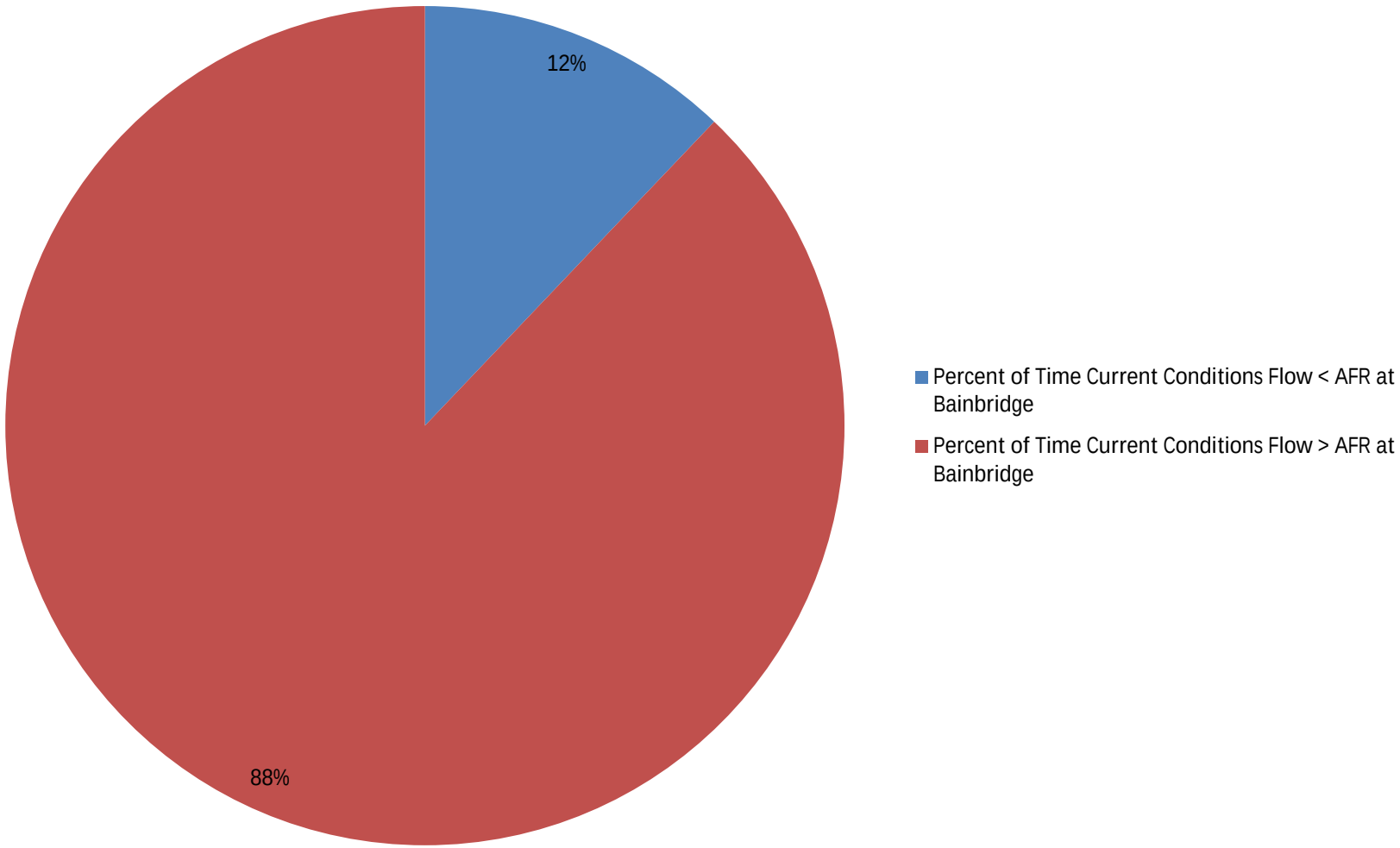


Figure A-5-2 Current Conditions Flows Less Than Adjusted Flow Regime at Bainbridge (Chart Type 2)

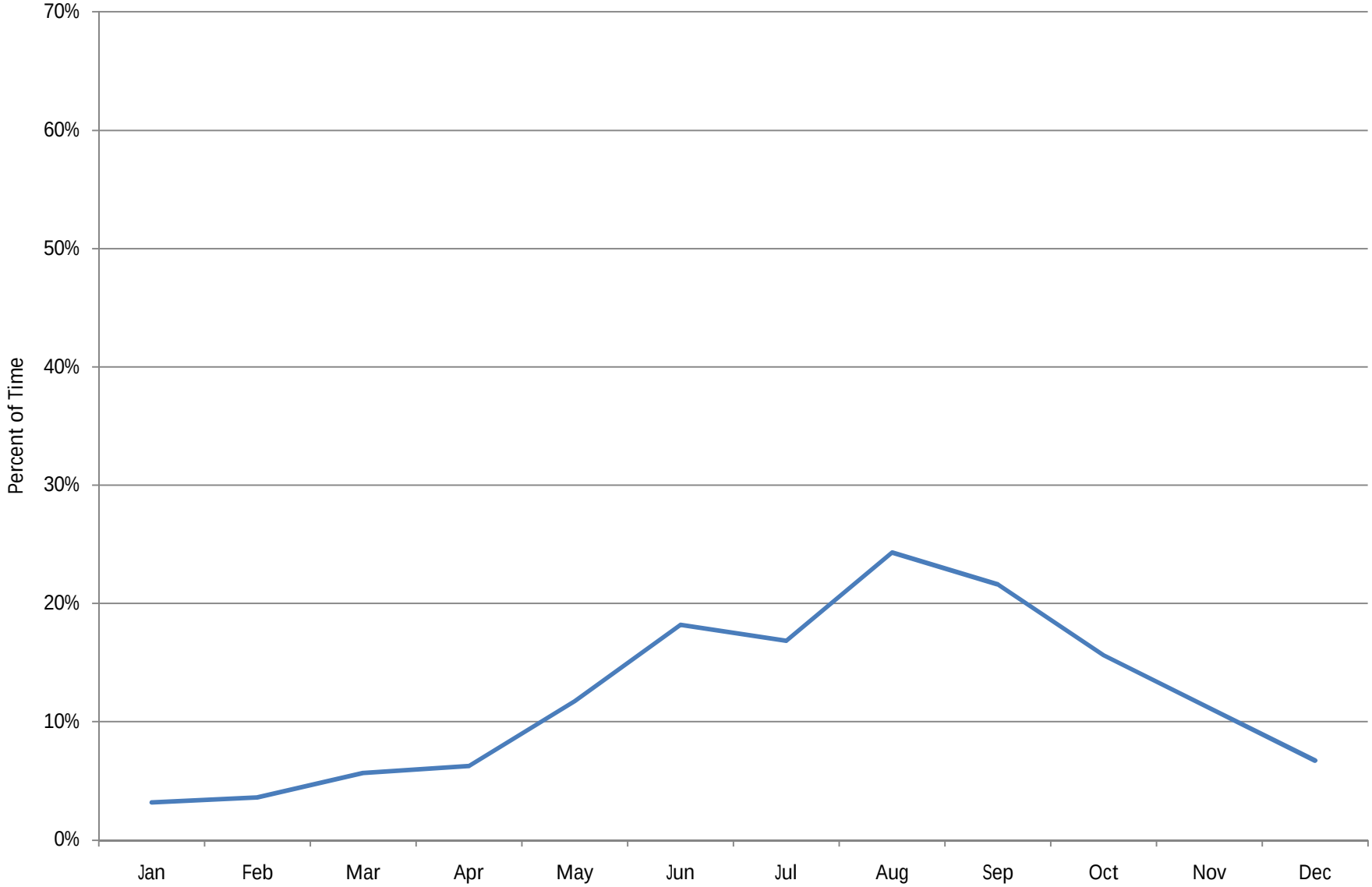


Figure A-5-3 Range of Deficit of Flow Regime at Bainbridge (Chart Type 3)

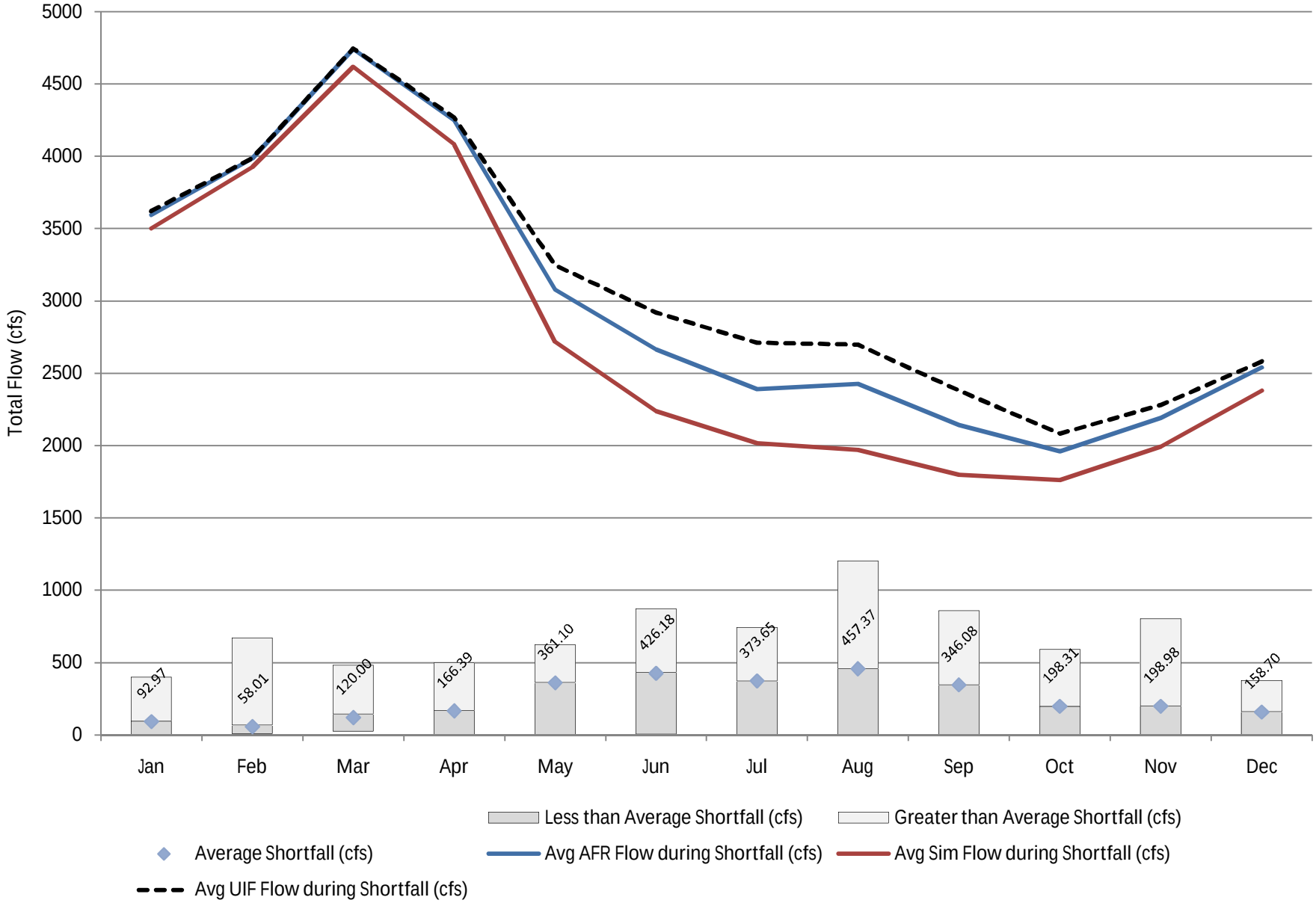


Figure A-5-4 Unimpaired Monthly Range of Flow at Bainbridge (Chart Type 4)

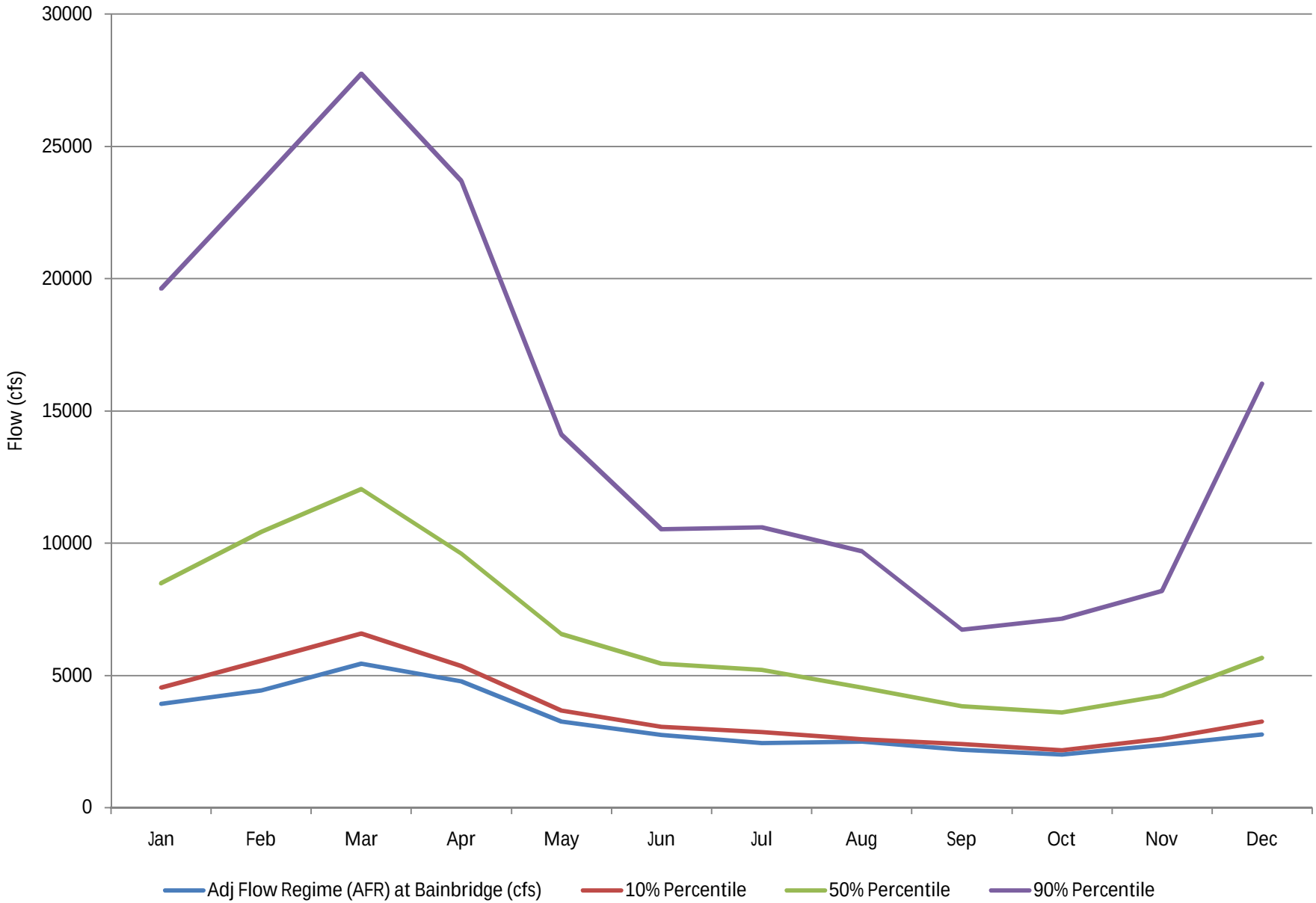
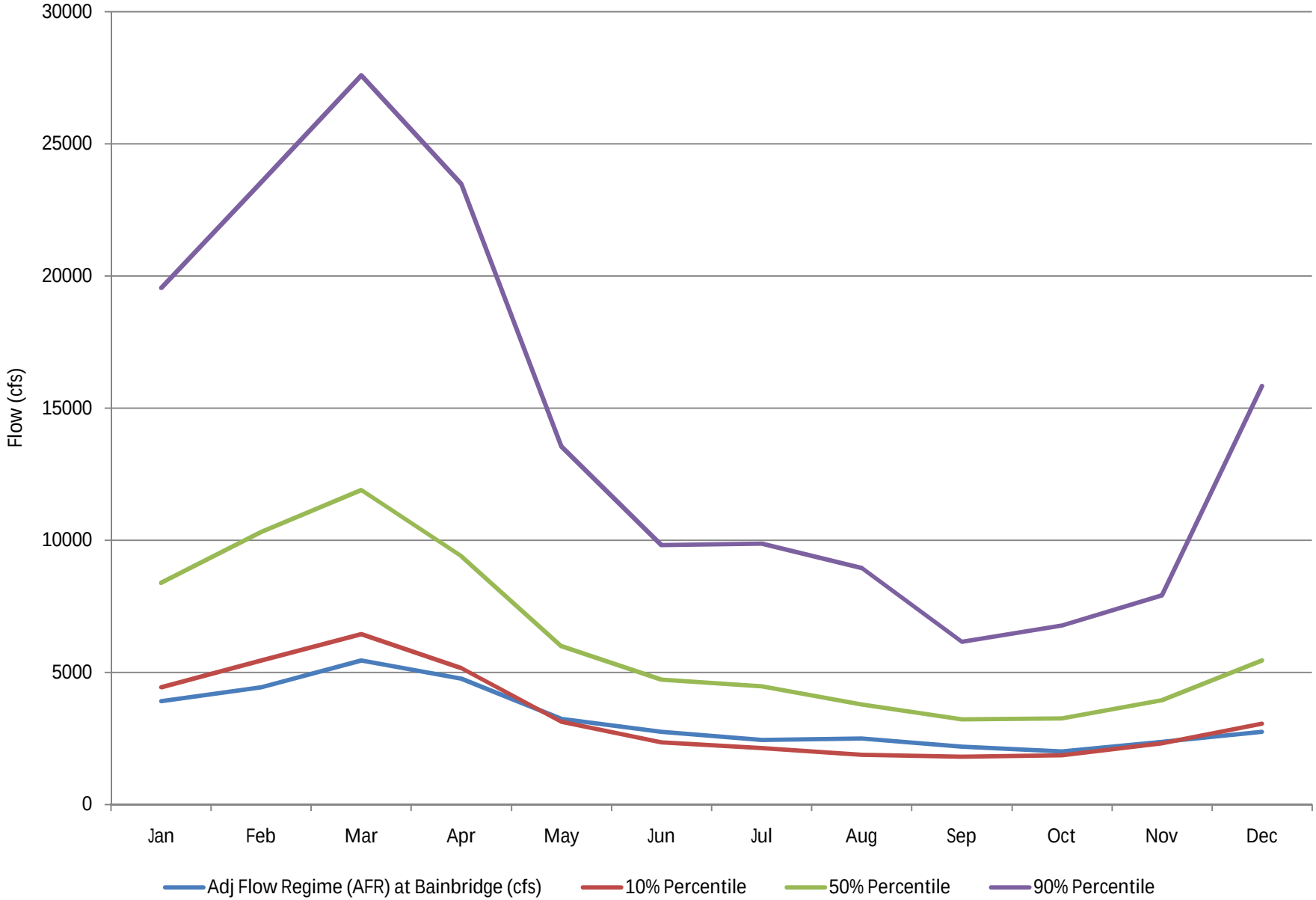


Figure A-5-5 Simulated Monthly Range of Flow at Bainbridge (Chart Type 5)



Appendix B

Alabama-Coosa-Tallapoosa

Charts depicting flows and shortages relative to flow regime by planning node for current conditions model.

1. Gaylesville
2. Kingston
3. Rome (Coosa)
4. Heflin
5. Newell

Chart type 1 is a pie chart that shows the percentage of daily flows above and below the adjusted flow regime. The percentage of time above the adjusted flow regime is an indication of how often the flow regime can be met and withdrawals can be made.

Chart type 2 shows the percentage of time that flows are below the adjusted flow regime for each month of the year, indicating months in which water availability is most constrained. The higher the percentage, the more often there are shortfalls, hence more water availability constraints.

Chart type 3 shows certain monthly statistics during periods of shortfalls. Namely, average simulated river flows, average adjusted flow regime flows, and average unimpaired flows are shown by line plots. In addition, each month's average shortfall and the range between the largest and smallest shortfall are shown by bar plots. This chart shows the magnitude of a shortfall for a given month relative to the typical flows available during the month only on the days shortfalls occur. Flows for days without shortfalls are not included in generating these statistics.

Chart type 4 shows plots of monthly values of the adjusted flow regime and the 10-percentile (the lowest 10 percent of unimpaired flows), the 50-percentile (mid-range flows), and 90-percentile (all but the top 10 percent) flows. This range of percentiles covers dry, median, and wet conditions, respectively. The chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream if there were no effects of human development.

Chart type 5 shows plots of monthly values of the adjusted flow regime and the lowest 10 percent of simulated flows, i.e., 10-percentile flows, 50-percentile flows, and 90-percentile flows. This chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream under current condition assumptions.

Chart type 6 shows the daily storage and seasonal top of conservation curve for a given reservoir over the period of record. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 7 shows the percentage of storage remaining relative to the seasonal top of conservation pool for a given reservoir over the period of record. The reservoir is 100 percent full when the level is at or above the rule curve. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 8 shows the percentage of time that the remaining storage of a given reservoir is above a given percentage relative to the rule curve. The reservoir is 100 percent full when the level is at or above the rule curve. Storage remaining in the reservoir reflects magnitude and timing of demands.

AFR = Adjusted Flow Regime

Figure B-1-1 Average Percentage of Flow Compared to Flow Regime at Gaylesville (Chart Type 1)

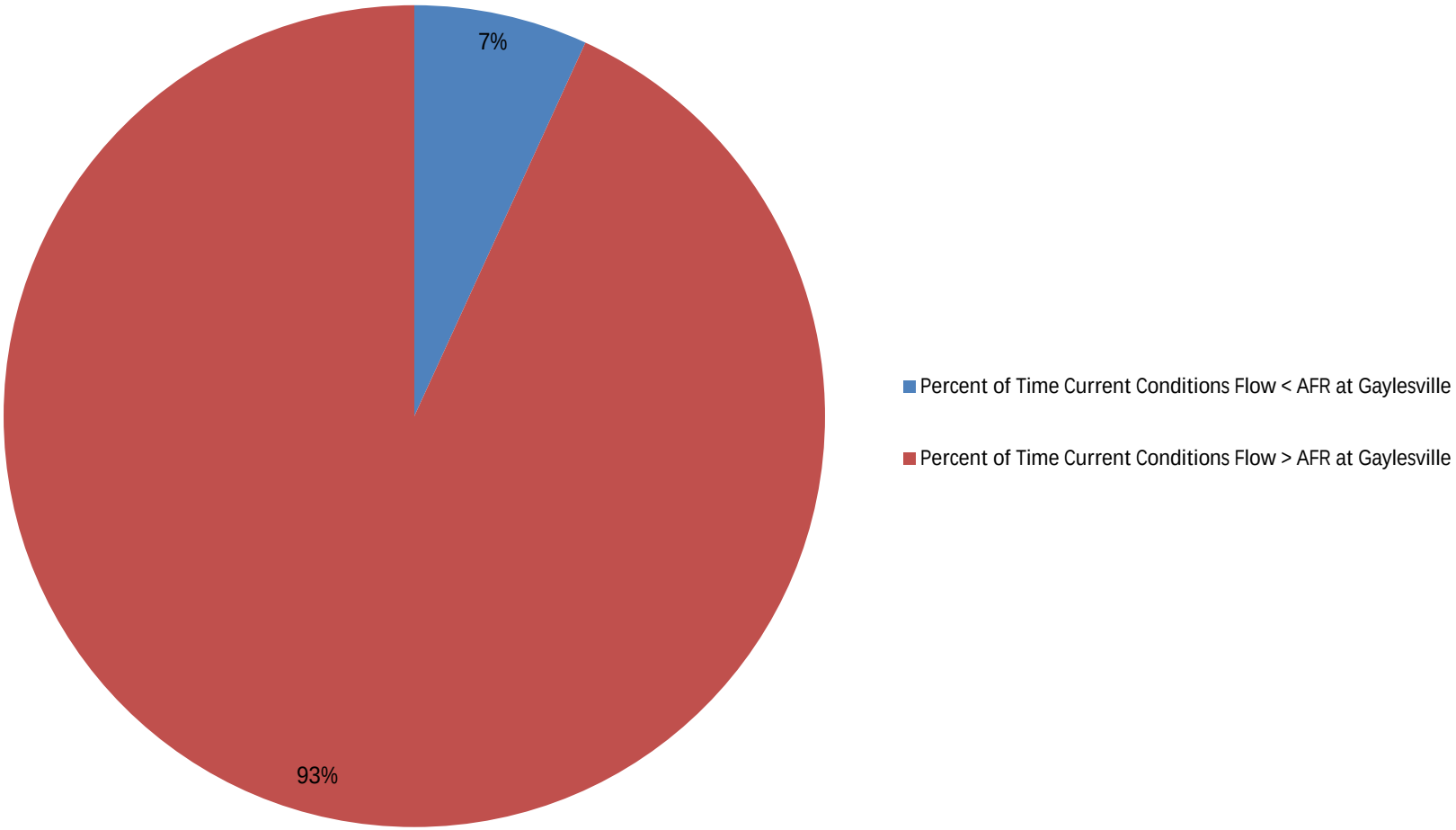


Figure B-1-2 Current Conditions Flow Less Than Adjusted Flow Regime at Gaylesville (Chart Type 2)

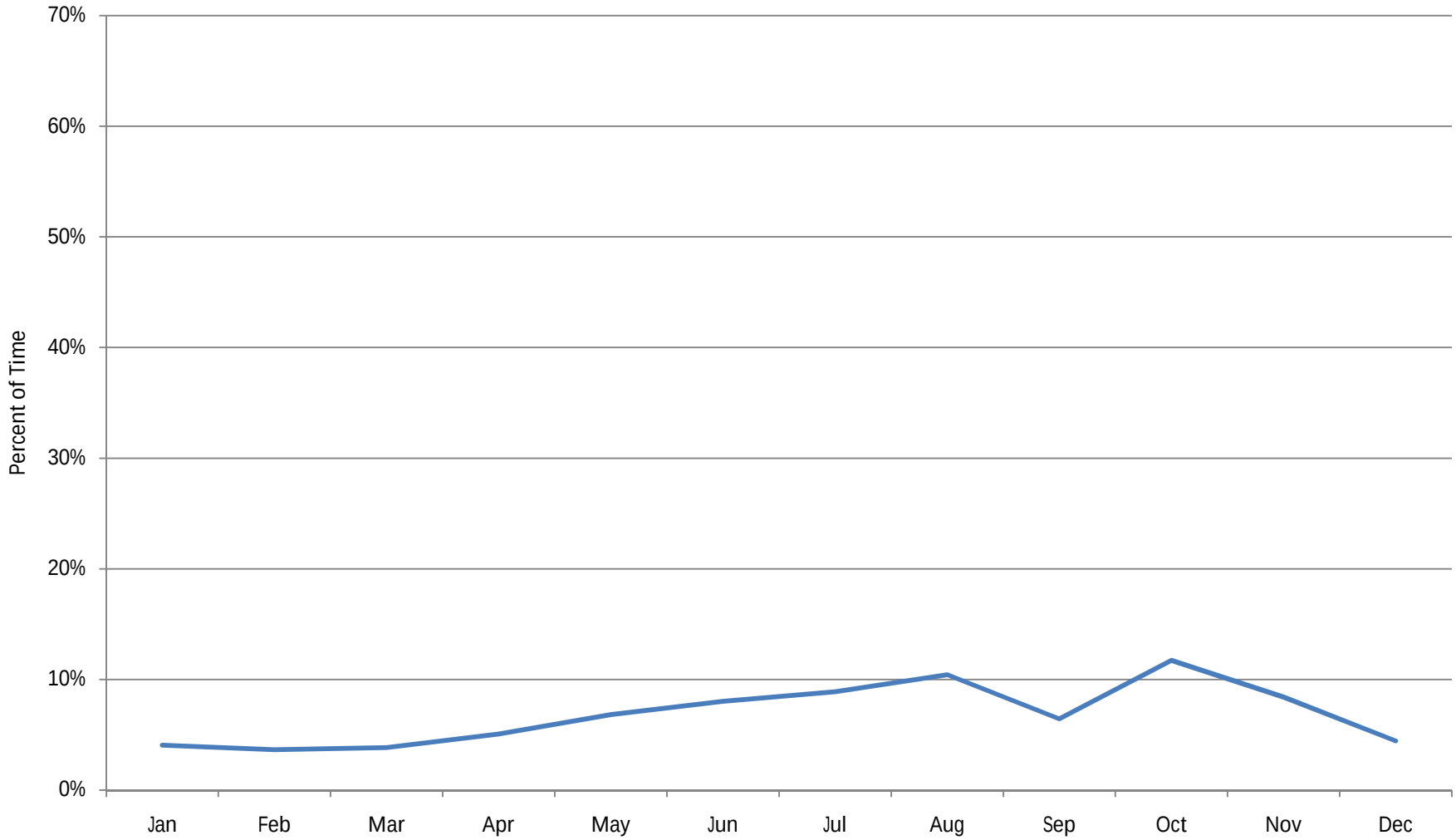
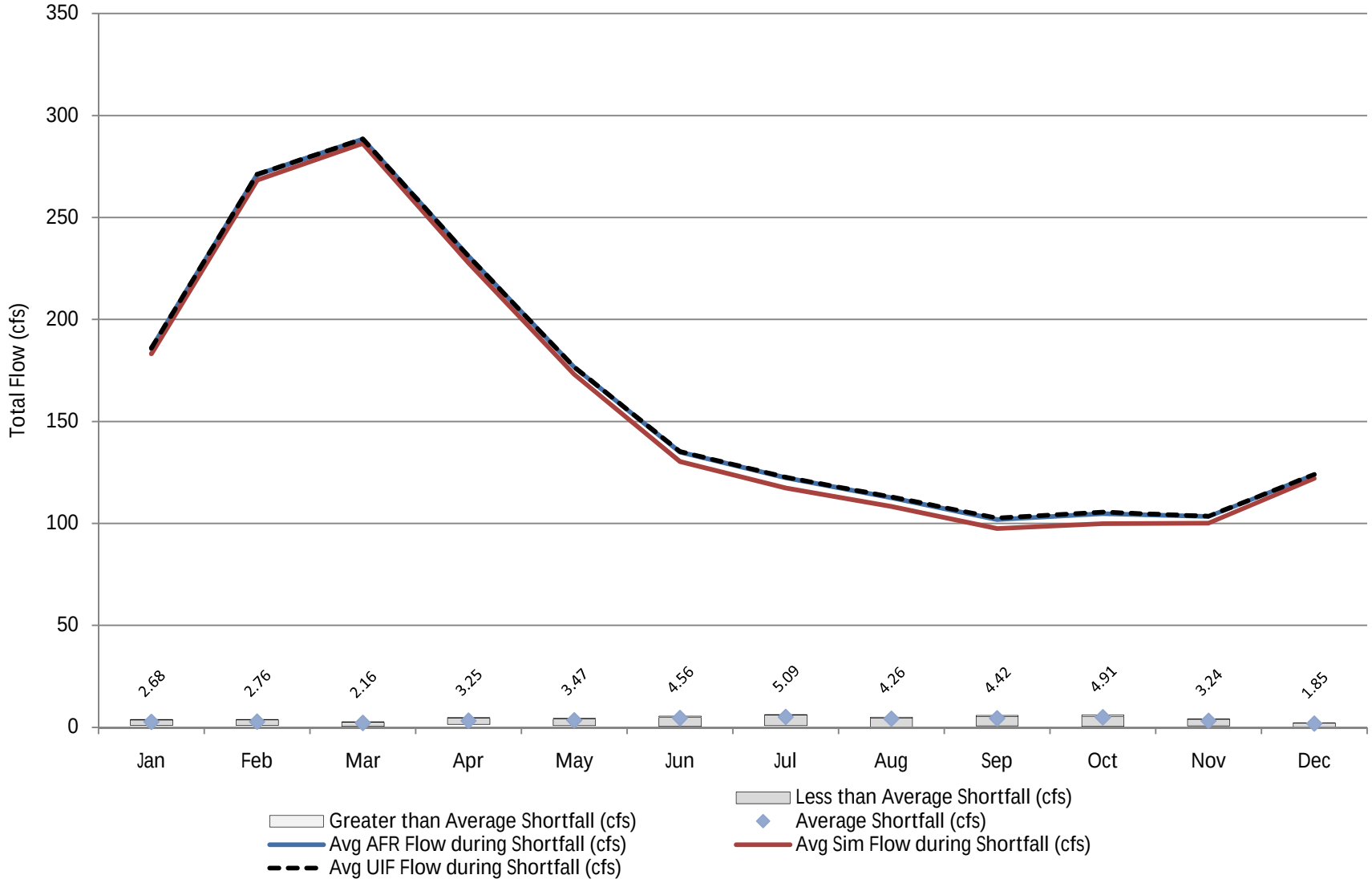


Figure B-1-3 Range of Deficit of Flow Regime at Gaylesville (Chart Type 3)



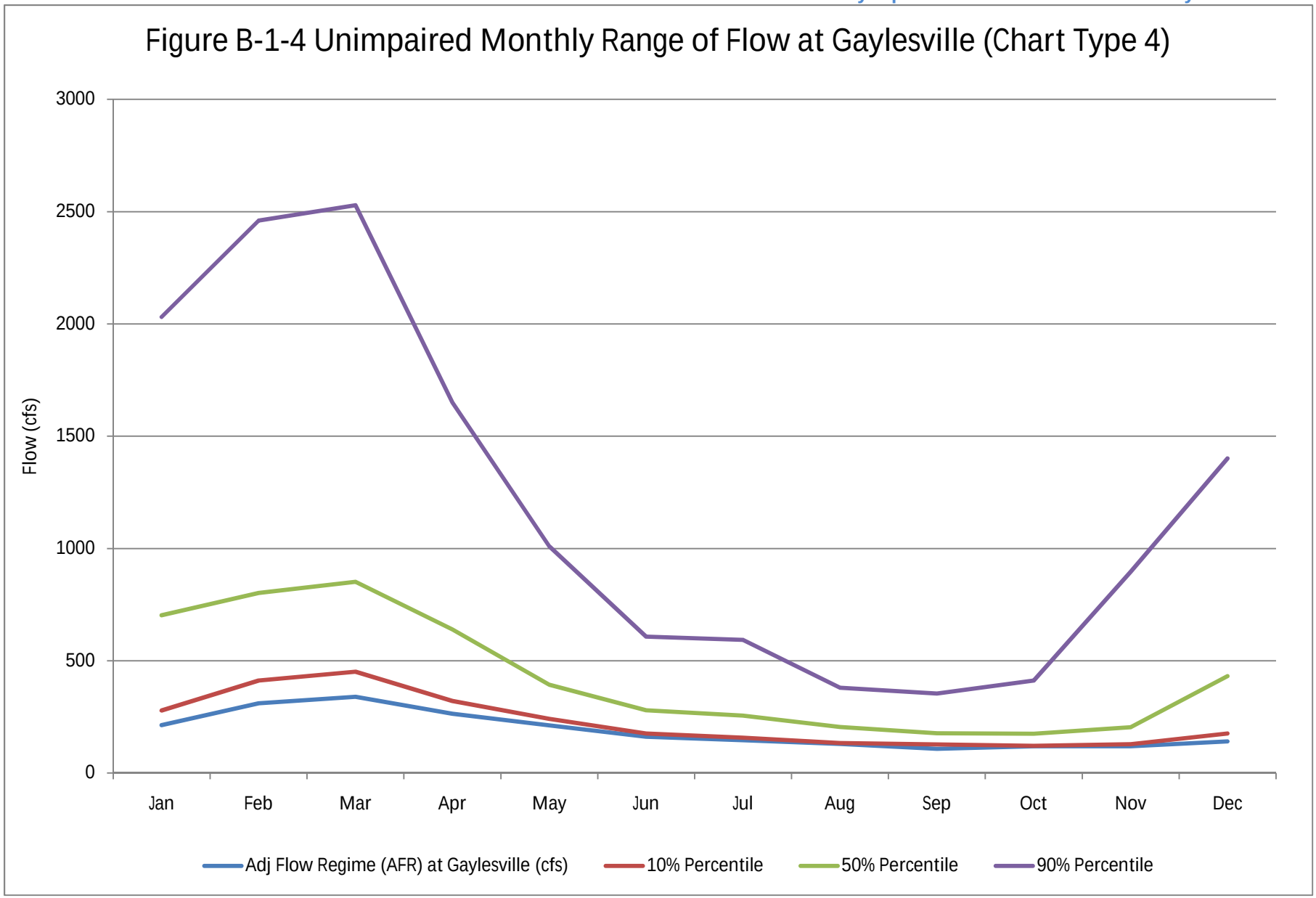


Figure B-1-4 Unimpaired Monthly Range of Flow at Gaylesville (Chart Type 4)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Gaylesville (cfs)
10% Percentile
50% Percentile
90% Percentile

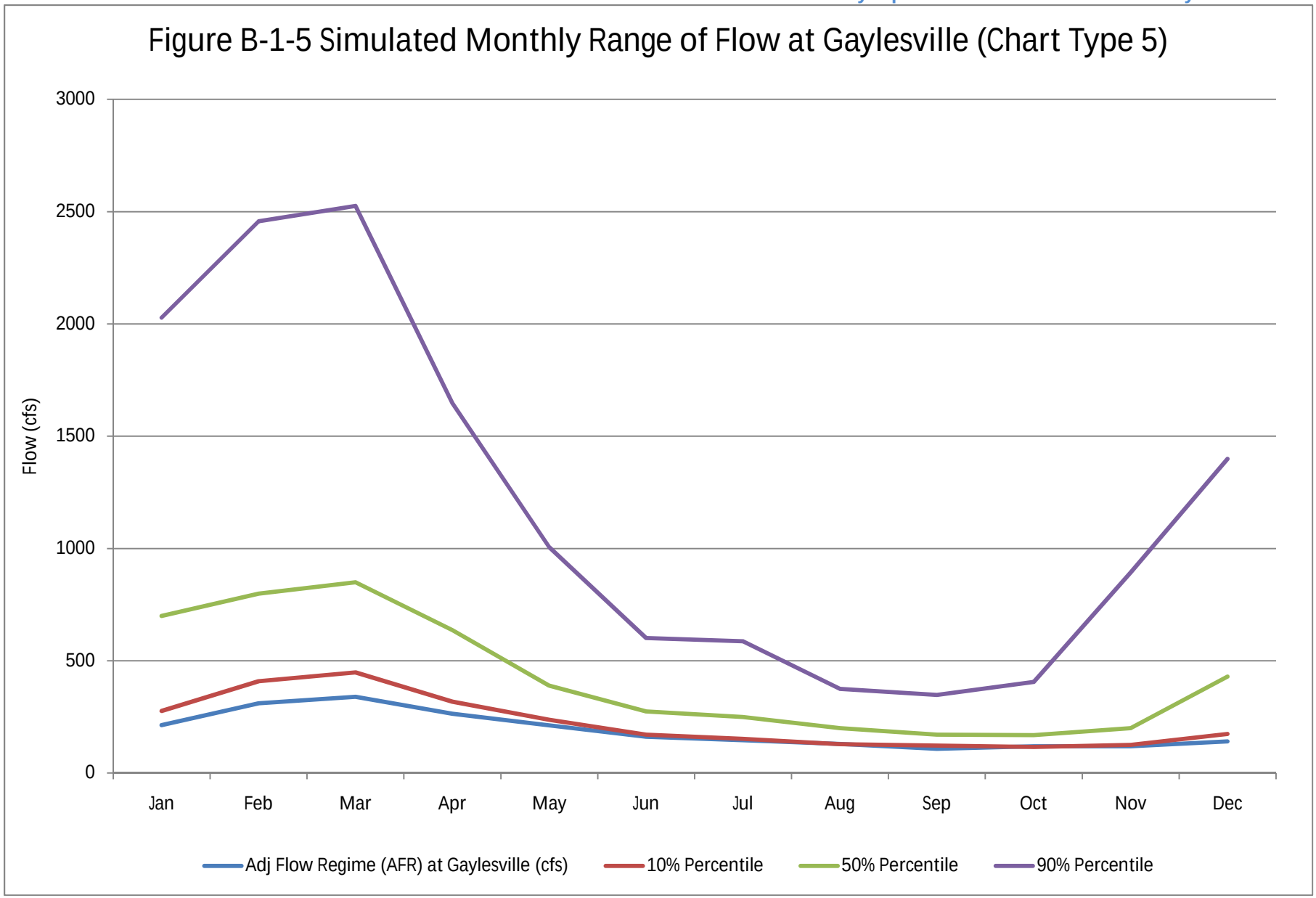


Figure B-1-5 Simulated Monthly Range of Flow at Gaylesville (Chart Type 5)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Gaylesville (cfs)
10% Percentile
50% Percentile
90% Percentile

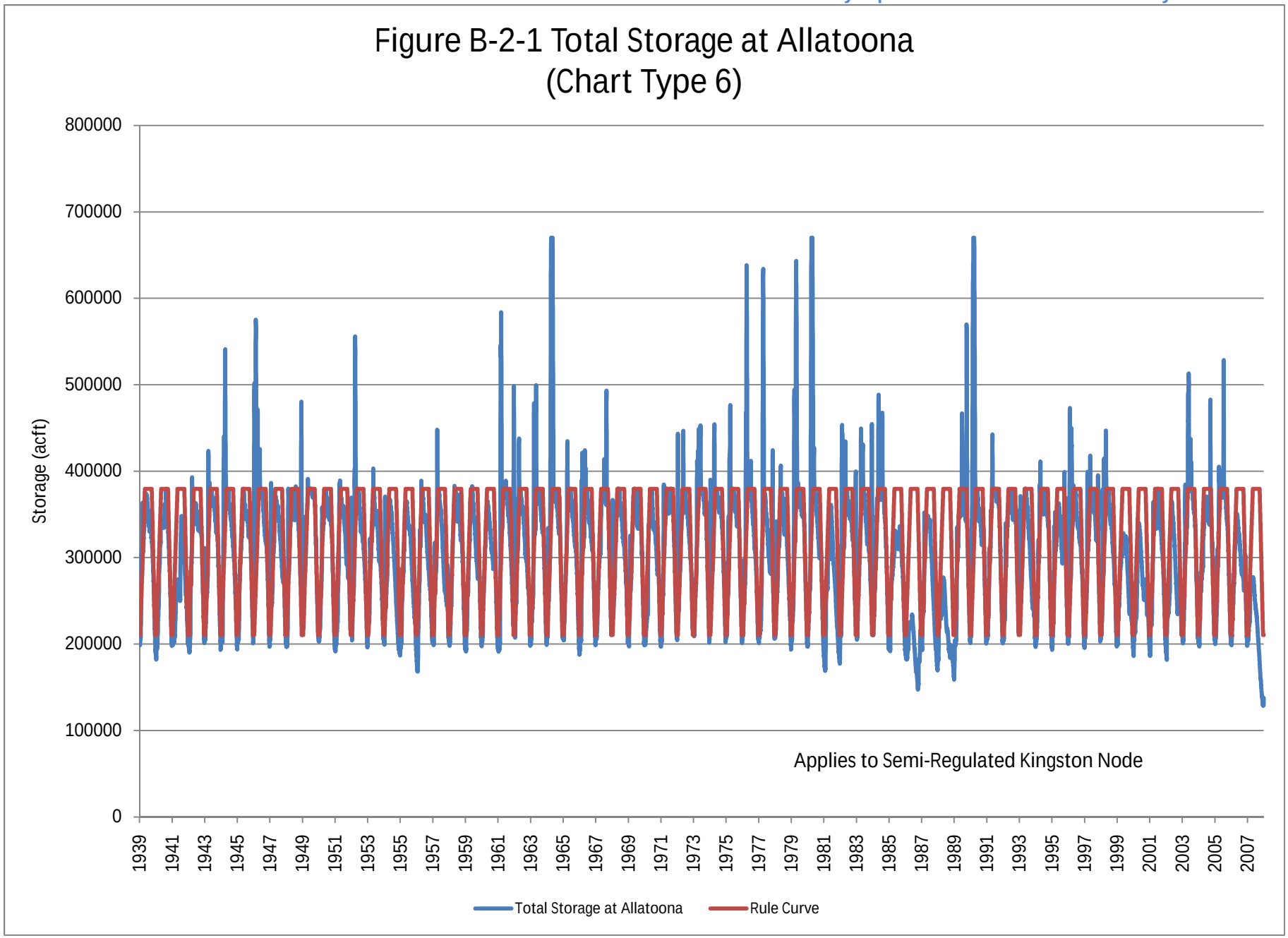


Figure B-2-1 Total Storage at Allatoona
(Chart Type 6)
Storage (acft)
800000
700000
600000
500000
400000
300000
200000
100000
0
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Kingston Node
Total Storage at Allatoona
Rule Curve

Figure B-2-2 Percent of Total Storage at Allatoona Relative to Rule Curve (Chart Type 7)

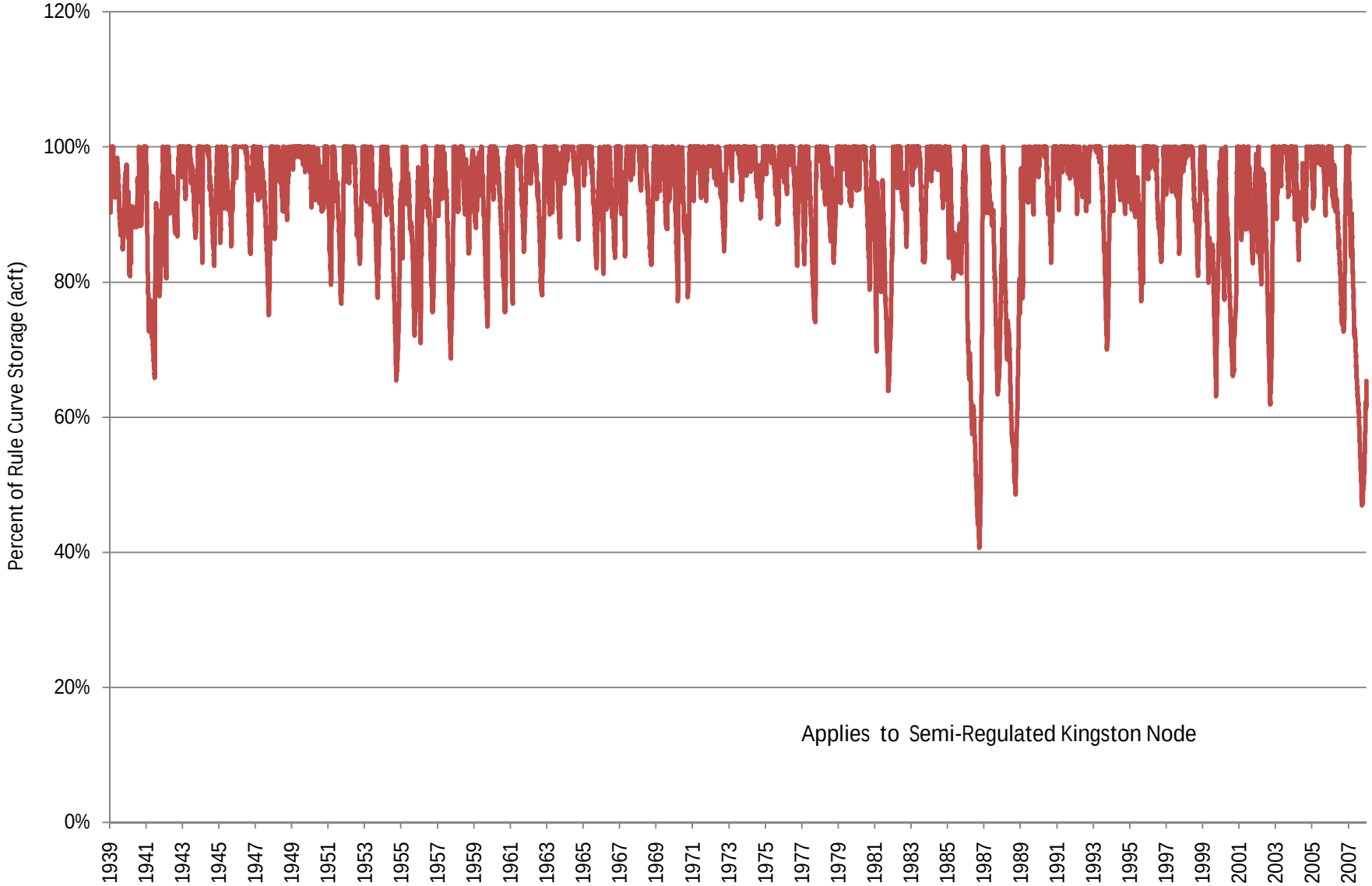
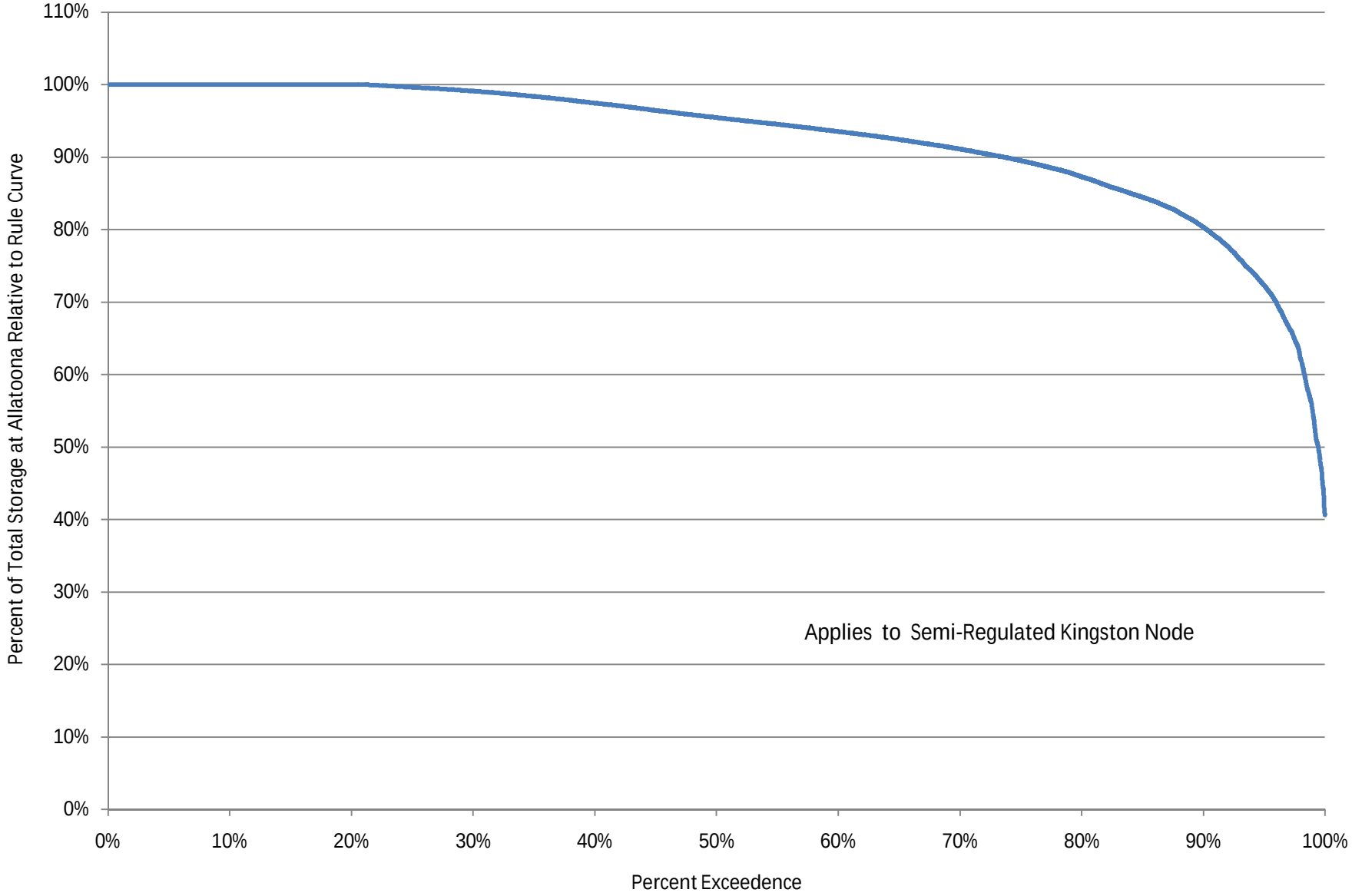


Figure B-2-3 Frequency of Exceedence of Percent Total Storage at Allatoona Relative to Rule Curve
(Chart Type 8)



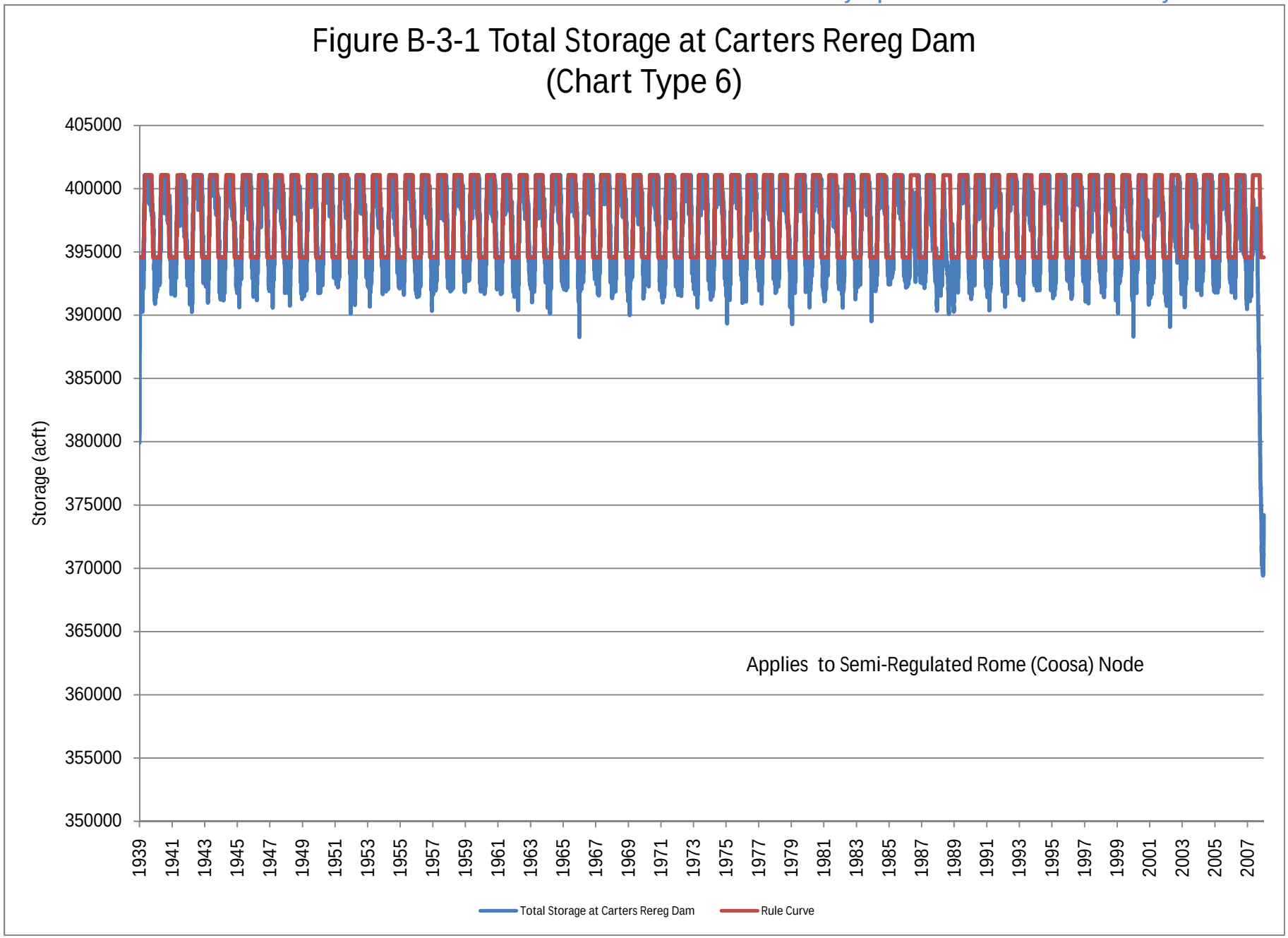


Figure B-3-1 Total Storage at Carters Rereg Dam
(Chart Type 6)
Storage (acft)
405000
400000
395000
390000
385000
380000
375000
370000
365000
360000
355000
350000
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Rome (Coosa) Node
Total Storage at Carters Rereg Dam
Rule Curve

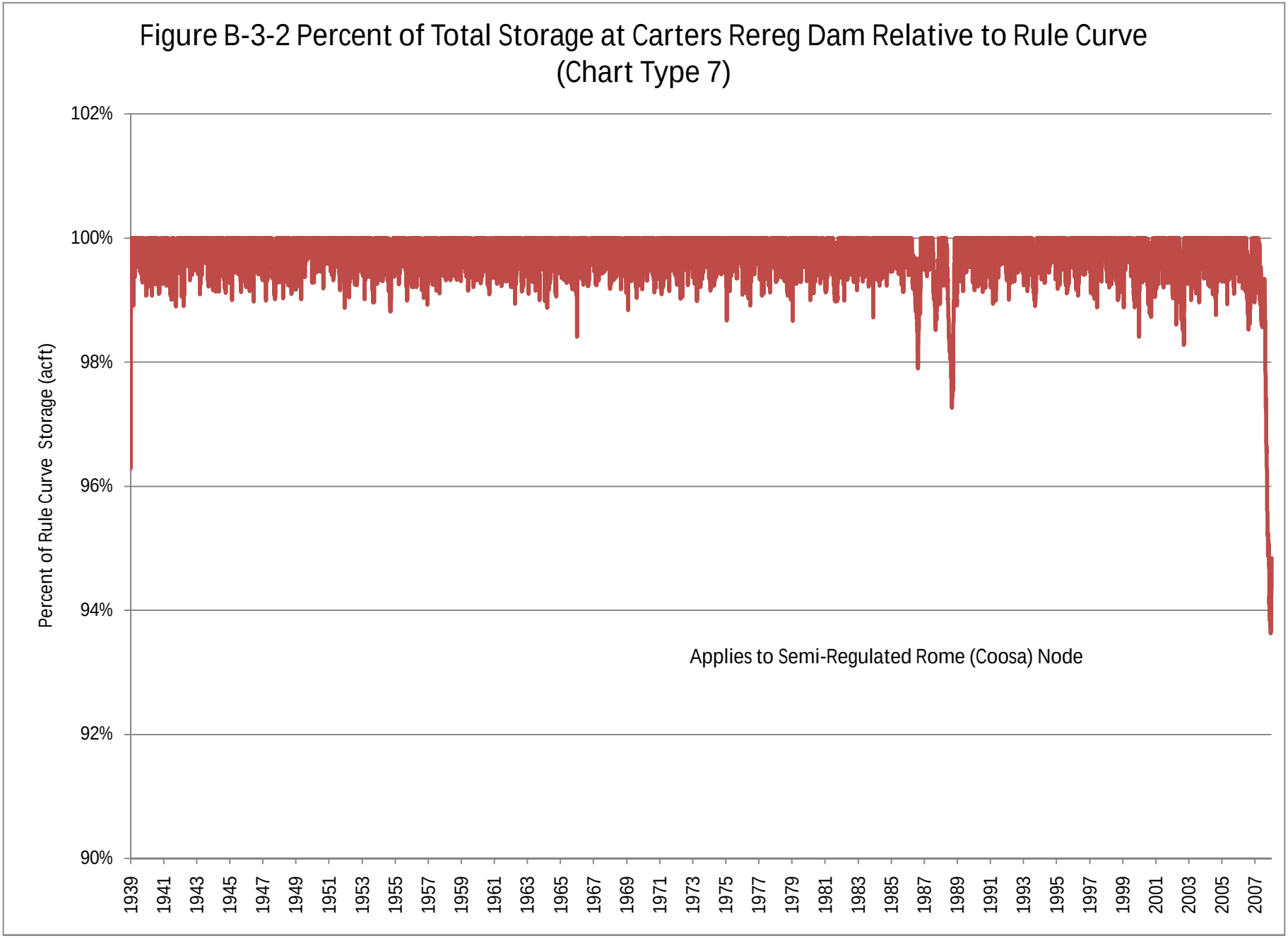


Figure B-3-2 Percent of Total Storage at Carters Rereg Dam Relative to Rule Curve
(Chart Type 7)
Percent of Rule Curve Storage (acft)
102%
100%
98%
96%
94%
92%
90%
Applies to Semi-Regulated Rome (Coosa) Node
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007

Figure B-3-3 Frequency of Exceedence of Percent Total Storage at Carters Rereg Dam Relative to Rule Curve
(Chart Type 8)

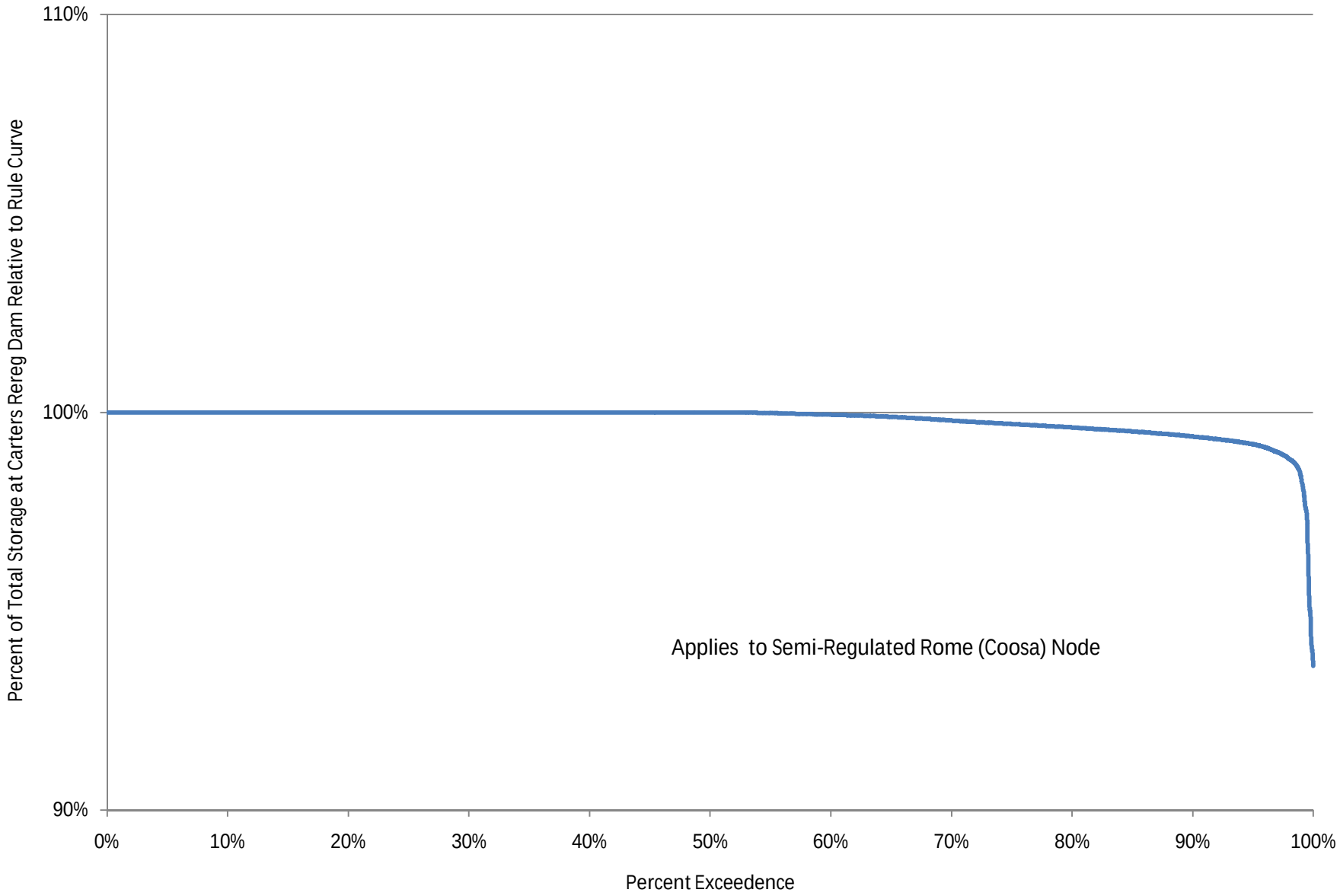
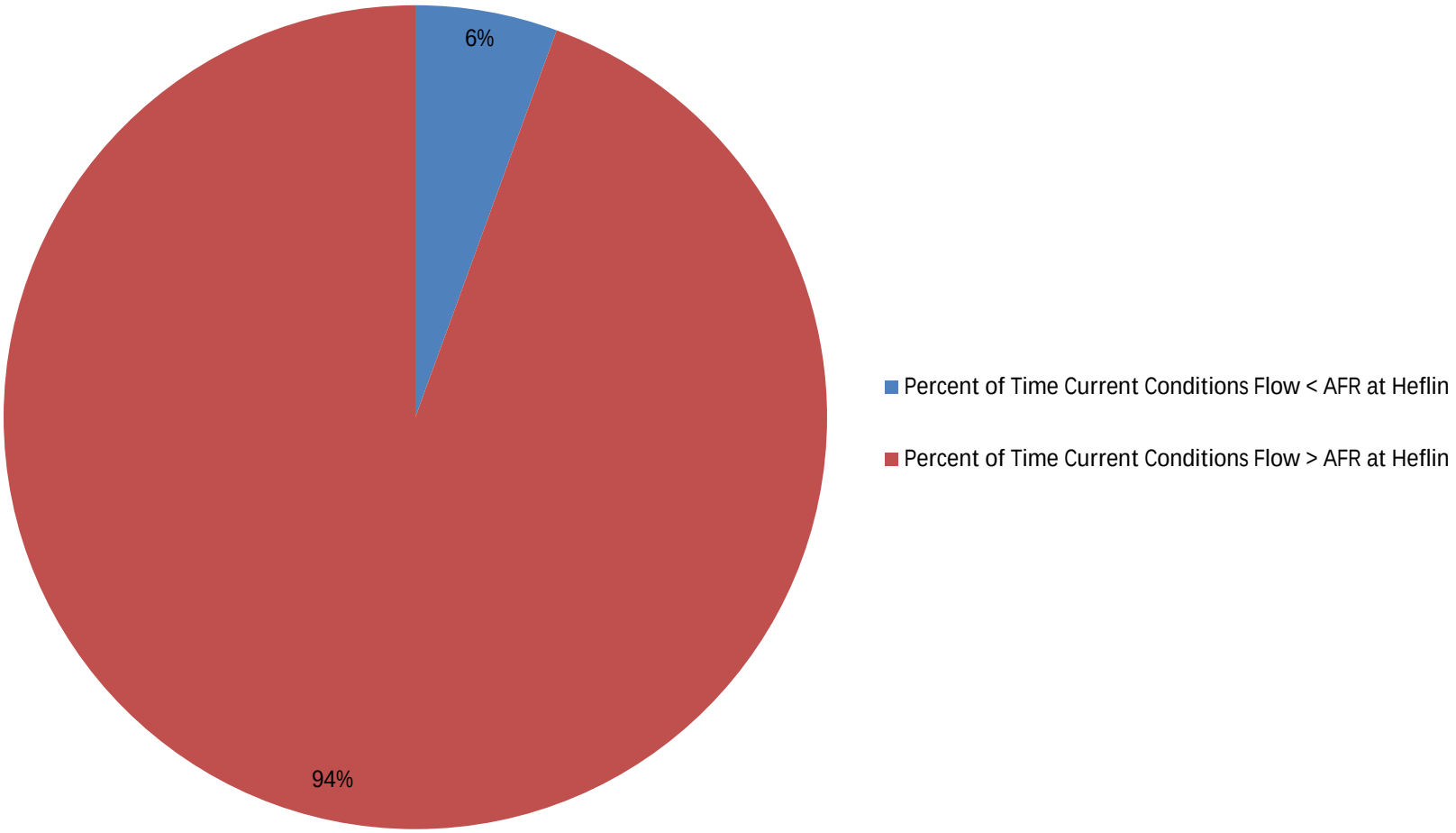


Figure B-4-1 Average Percentage of Flow Compared to Flow Regime at Heflin (Chart Type 1)



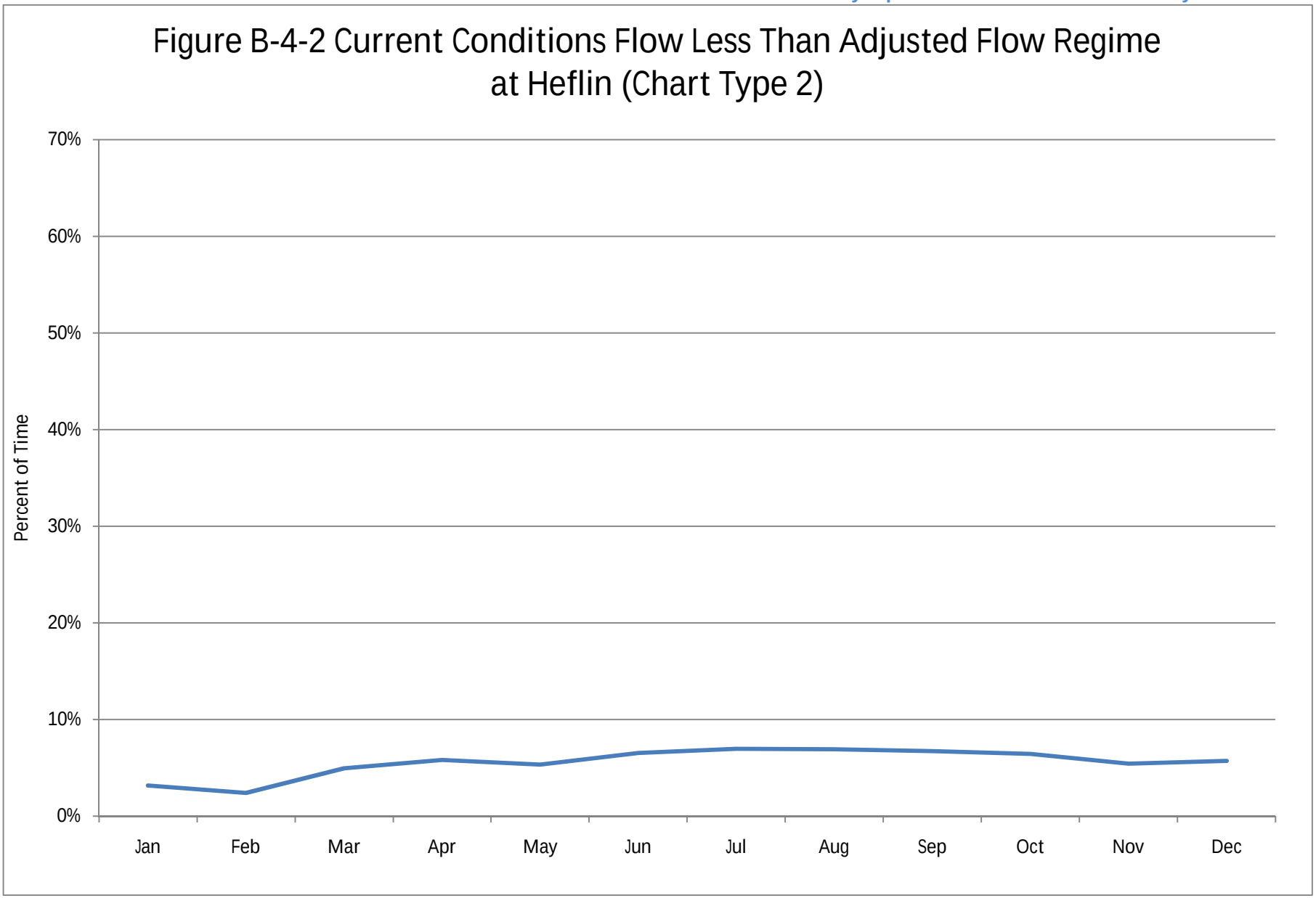


Figure B-4-2 Current Conditions Flow Less Than Adjusted Flow Regime at Heflin (Chart Type 2)
Percent of Time
70%
60%
50%
40%
30%
20%
10%
0%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

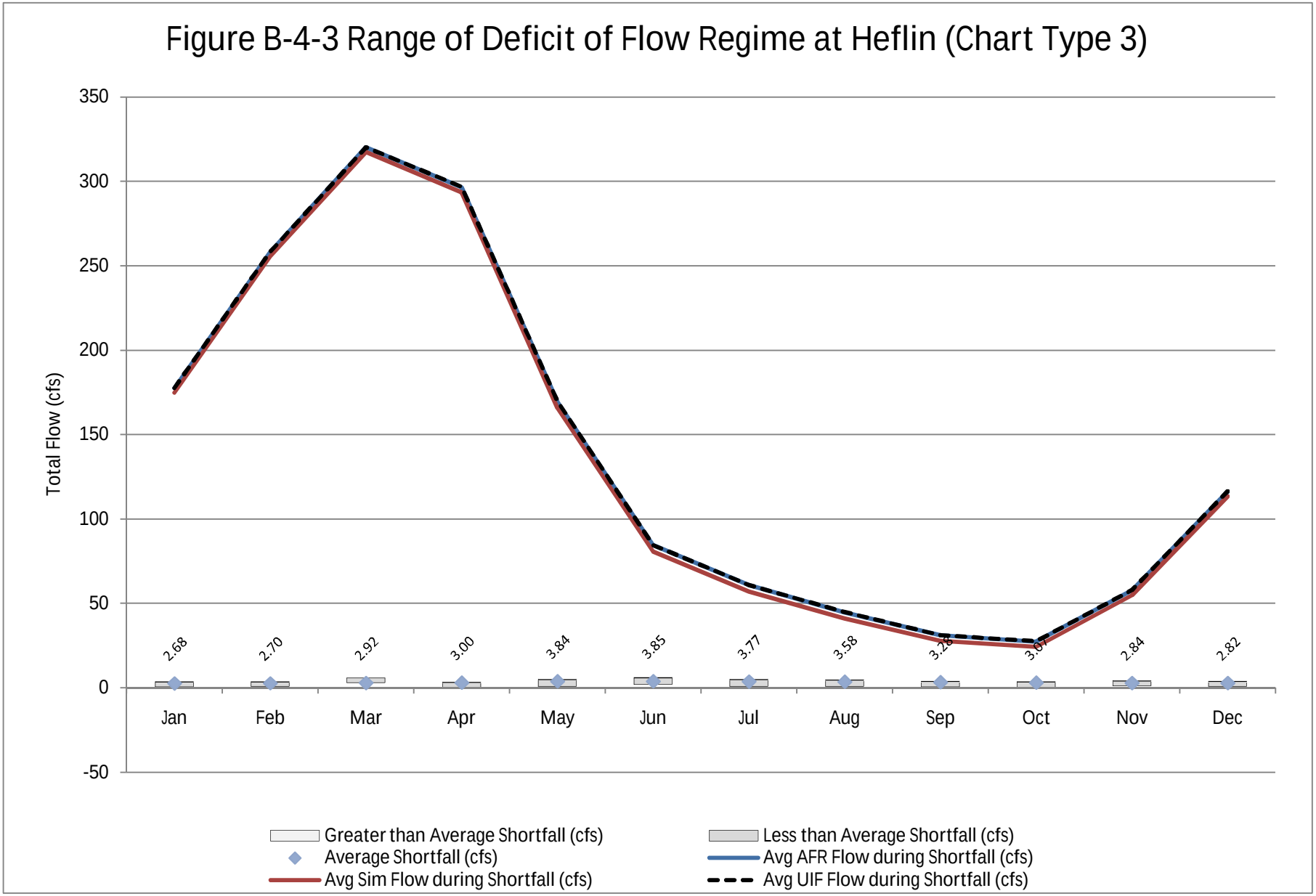


Figure B-4-3 Range of Deficit of Flow Regime at Heflin (Chart Type 3)
Total Flow (cfs)
350
300
250
200
150
100
50
0
-50
2.68
2.70
2.92
3.00
3.84
3.85
3.77
3.58
3.28
3.07
2.84
2.82
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Greater than Average Shortfall (cfs)
Less than Average Shortfall (cfs)
Average Shortfall (cfs)
Avg AFR Flow during Shortfall (cfs)
Avg Sim Flow during Shortfall (cfs)
Avg UIF Flow during Shortfall (cfs)

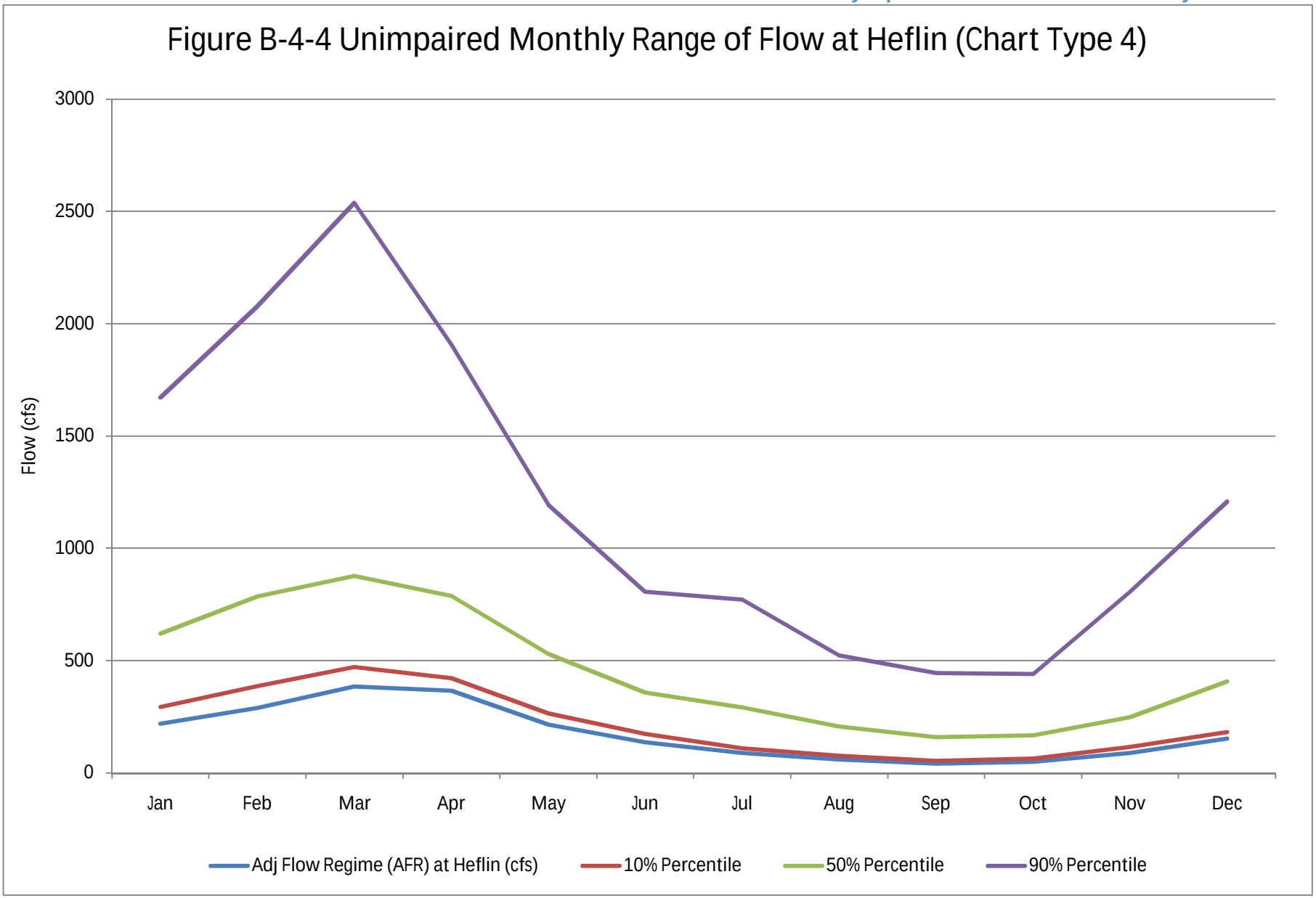


Figure B-4-4 Unimpaired Monthly Range of Flow at Heflin (Chart Type 4)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Heflin (cfs)
10% Percentile
50% Percentile
90% Percentile

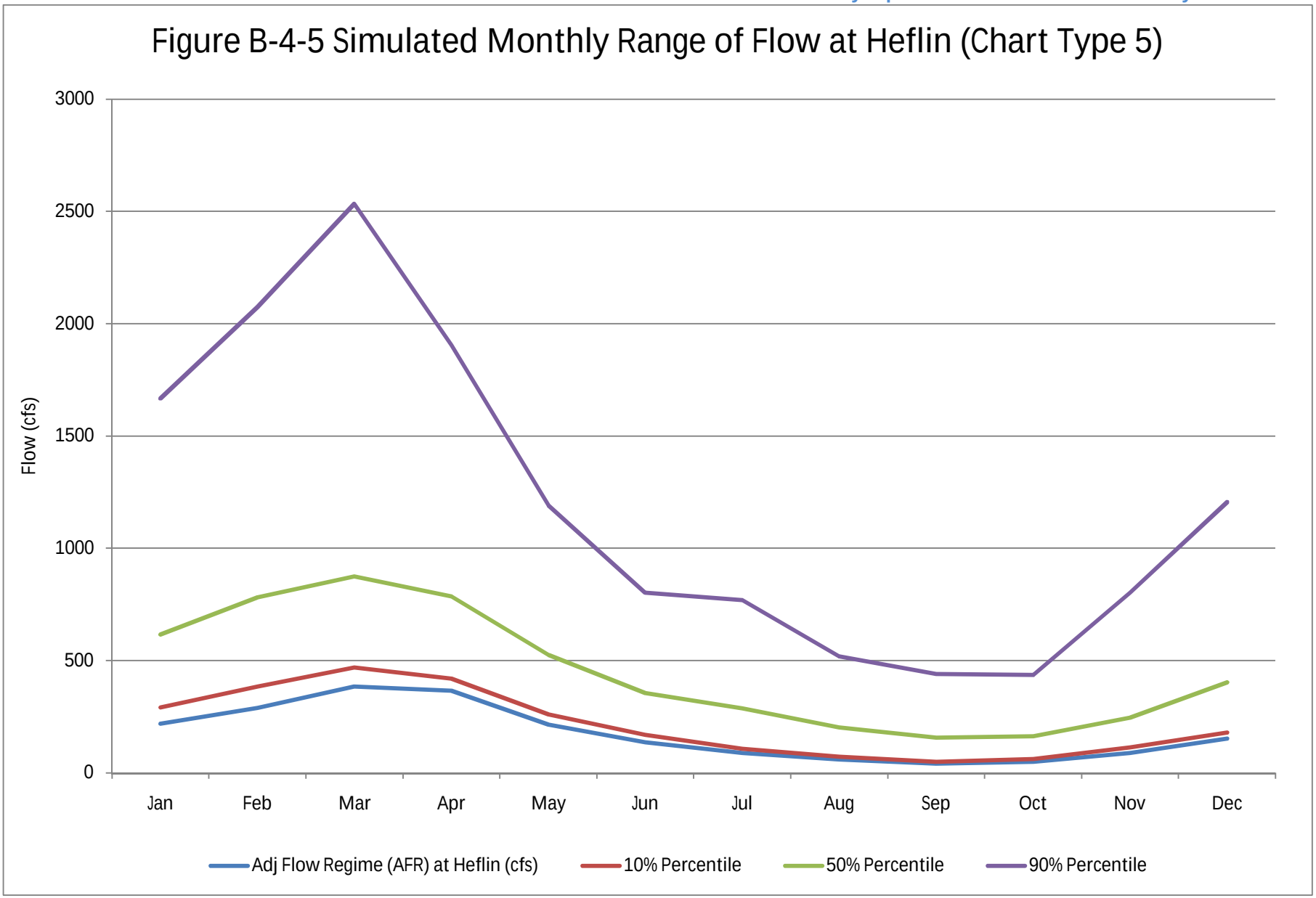


Figure B-4-5 Simulated Monthly Range of Flow at Heflin (Chart Type 5)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Heflin (cfs)
10% Percentile
50% Percentile
90% Percentile

Figure B-5-1 Average Percentage of Flow Compared to Flow Regime at Newell (Chart Type 1)

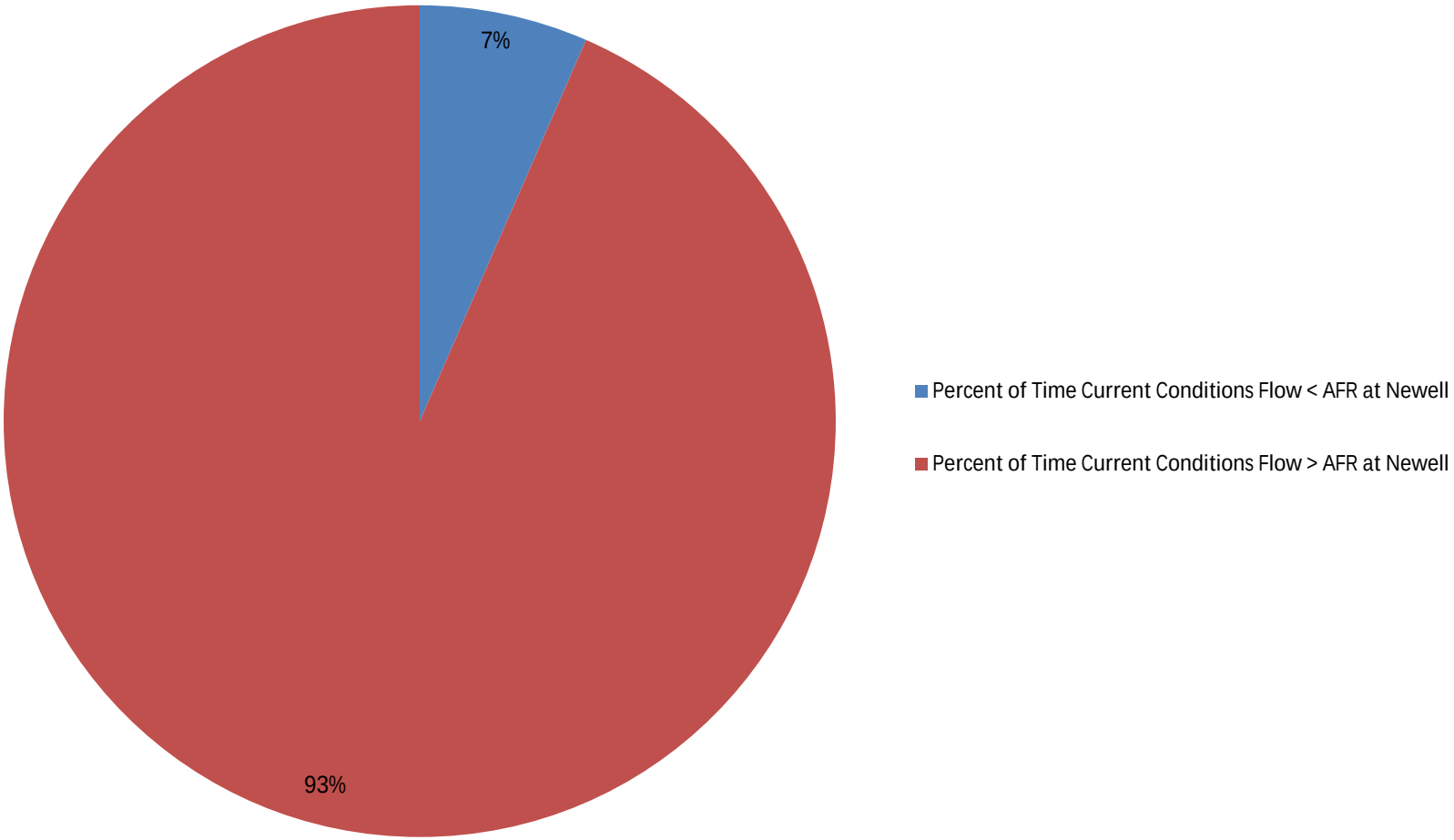


Figure B-5-2 Current Conditions Flow Less Than Adjusted Flow Regime at Newell (Chart Type 2)

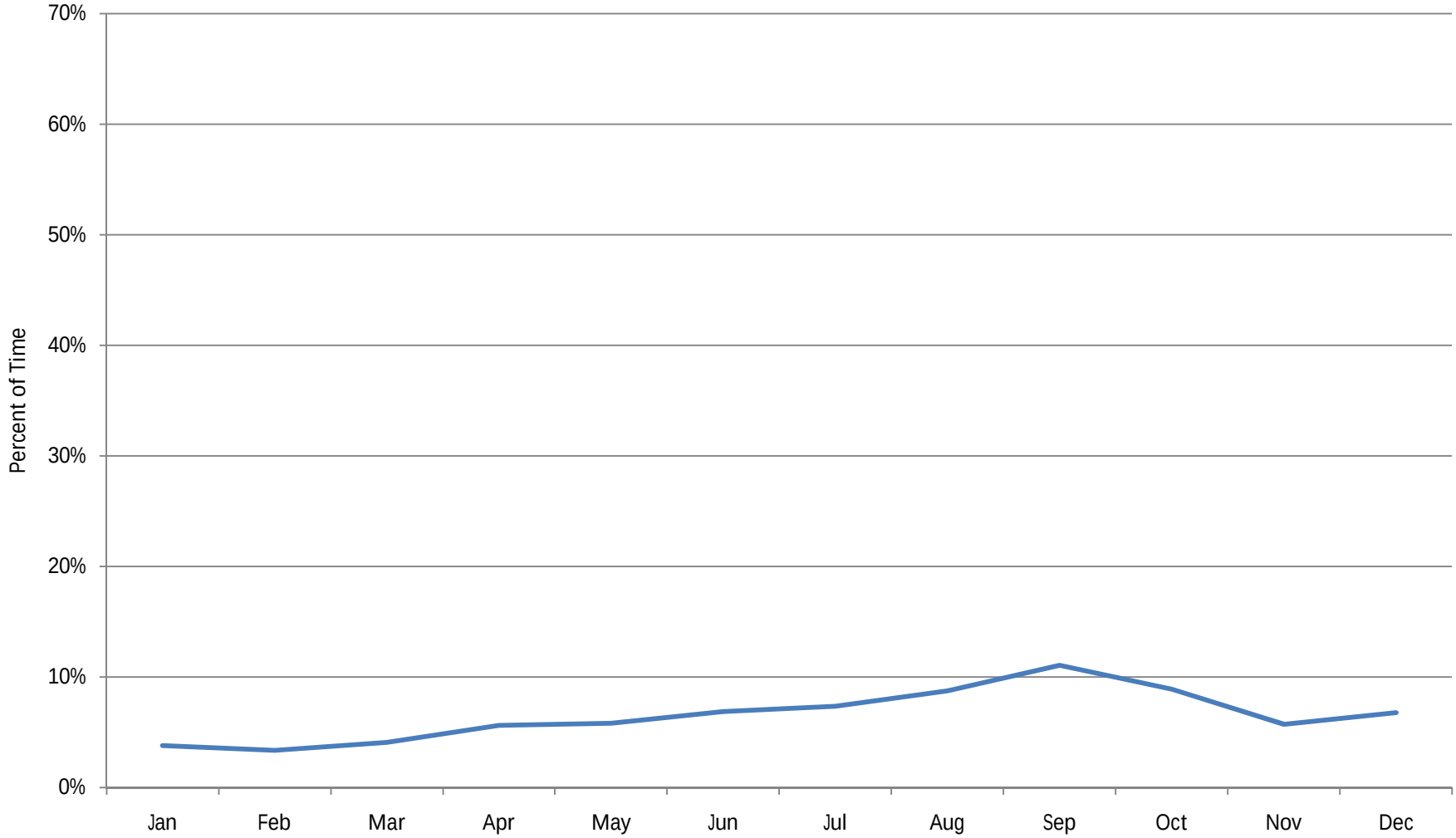


Figure B-5-3 Range of Deficit of Flow Regime at Newell (Chart Type 3)

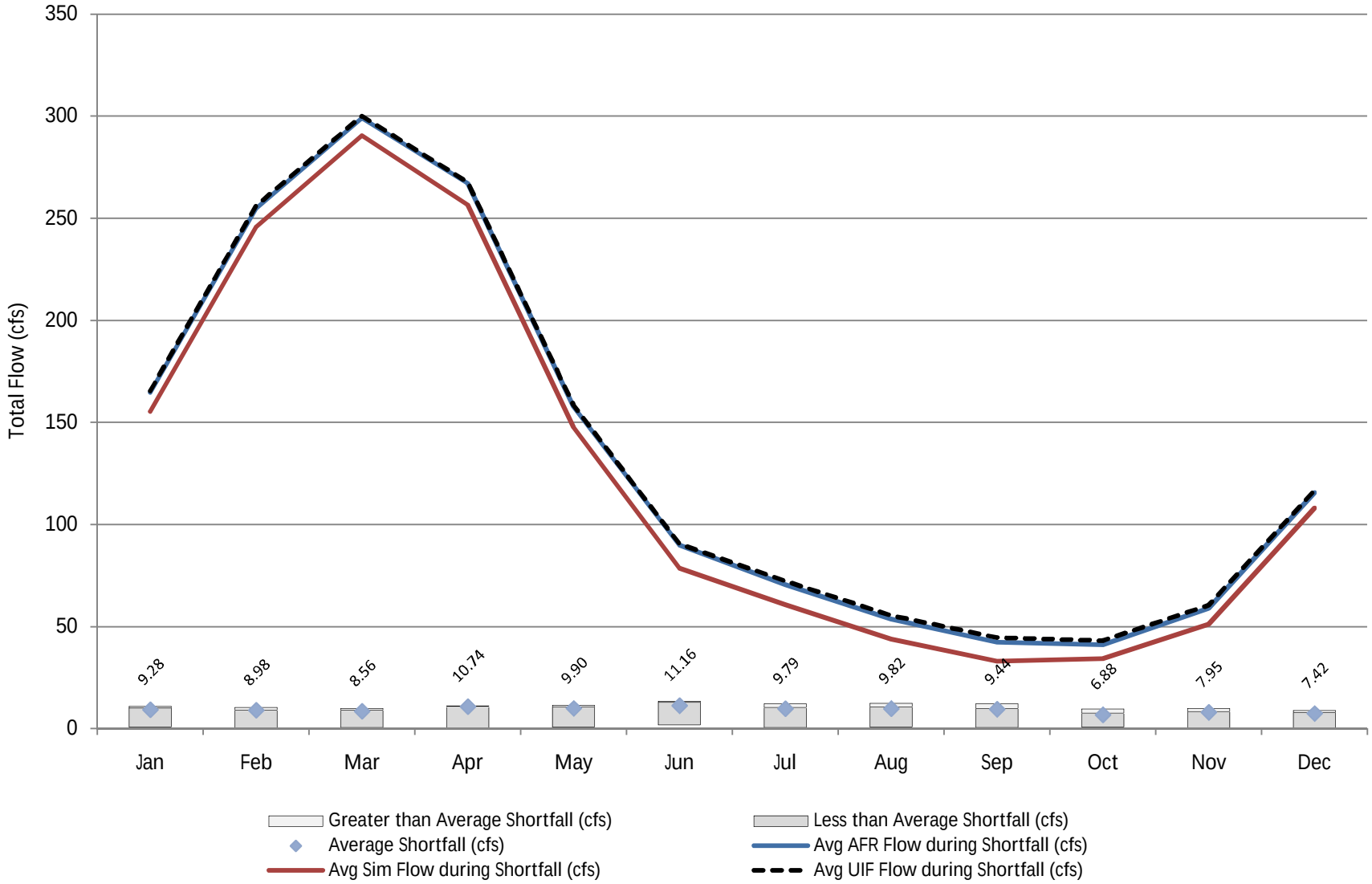


Figure B-5-4 Unimpaired Monthly Range of Flow at Newell (Chart Type 4)

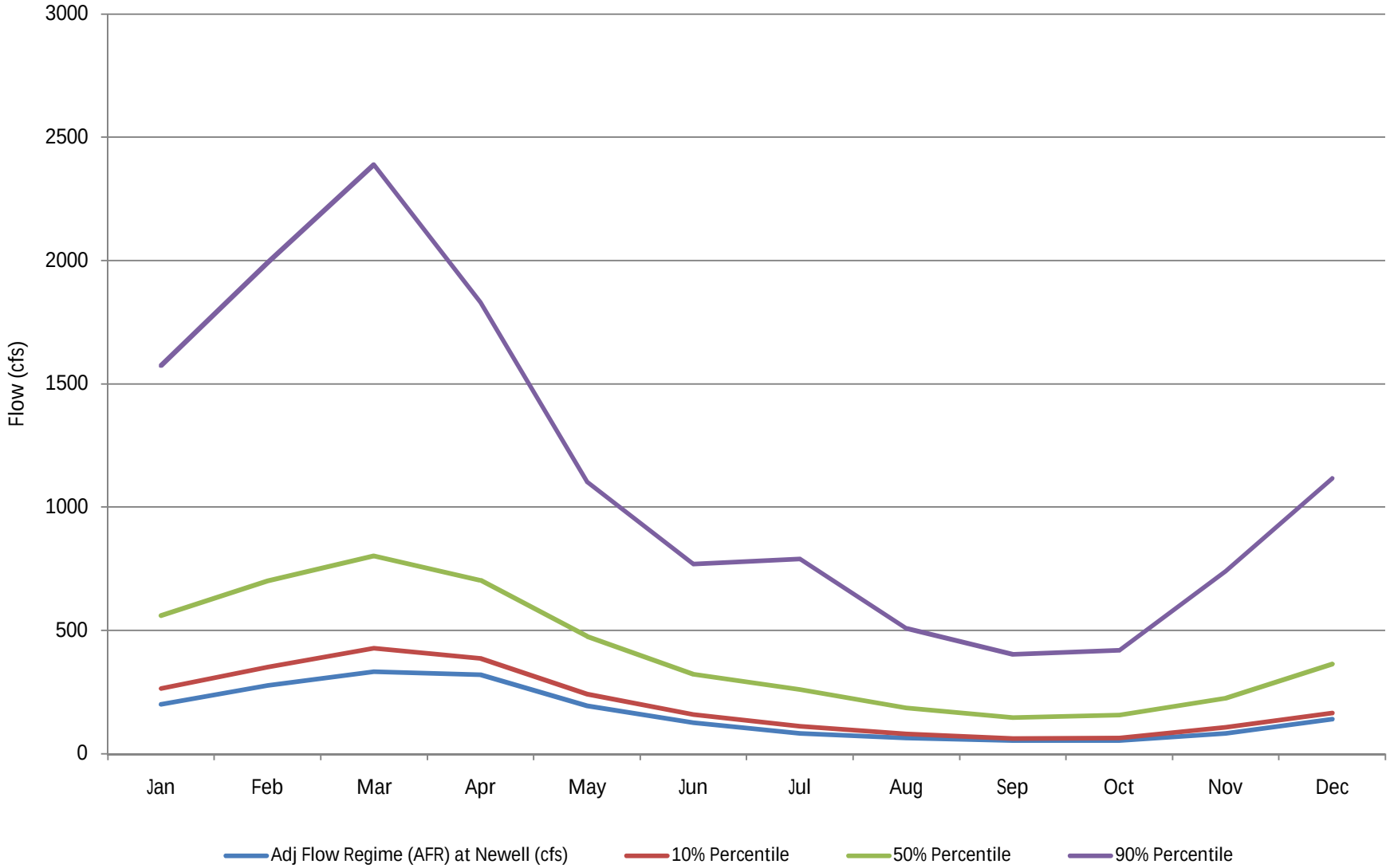
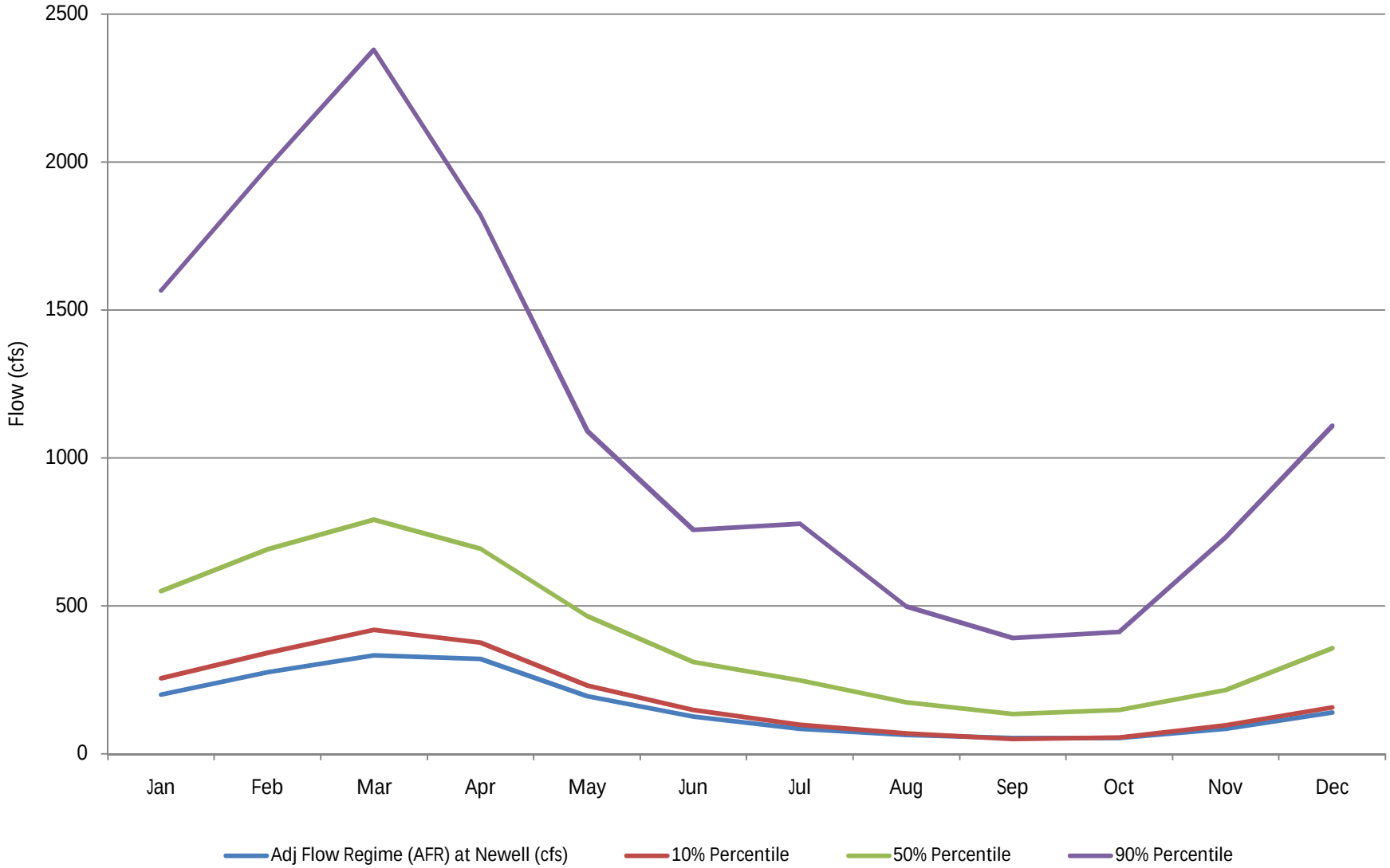


Figure B-5-5 Simulated Monthly Range of Flow at Newell (Chart Type 5)



Appendix C

Oconee-Ocmulgee-Altamaha

Charts depicting flows and shortages relative to flow regime by planning node for current conditions model.

1. Lumber City
2. Penfield
3. Mount Vernon
4. Doctortown

Chart type 1 is a pie chart that shows the percentage of daily flows above and below the adjusted flow regime. The percentage of time above the adjusted flow regime is an indication of how often the flow regime can be met and withdrawals can be made.

Chart type 2 shows the percentage of time that flows are below the adjusted flow regime for each month of the year, indicating months in which water availability is most constrained. The higher the percentage, the more often there are shortfalls, hence more water availability constraints.

Chart type 3 shows certain monthly statistics during periods of shortfalls. Namely, average simulated river flows, average adjusted flow regime flows, and average unimpaired flows are shown by line plots. In addition, each month's average shortfall and the range between the largest and smallest shortfall are shown by bar plots. This chart shows the magnitude of a shortfall for a given month relative to the typical flows available during the month only on the days shortfalls occur. Flows for days without shortfalls are not included in generating these statistics.

Chart type 4 shows plots of monthly values of the adjusted flow regime and the 10-percentile (the lowest 10 percent of unimpaired flows), the 50-percentile (mid-range flows), and 90-percentile (all but the top 10 percent) flows. This range of percentiles covers dry, median, and wet conditions, respectively. The chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream if there were no effects of human development.

Chart type 5 shows plots of monthly values of the adjusted flow regime and the lowest 10 percent of simulated flows, i.e., 10-percentile flows, 50-percentile flows, and 90-percentile flows. This chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream under current condition assumptions.

Chart type 6 shows the daily storage and seasonal top of conservation curve for a given reservoir over the period of record. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 7 shows the percentage of storage remaining relative to the seasonal top of conservation pool for a given reservoir over the period of record. The reservoir is 100 percent full when the level is at or above the rule curve. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 8 shows the percentage of time that the remaining storage of a given reservoir is above a given percentage relative to the rule curve. The reservoir is 100 percent full when the level is at or above the rule curve. Storage remaining in the reservoir reflects magnitude and timing of demands.

AFR = Adjusted Flow Regime

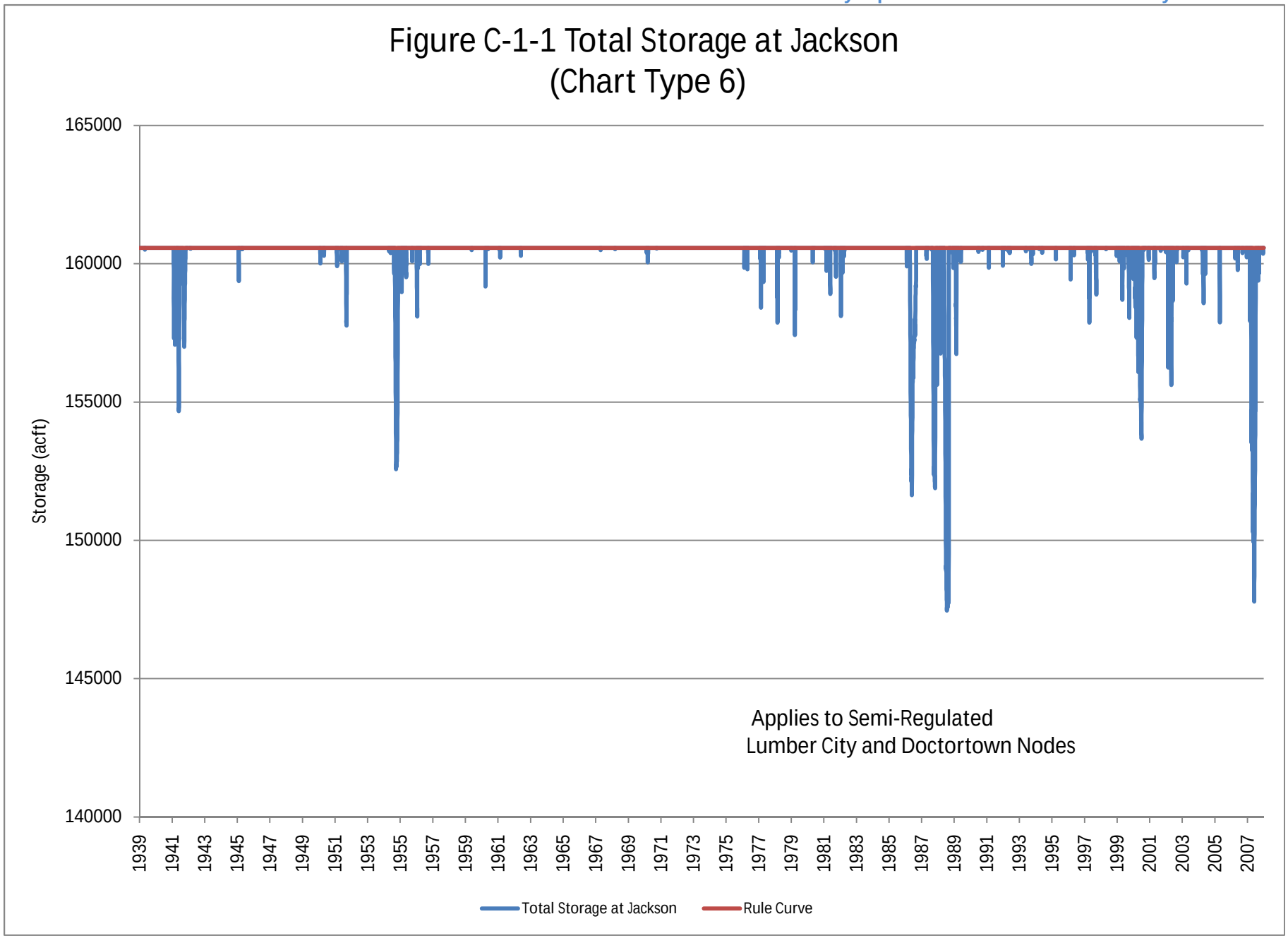


Figure C-1-1 Total Storage at Jackson
(Chart Type 6)
Storage (acft)
165000
160000
155000
150000
145000
140000
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated
Lumber City and Doctortown Nodes
Total Storage at Jackson
Rule Curve

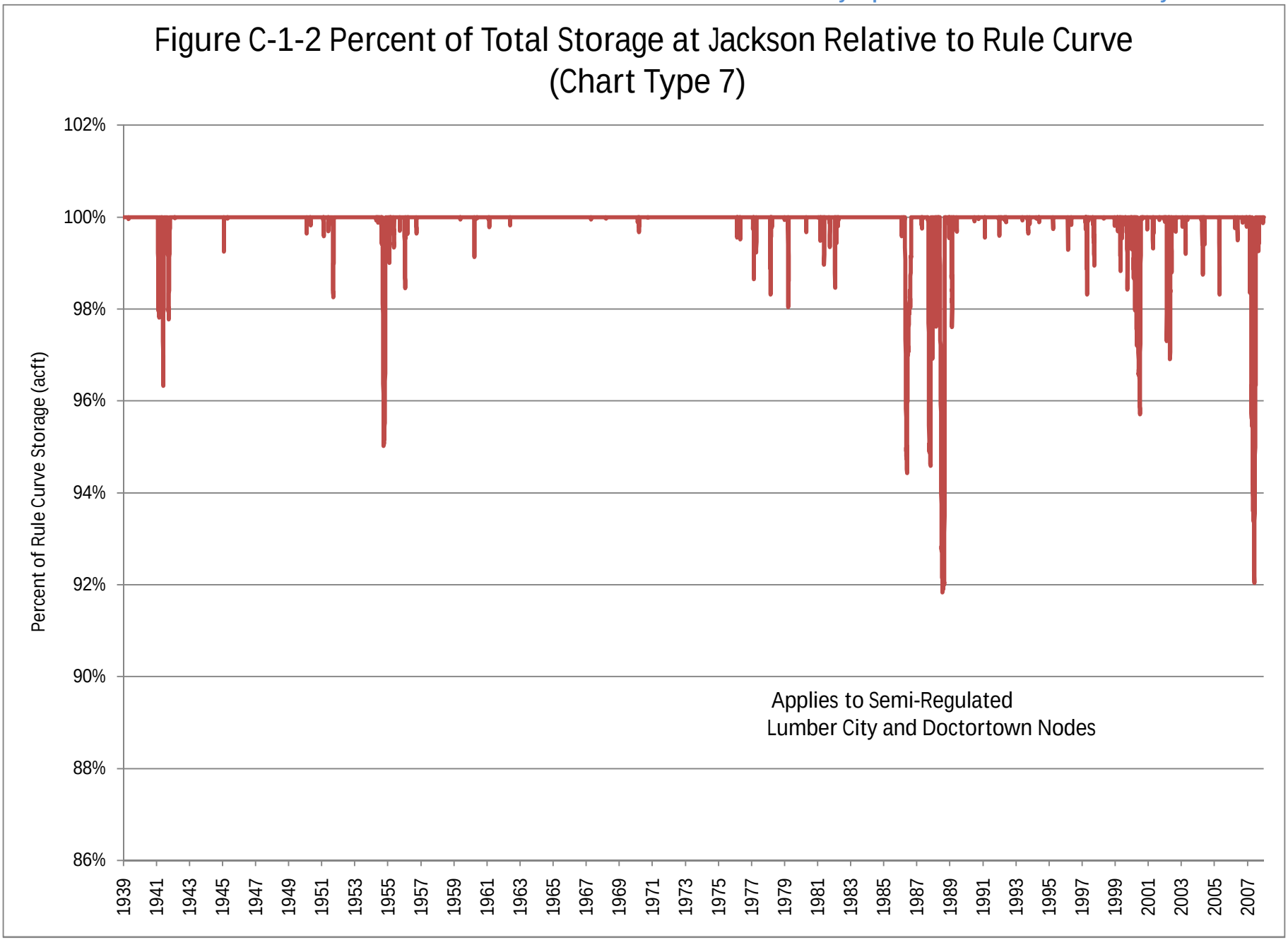


Figure C-1-2 Percent of Total Storage at Jackson Relative to Rule Curve
(Chart Type 7)
Percent of Rule Curve Storage (acft)
102%
100%
98%
96%
94%
92%
90%
88%
86%
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated
Lumber City and Doctortown Nodes

Figure C-1-3 Frequency of Exceedence of Percent Total Storage at Jackson Relative to Rule Curve
(Chart Type 8)

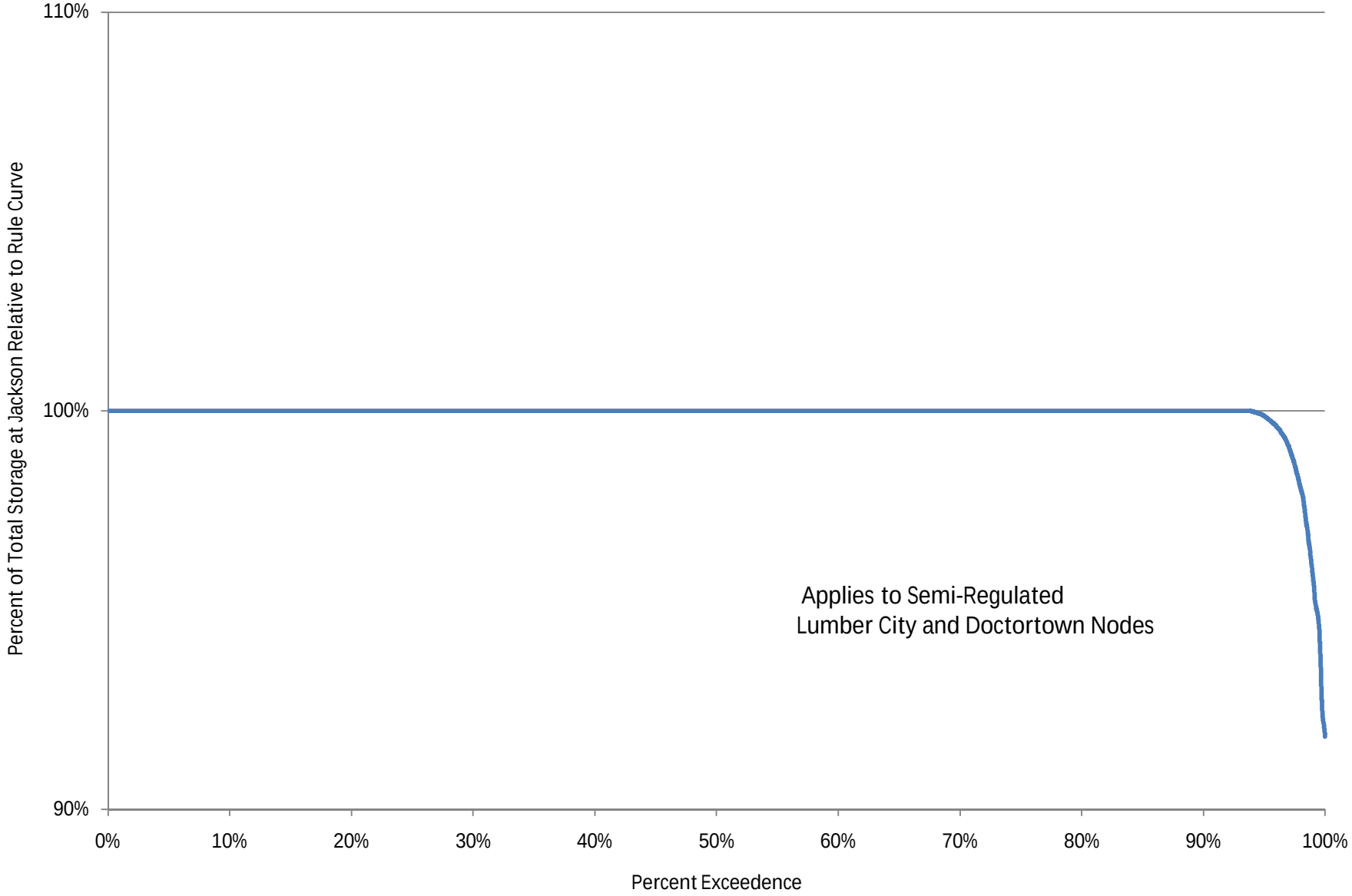


Figure C-2-1 Average Percentage of Flow Compared to Flow Regime at Penfield (Chart Type 1)

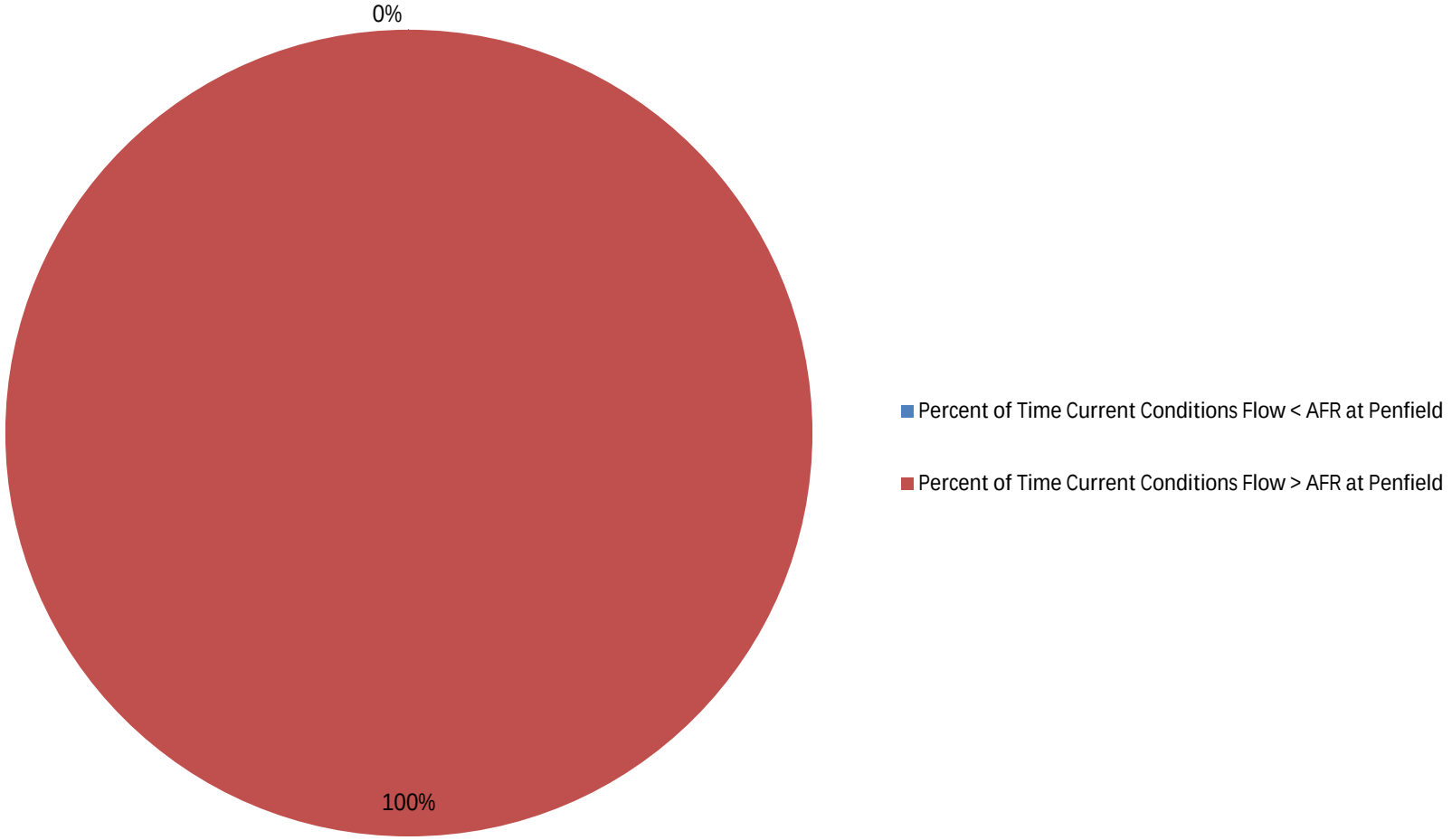


Figure C-2-2 Current Conditions Flow Less Than Adjusted Flow Regime at Penfield (Chart Type 2)

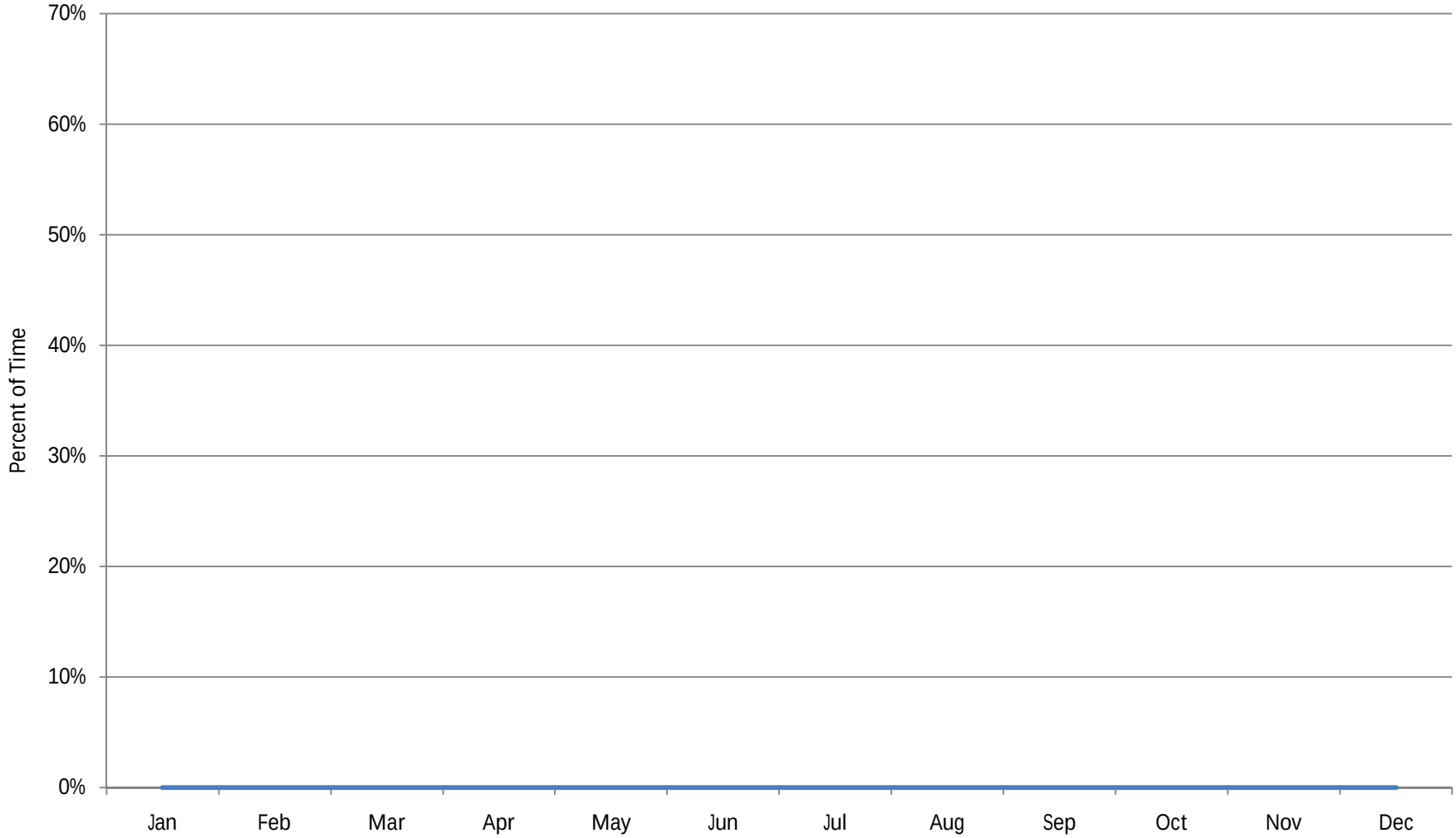


Figure C-2-3 Range of Deficit of Flow Regime at Penfield (Chart Type 3)

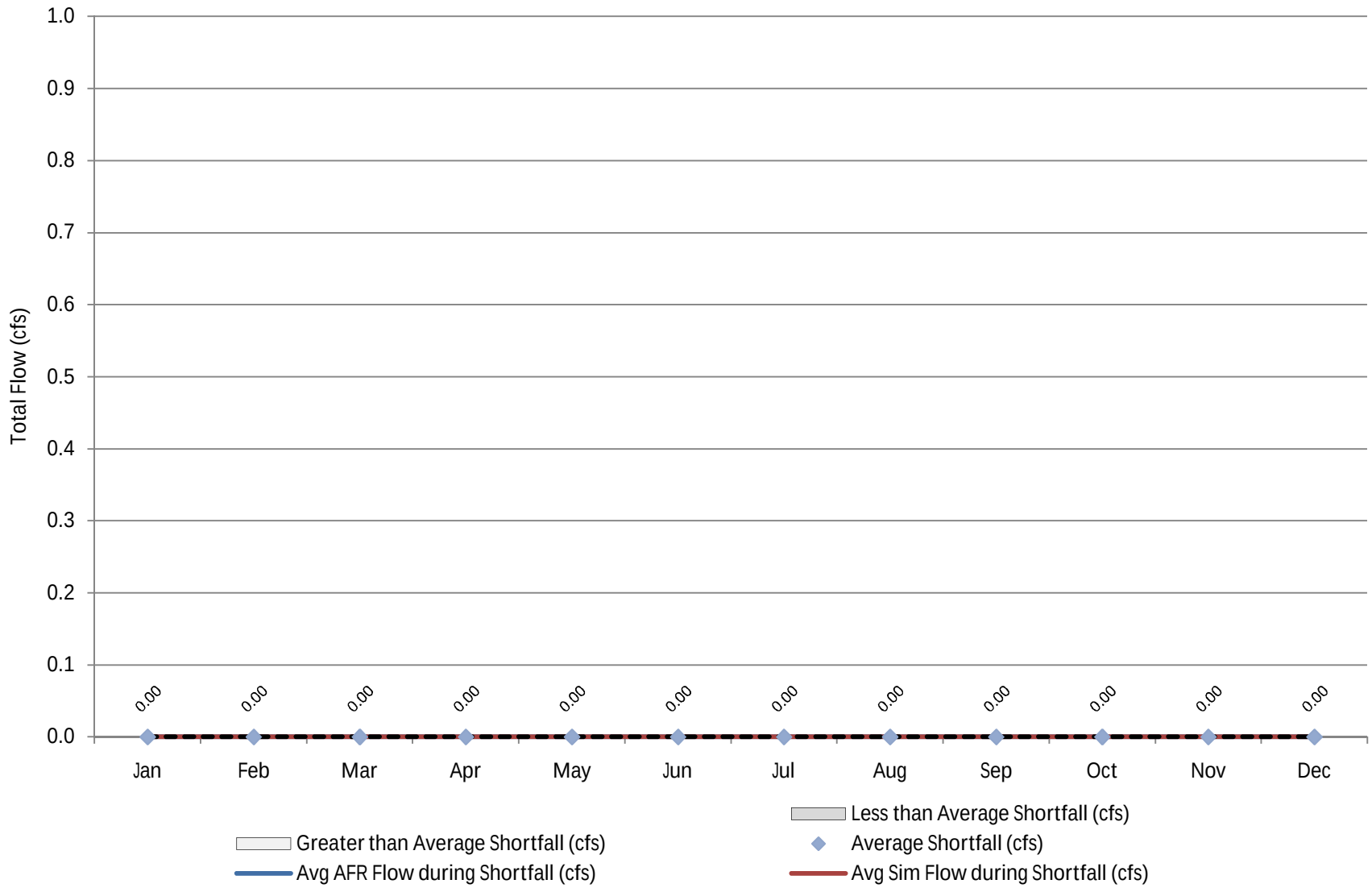


Figure C-2-4 Unimpaired Monthly Range of Flow at Penfield (Chart Type 4)

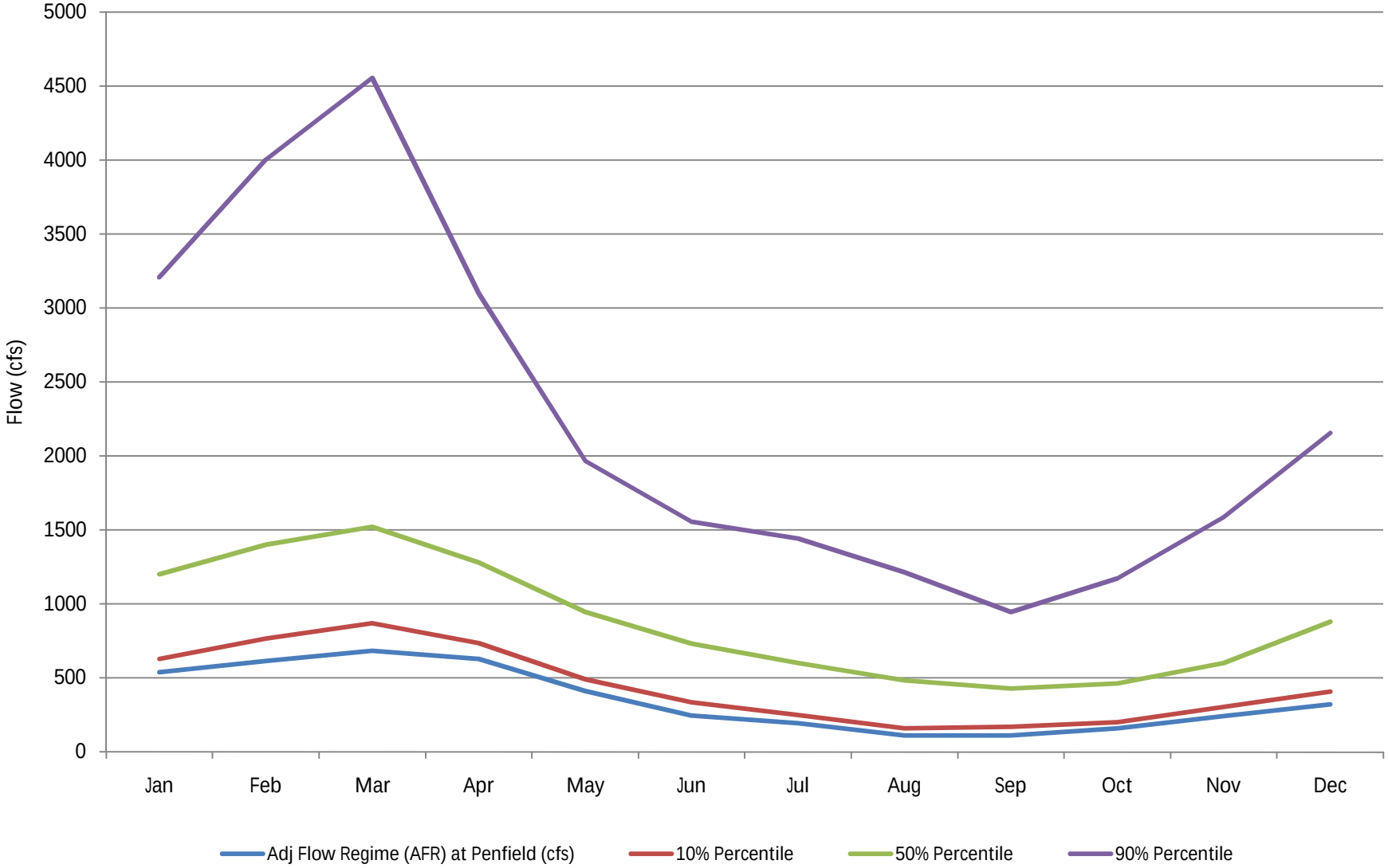
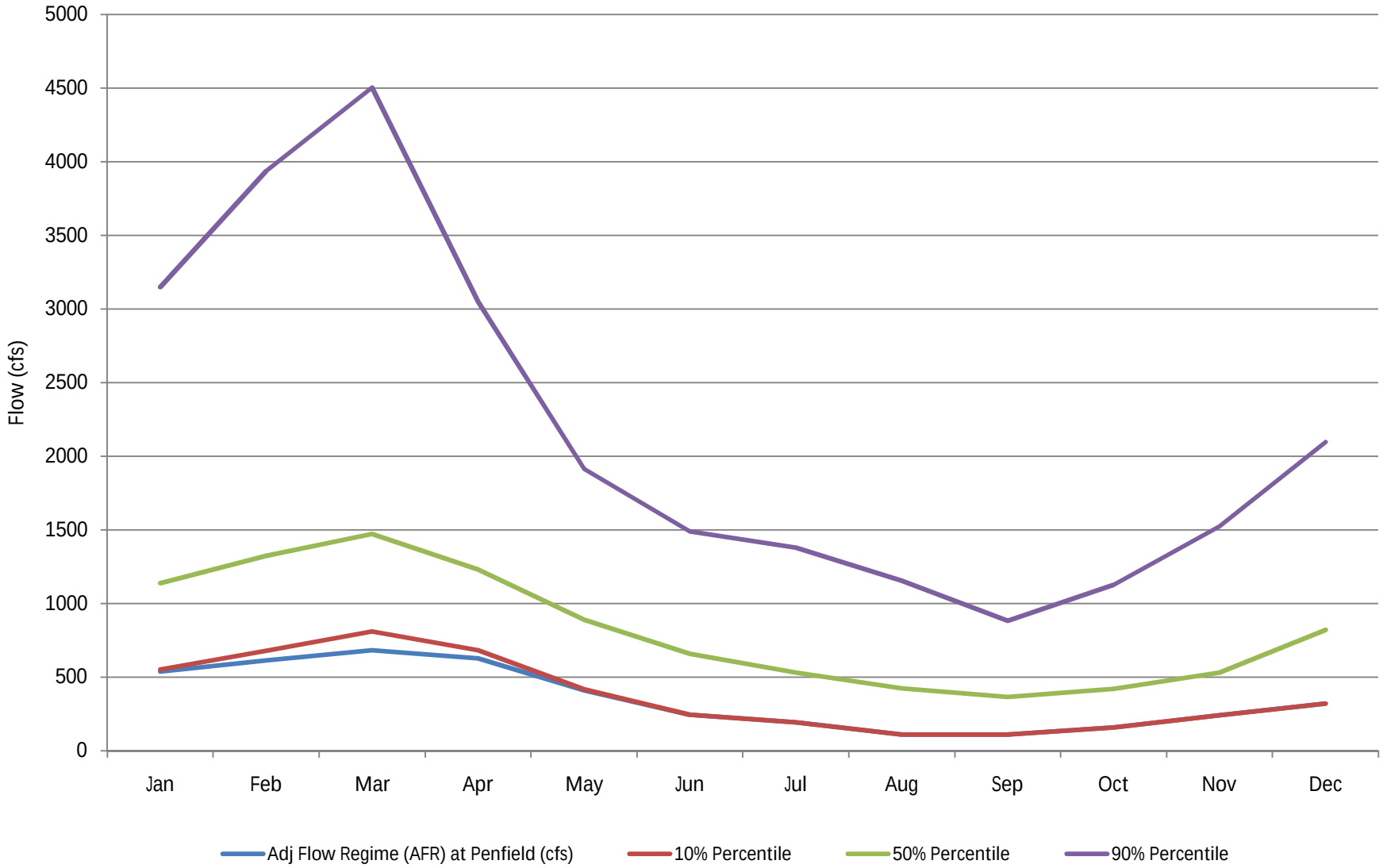


Figure C-2-5 Simulated Monthly Range of Flow at Penfield (Chart Type 5)



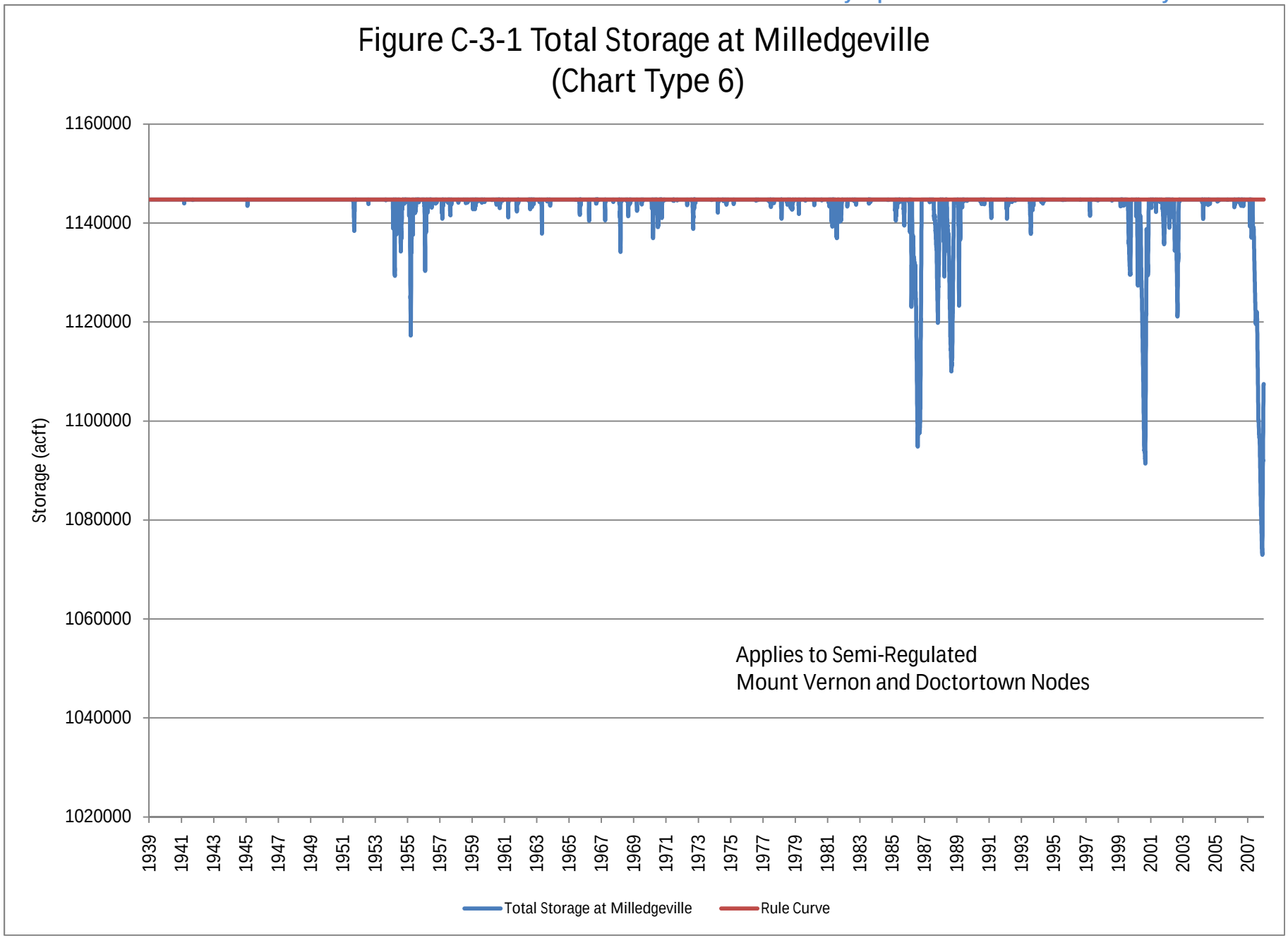


Figure C-3-1 Total Storage at Milledgeville
(Chart Type 6)
Storage (acft)
1160000
1140000
1120000
1100000
1080000
1060000
1040000
1020000
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated
Mount Vernon and Doctortown Nodes
Total Storage at Milledgeville
Rule Curve

Figure C-3-2 Percent of Total Storage at Milledgeville Relative to Rule Curve
(Chart Type 7)

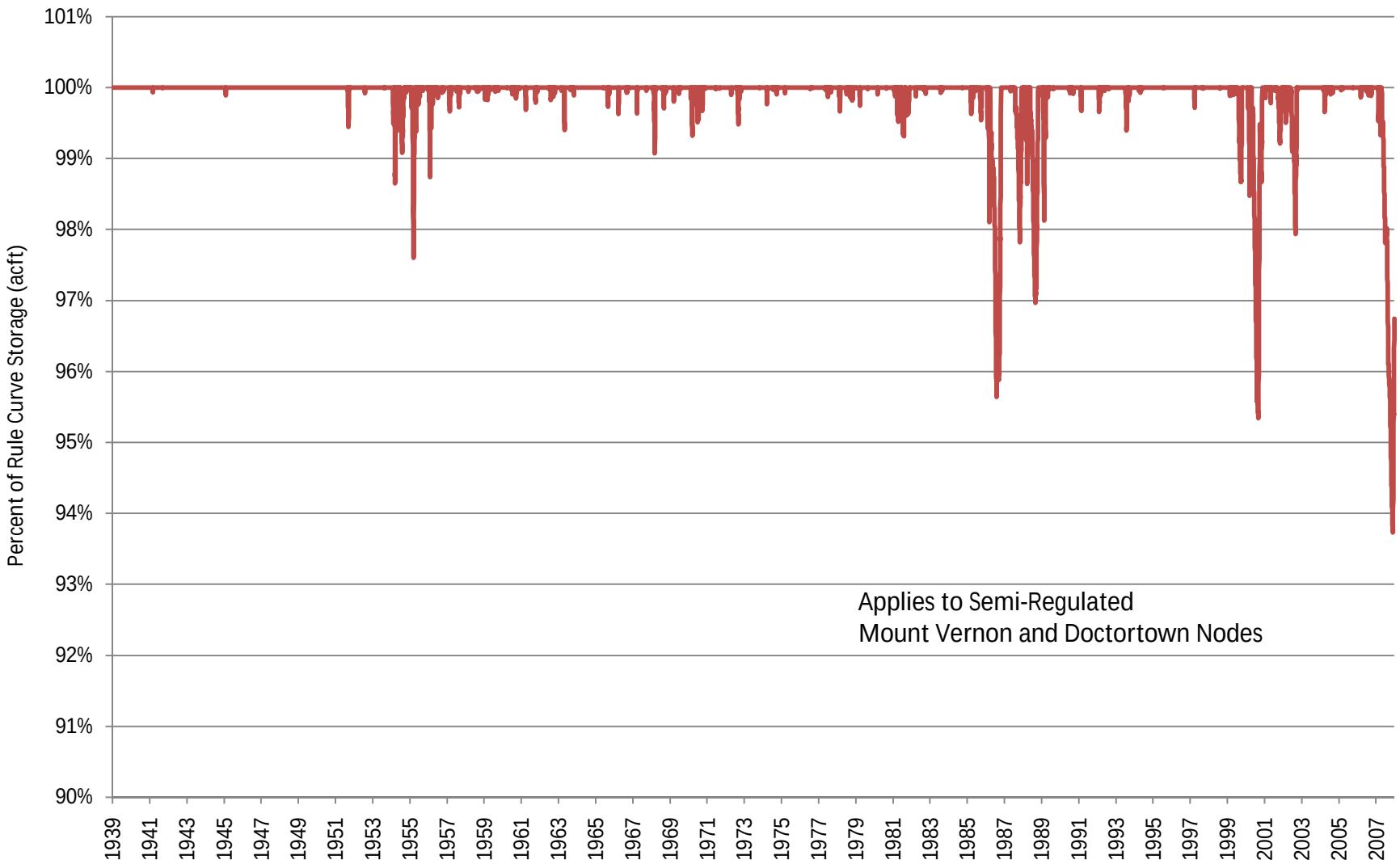
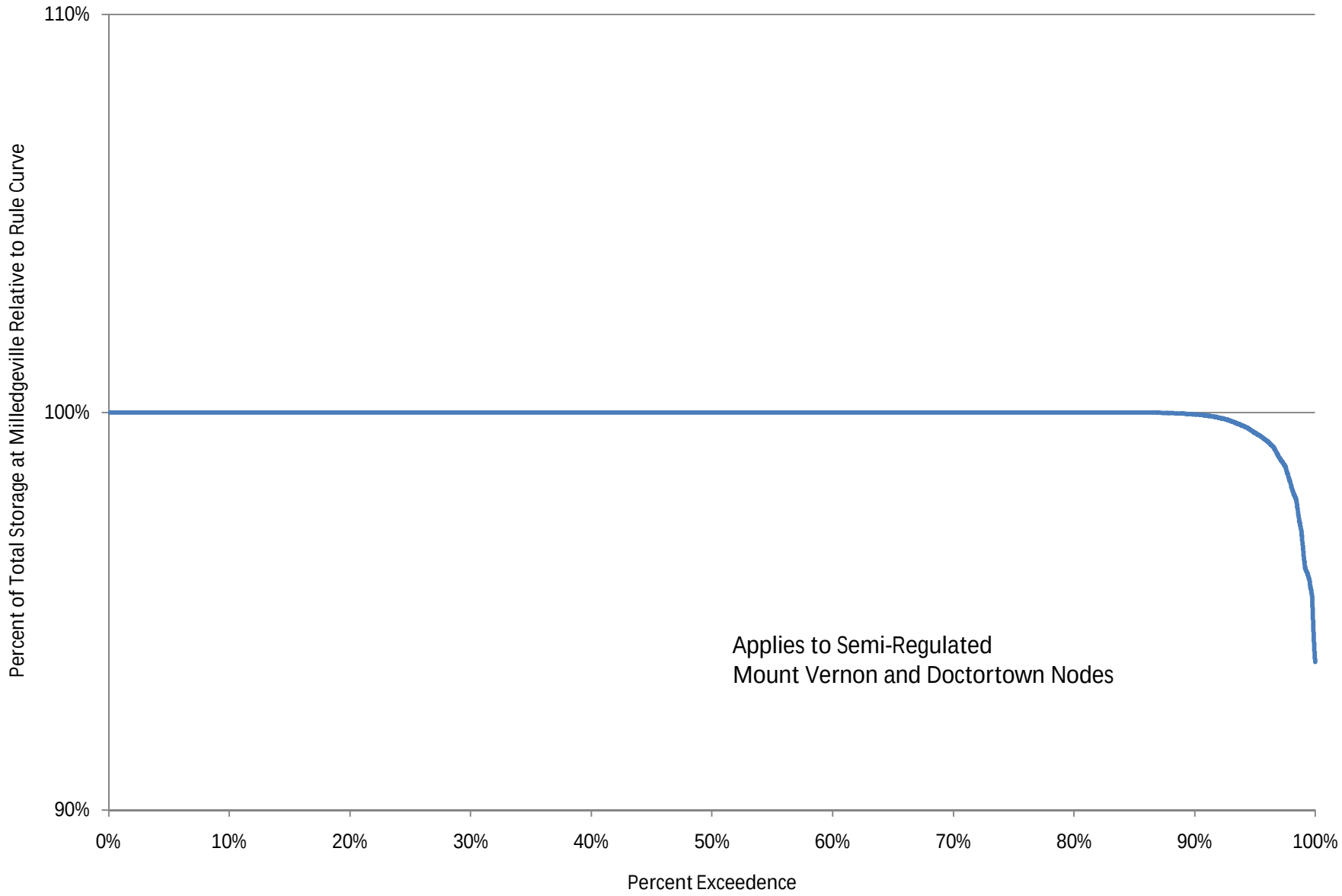


Figure C-3-3 Frequency of Exceedence of Percent Total Storage at Milledgeville Relative to Rule Curve
(Chart Type 8)



Appendix D

Ochlockonee-Suwannee-Satilla-St. Mary's

Charts depicting flows and shortages relative to flow regime by planning node for current conditions model.

1. Quincy
2. Concord
3. Pinetta
4. Statenville
5. Atkinson
6. Jennings
7. Fargo
8. Gross

Chart type 1 is a pie chart that shows the percentage of daily flows above and below the adjusted flow regime. The percentage of time above the adjusted flow regime is an indication of how often the flow regime can be met and withdrawals can be made.

Chart type 2 shows the percentage of time that flows are below the adjusted flow regime for each month of the year, indicating months in which water availability is most constrained. The higher the percentage, the more often there are shortfalls, hence more water availability constraints.

Chart type 3 shows certain monthly statistics during periods of shortfalls. Namely, average simulated river flows, average adjusted flow regime flows, and average unimpaired flows are shown by line plots. In addition, each month's average shortfall and the range between the largest and smallest shortfall are shown by bar plots. This chart shows the magnitude of a shortfall for a given month relative to the typical flows available during the month only on the days shortfalls occur. Flows for days without shortfalls are not included in generating these statistics.

Chart type 4 shows plots of monthly values of the adjusted flow regime and the 10-percentile (the lowest 10 percent of unimpaired flows), the 50-percentile (mid-range flows), and 90-percentile (all but the top 10 percent) flows. This range of percentiles covers dry, median, and wet conditions, respectively. The chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream if there were no effects of human development.

Chart type 5 shows plots of monthly values of the adjusted flow regime and the lowest 10 percent of simulated flows, i.e., 10-percentile flows, 50-percentile flows, and 90-percentile flows. This chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream under current condition assumptions.

AFR = Adjusted Flow Regime

Figure D-1-1 Average Percentage of Flow Compared to Flow Regime at Quincy (Chart Type 1)

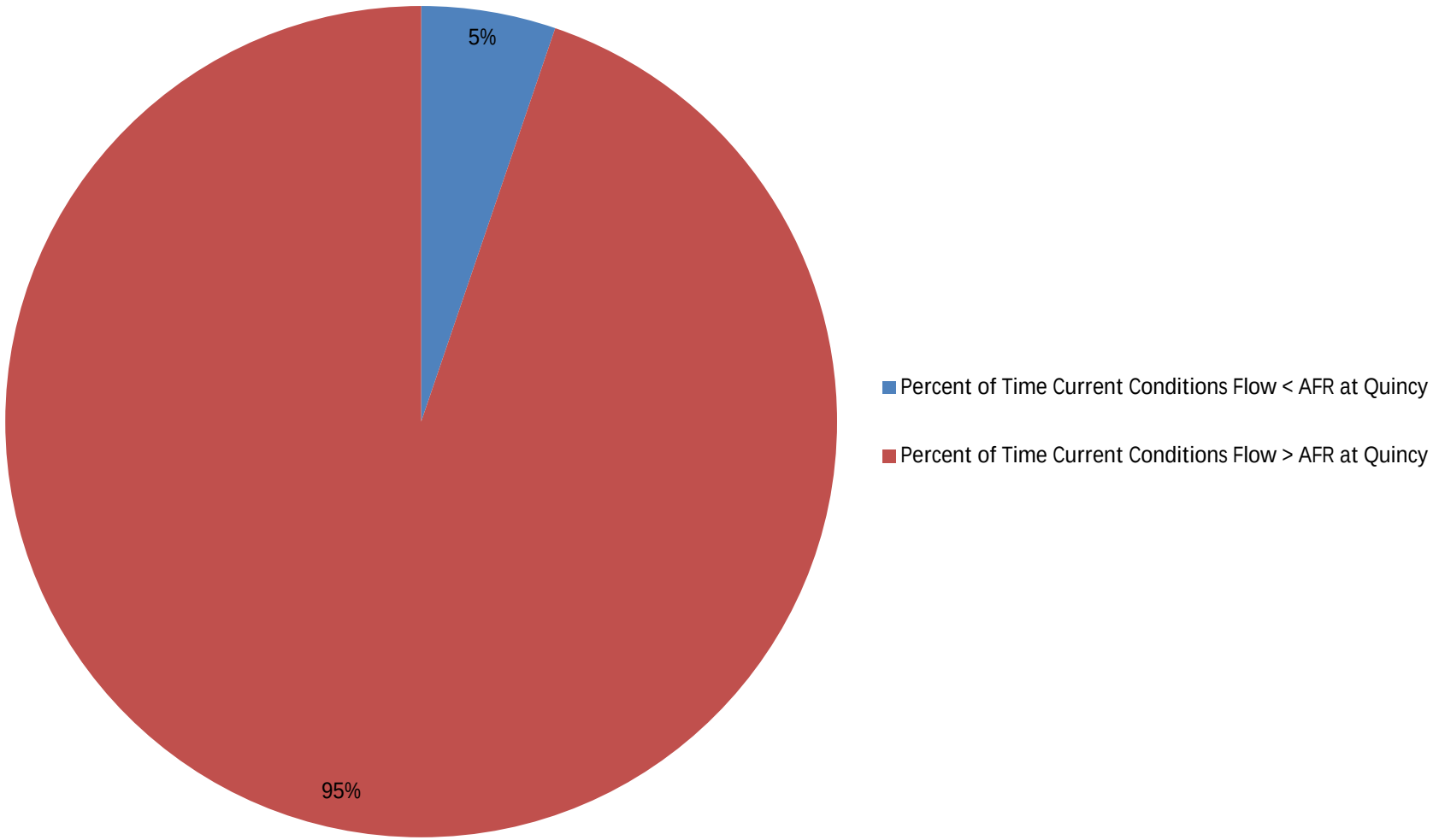


Figure D-1-2 Current Conditions Flow Less Than Adjusted Flow Regime at Quincy (Chart Type 2)

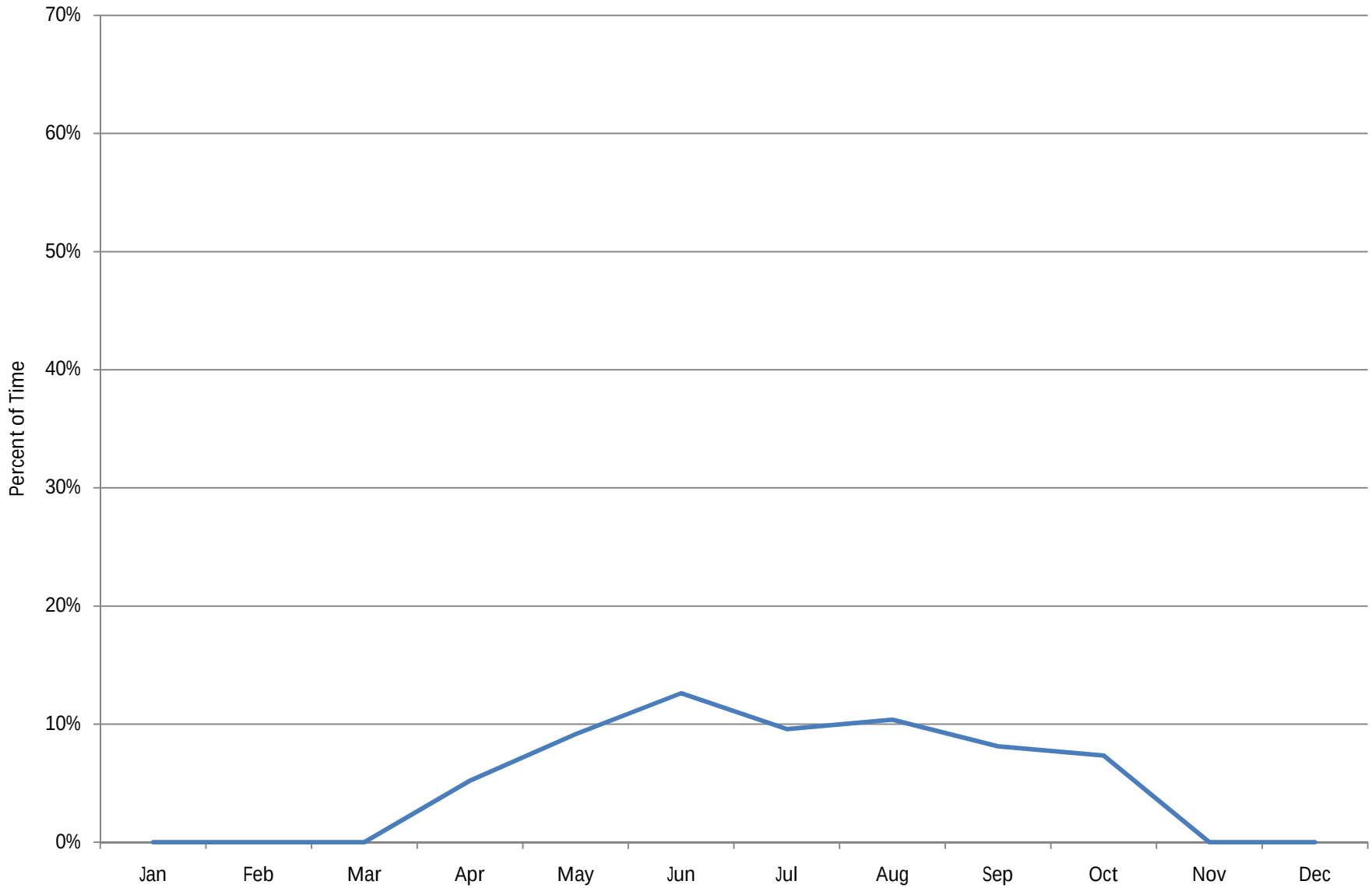
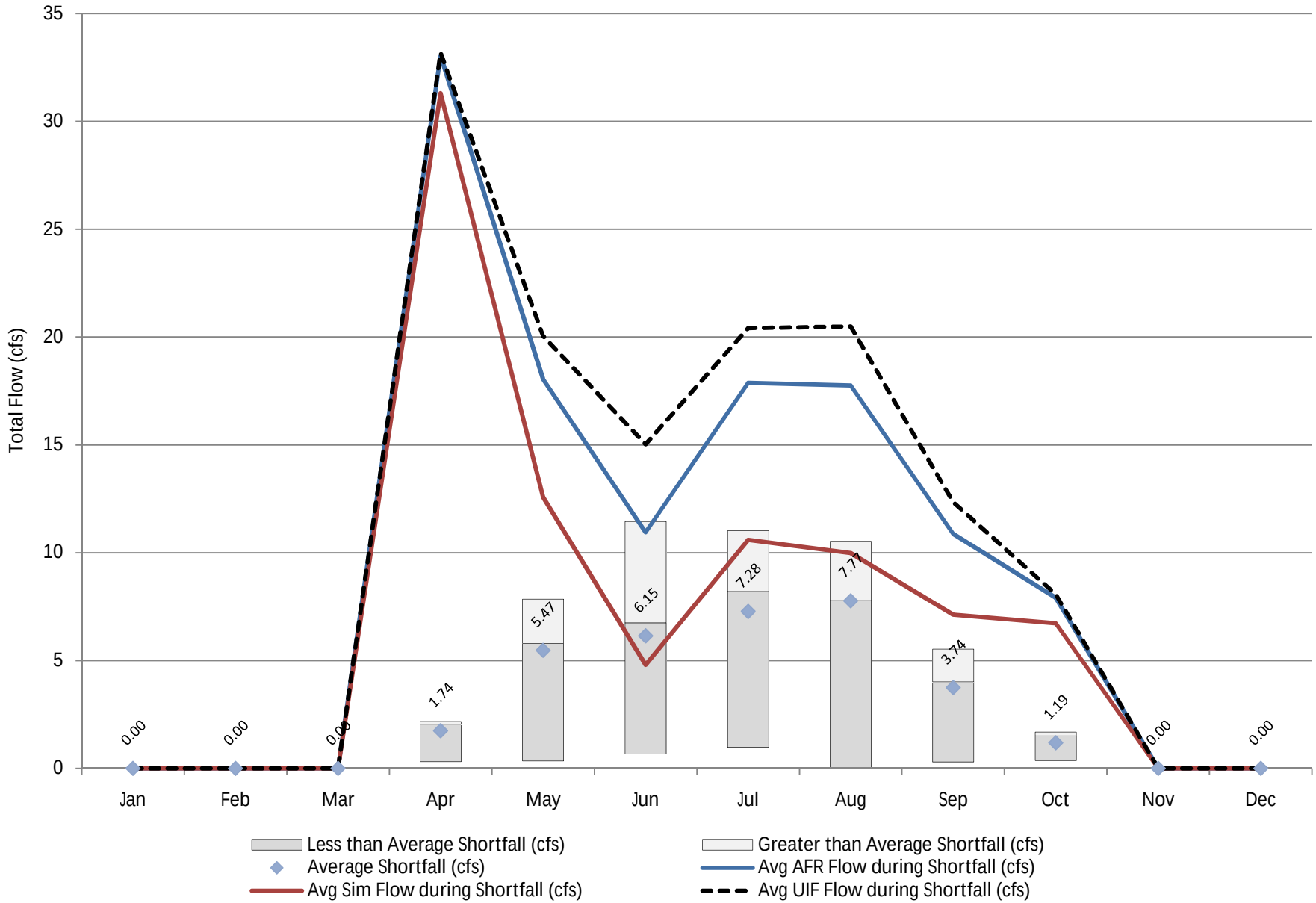


Figure D-1-3 Range of Deficit of Flow Regime at Quincy (Chart Type 3)



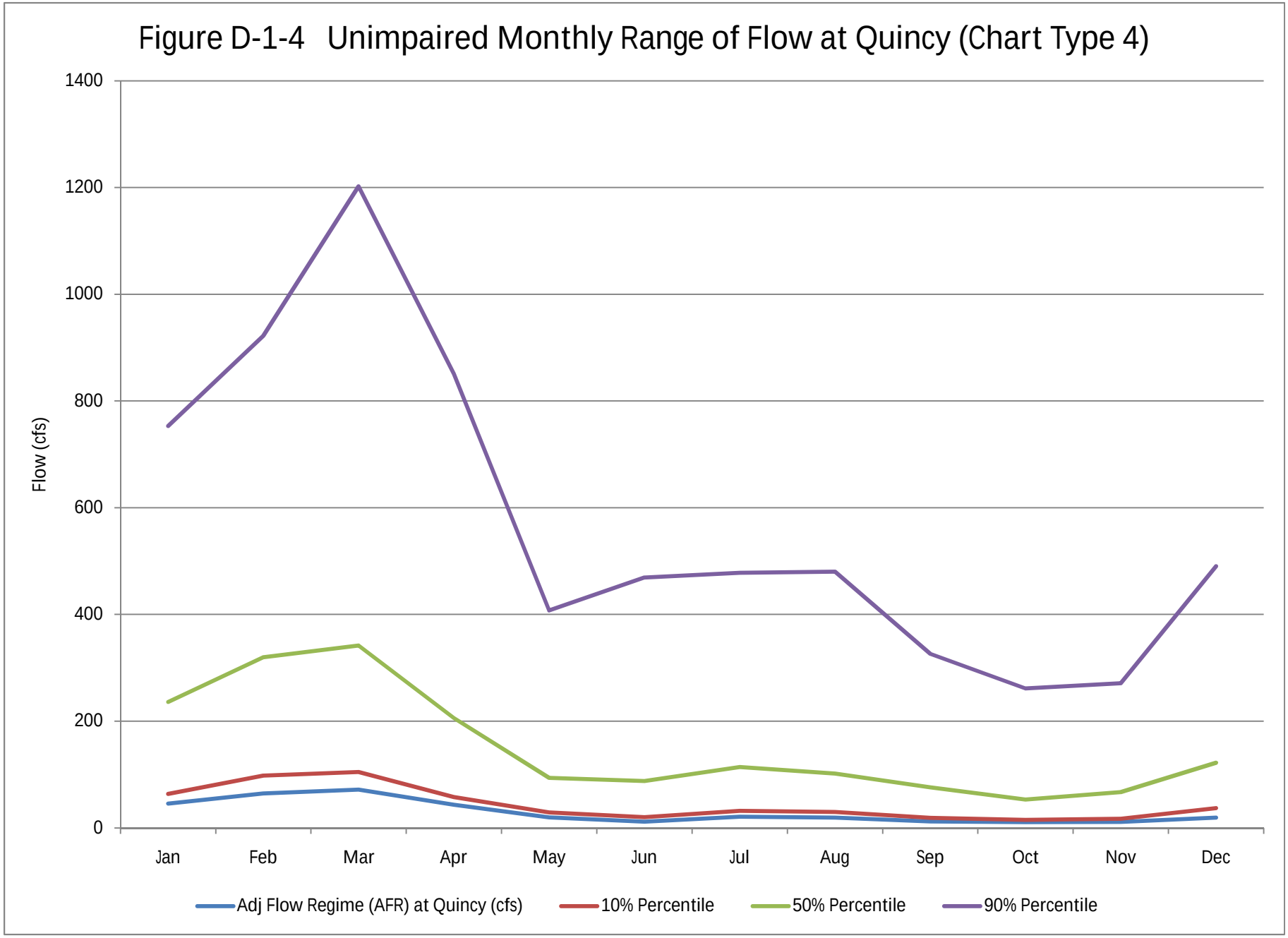


Figure D-1-4 Unimpaired Monthly Range of Flow at Quincy (Chart Type 4)
Flow (cfs)
1400
1200
1000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Quincy (cfs)
10% Percentile
50% Percentile
90% Percentile

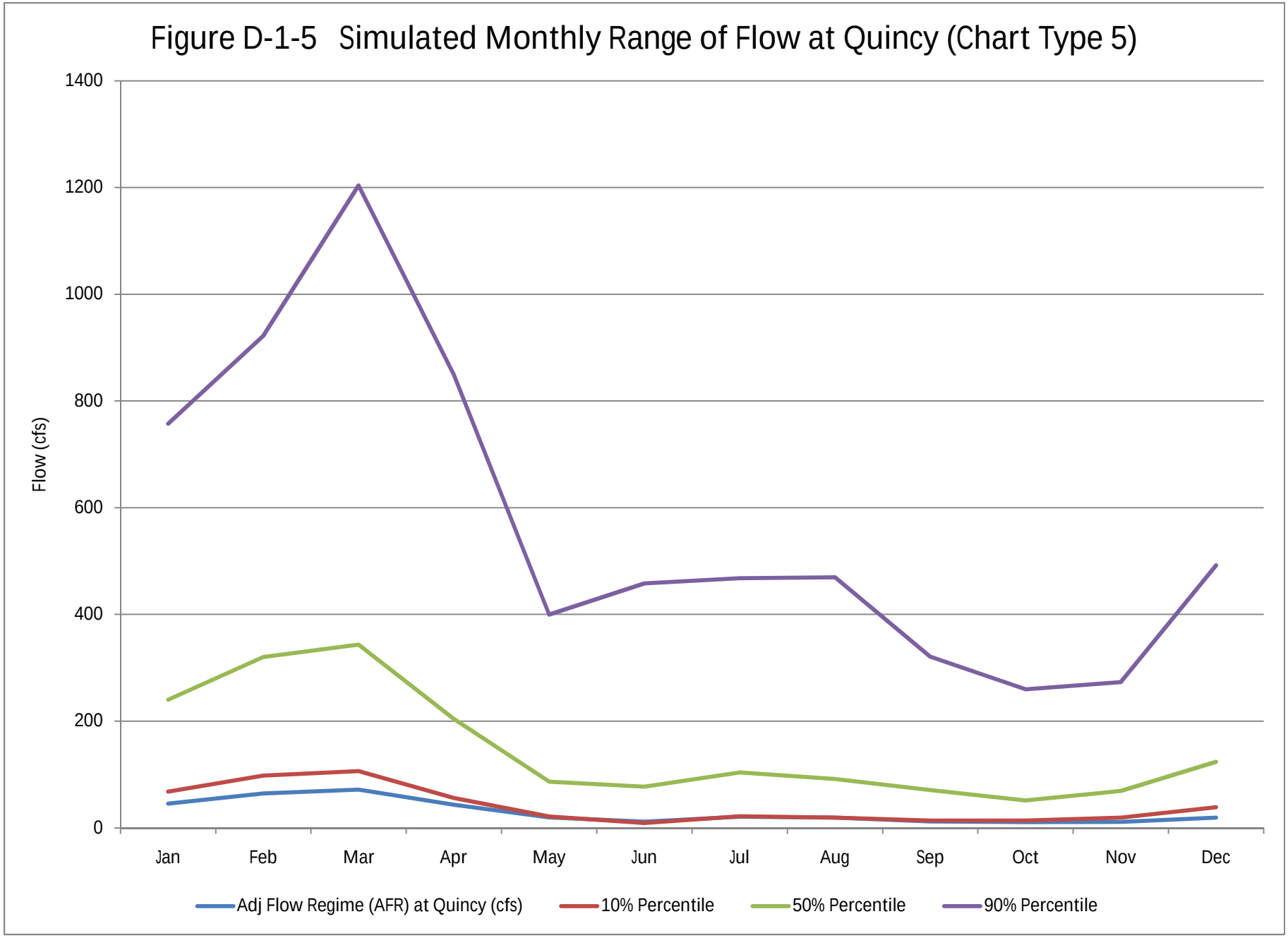


Figure D-1-5 Simulated Monthly Range of Flow at Quincy (Chart Type 5)
Flow (cfs)
1400
1200
1000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Quincy (cfs)
10% Percentile
50% Percentile
90% Percentile

Figure D-2-1 Average Percentage of Flow Compared to Flow Regime at Concord (Chart Type 1)

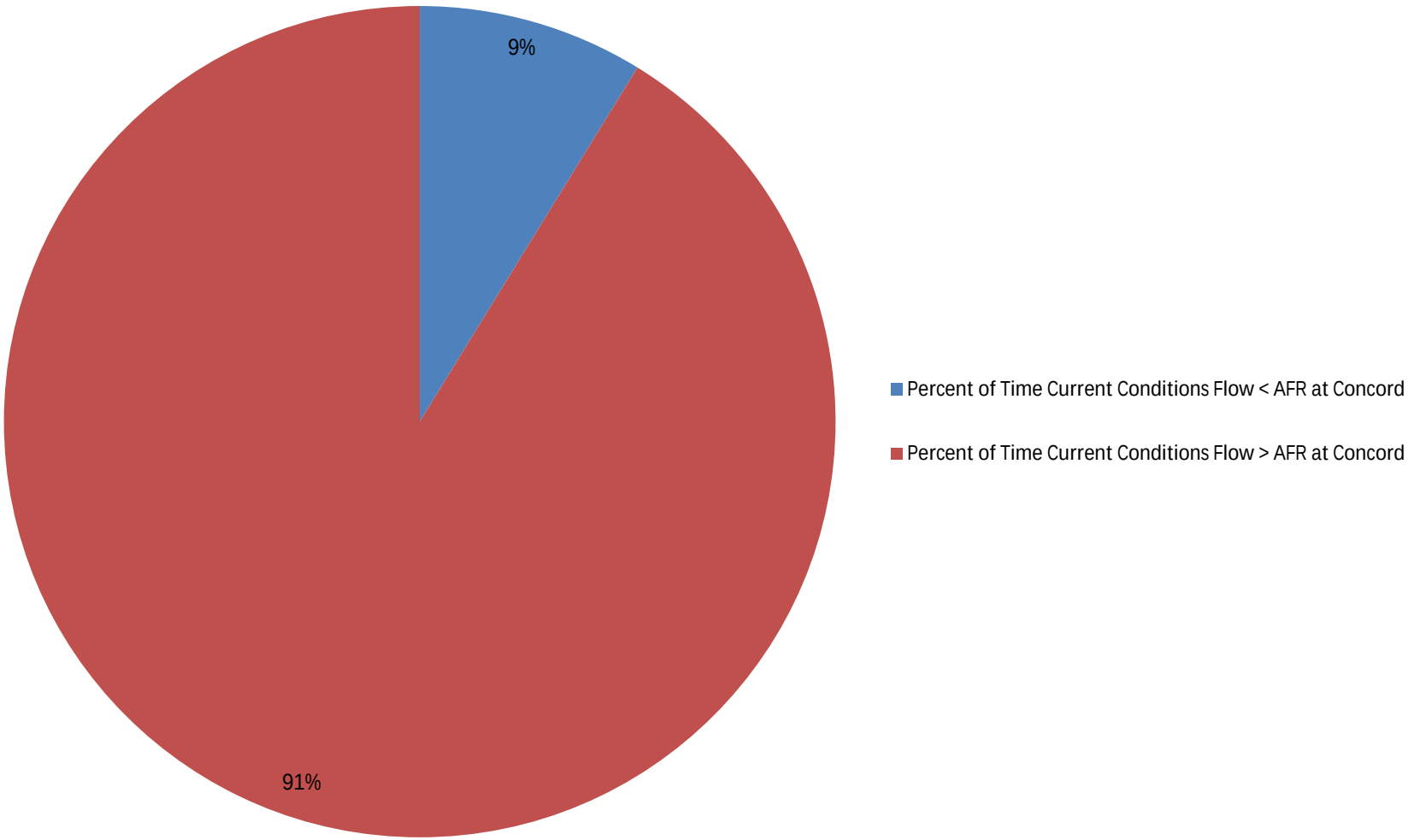


Figure D-2-2 Current Conditions Flow Less Than Adjusted Flow Regime at Concord (Chart Type 2)

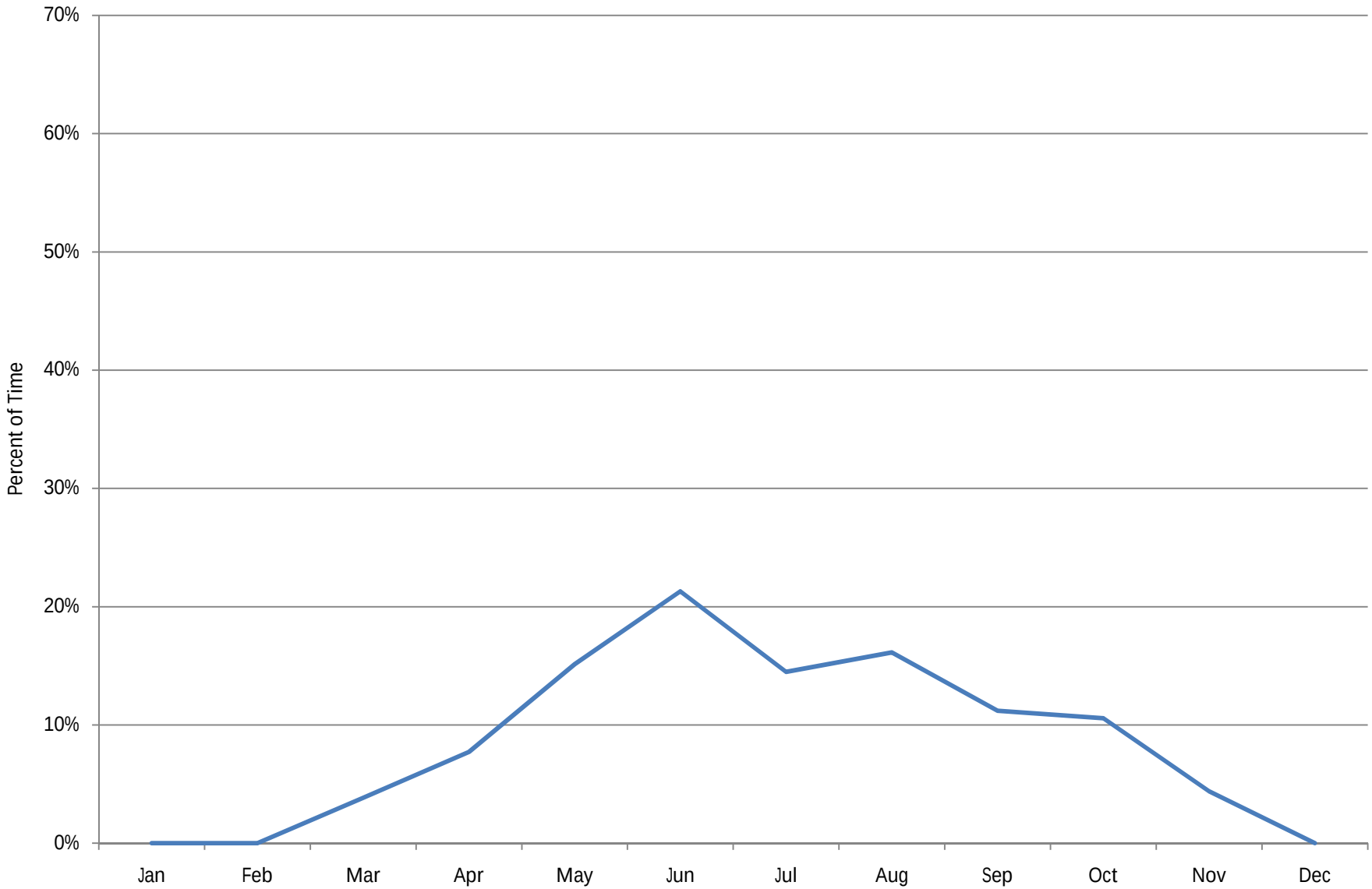


Figure D-2-3 Range of Deficit of Flow Regime at Concord (Chart Type 3)

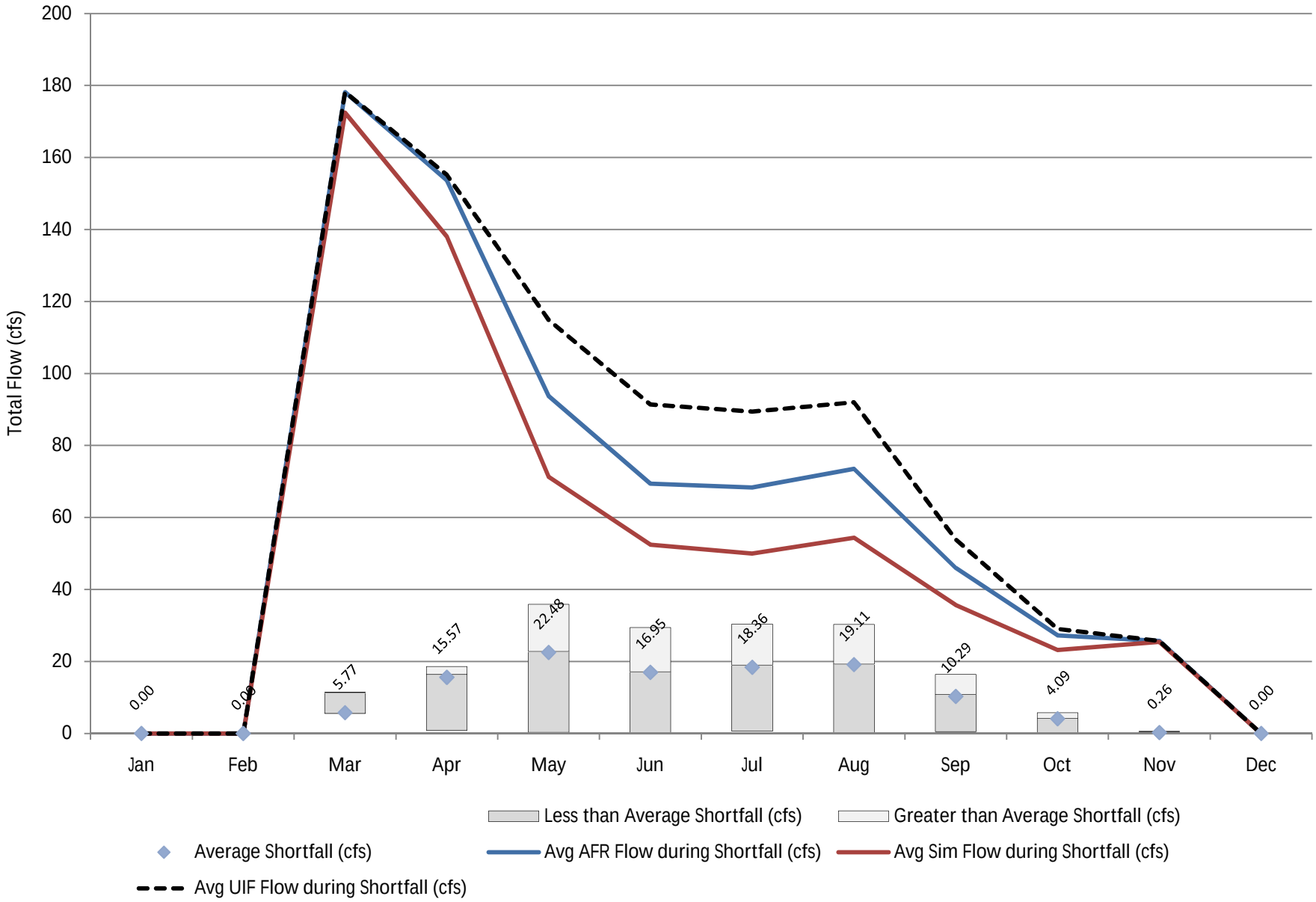


Figure D-2-4 Unimpaired Monthly Range of Flow at Concord (Chart Type 4)

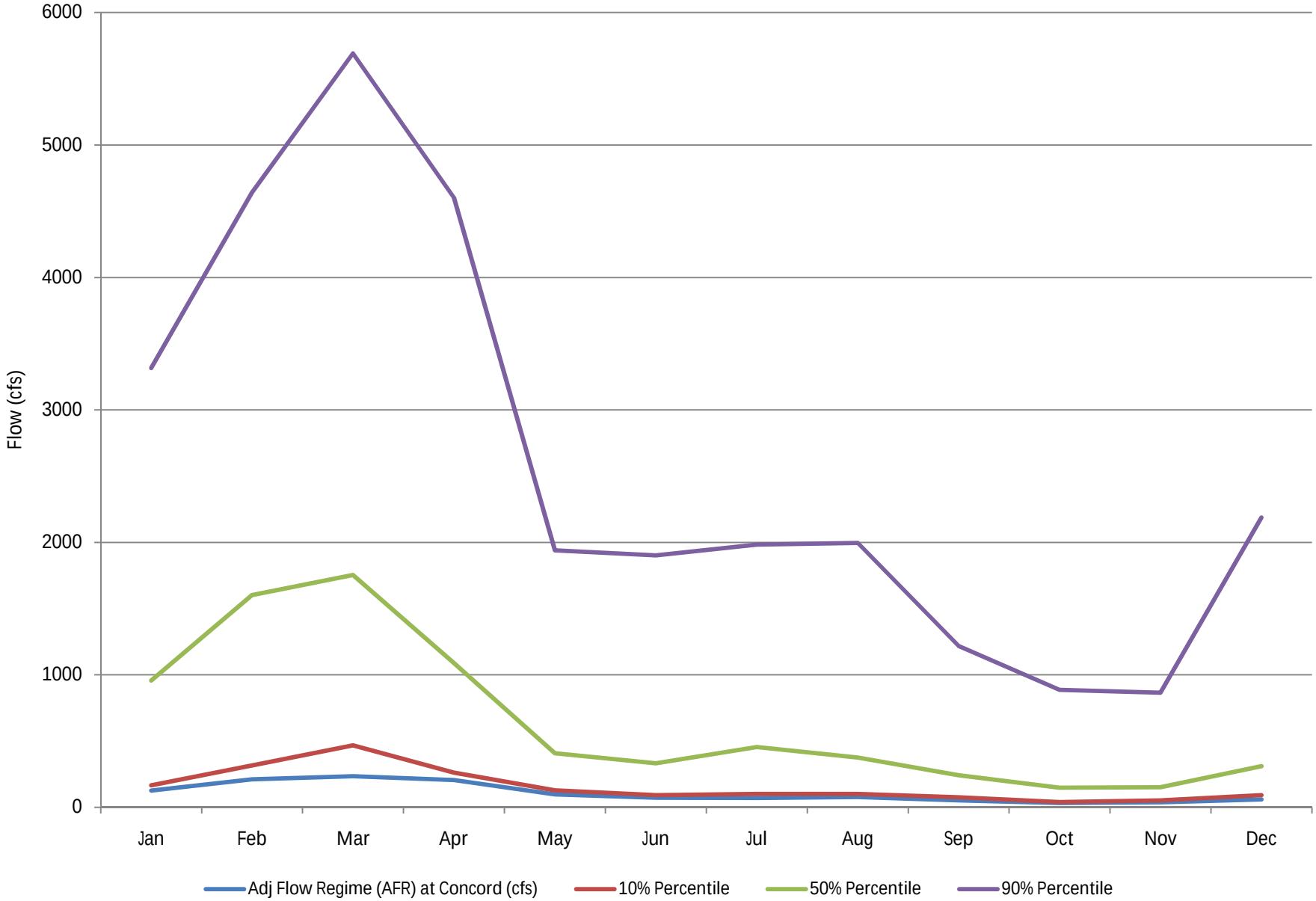


Figure D-2-5 Simulated Monthly Range of Flow at Concord (Chart Type 5)

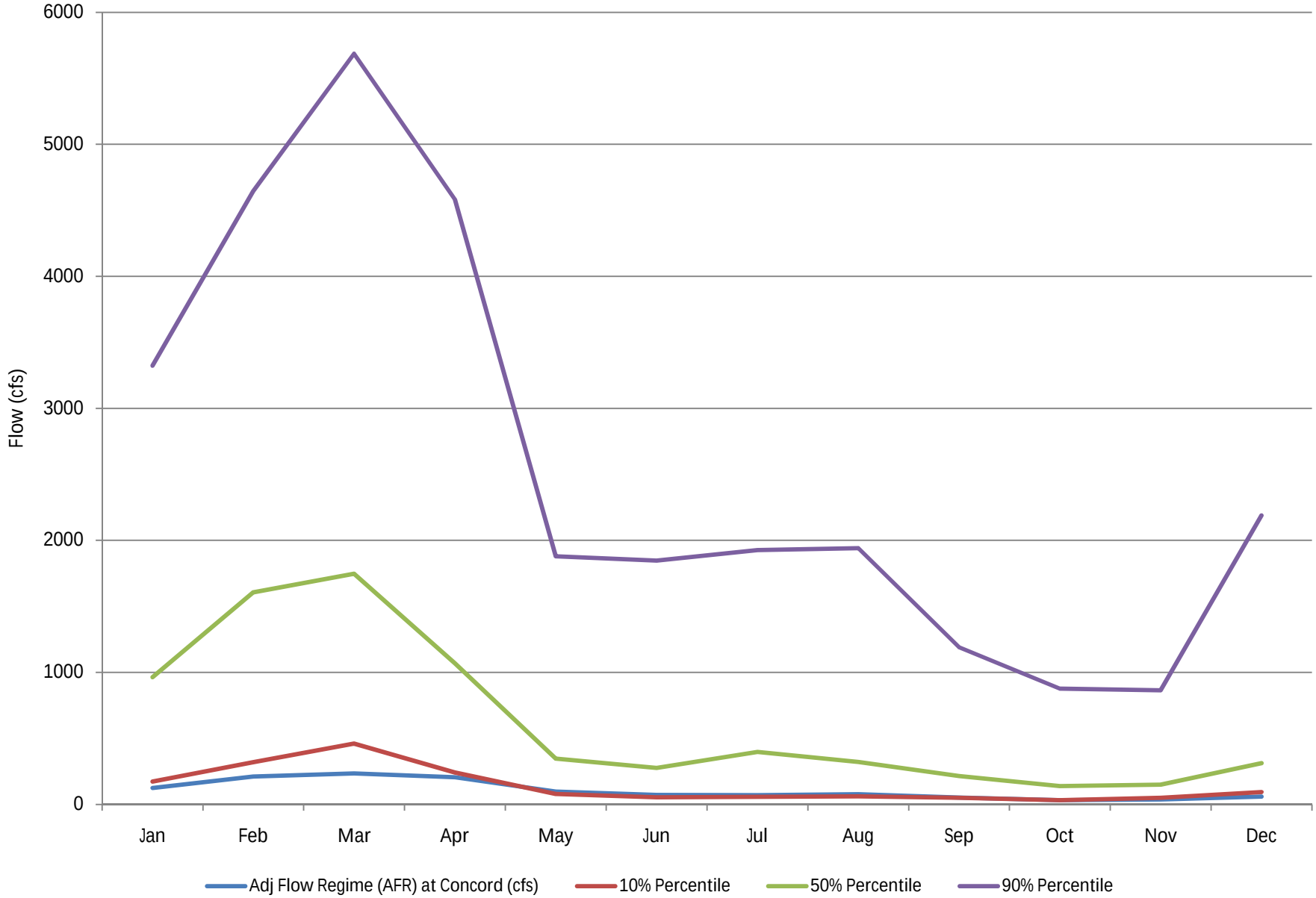


Figure D-3-1 Average Percentage of Flow Compared to Flow Regime at Pinetta (Chart Type 1)

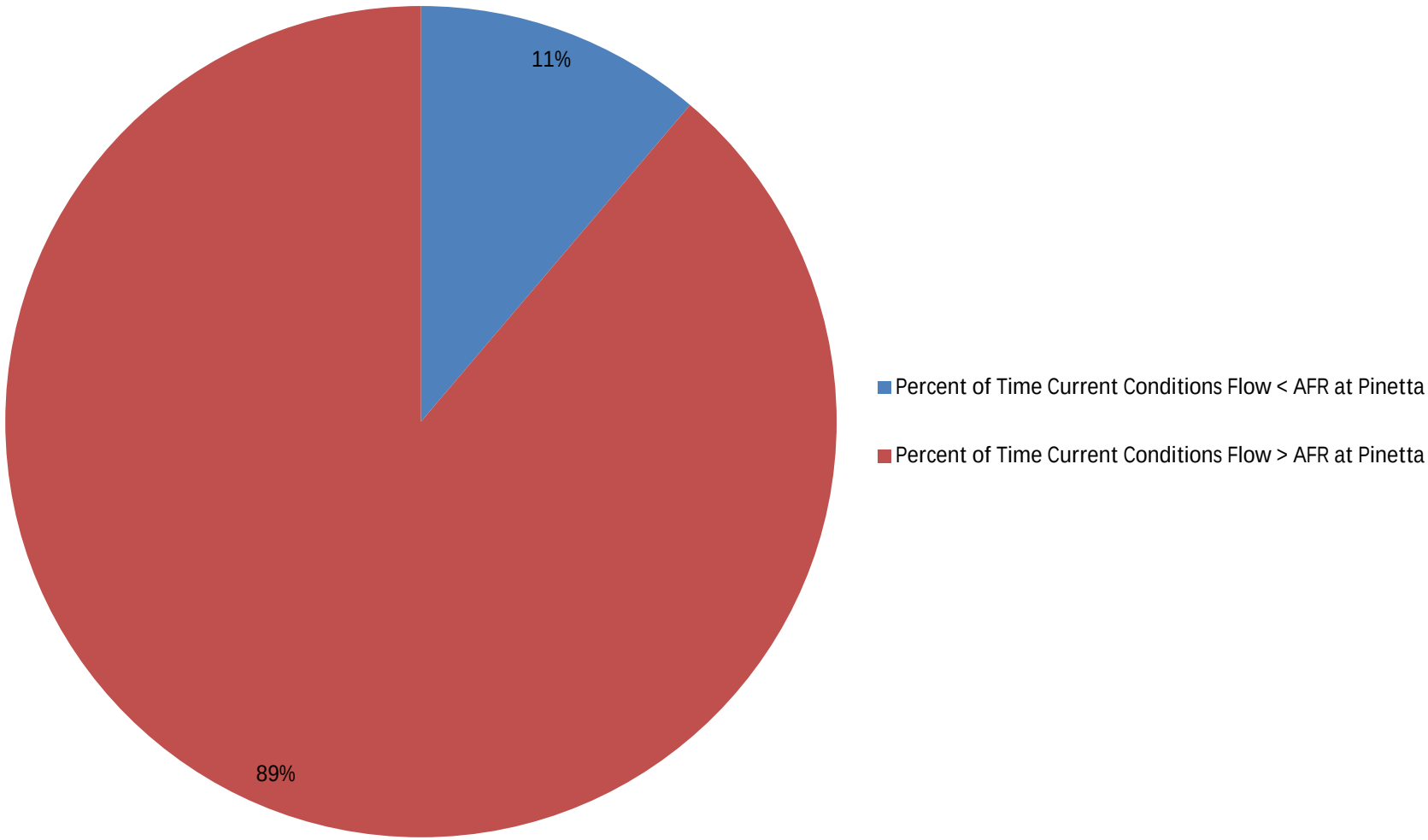
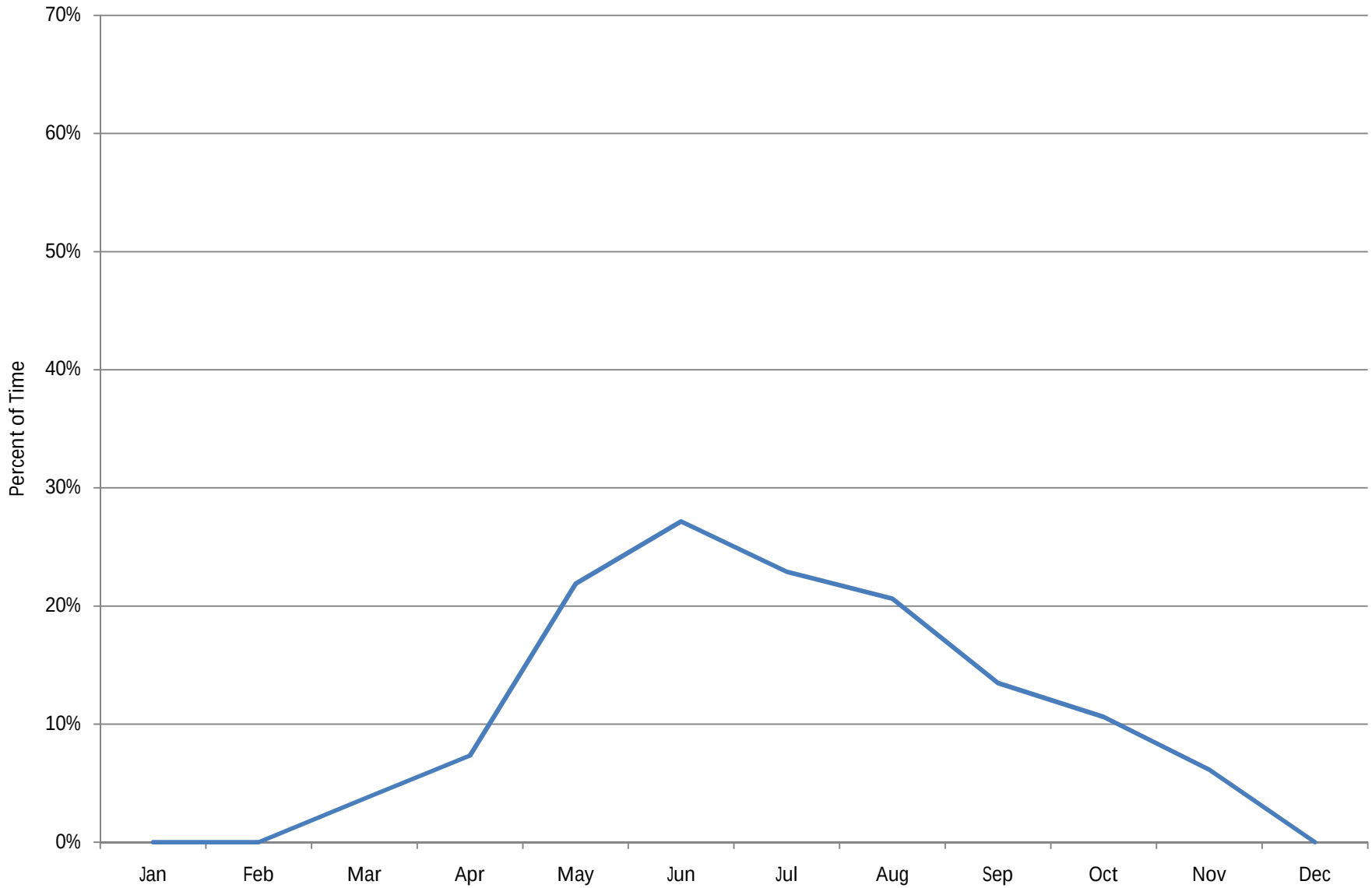


Figure D-3-2 Current Conditions Flow Less Than Adjusted Flow Regime at Pinetta (Chart Type 2)



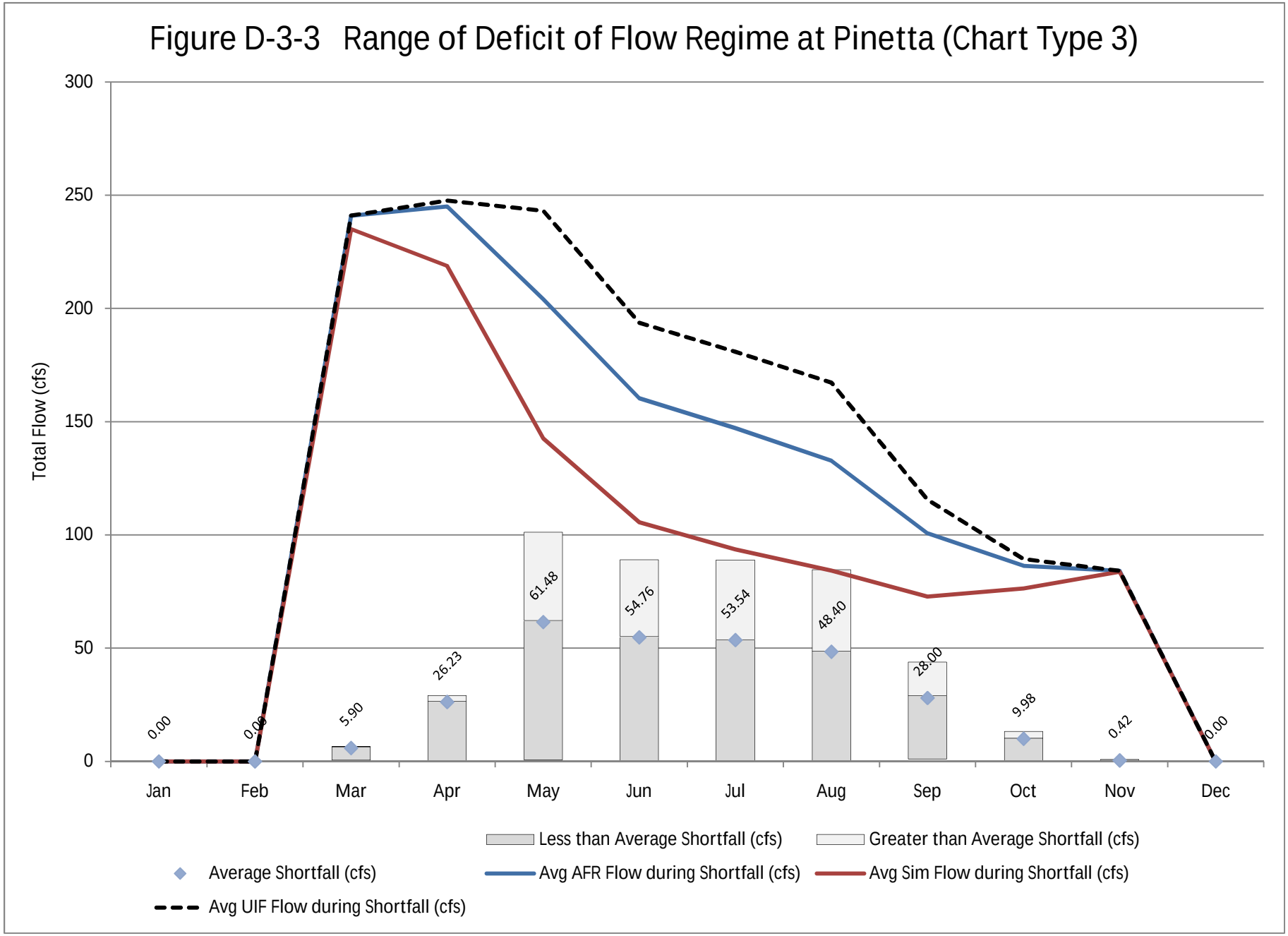


Figure D-3-3 Range of Deficit of Flow Regime at Pinetta (Chart Type 3)
Total Flow (cfs)
300
250
200
150
100
50
0
0.00
0.00
5.90
26.23
61.48
54.76
53.54
48.40
28.00
9.98
0.42
0.00
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Less than Average Shortfall (cfs)
Greater than Average Shortfall (cfs)
Average Shortfall (cfs)
Avg AFR Flow during Shortfall (cfs)
Avg Sim Flow during Shortfall (cfs)
Avg UIF Flow during Shortfall (cfs)

Figure D-3-4 Unimpaired Monthly Range of Flow at Pinetta (Chart Type 4)

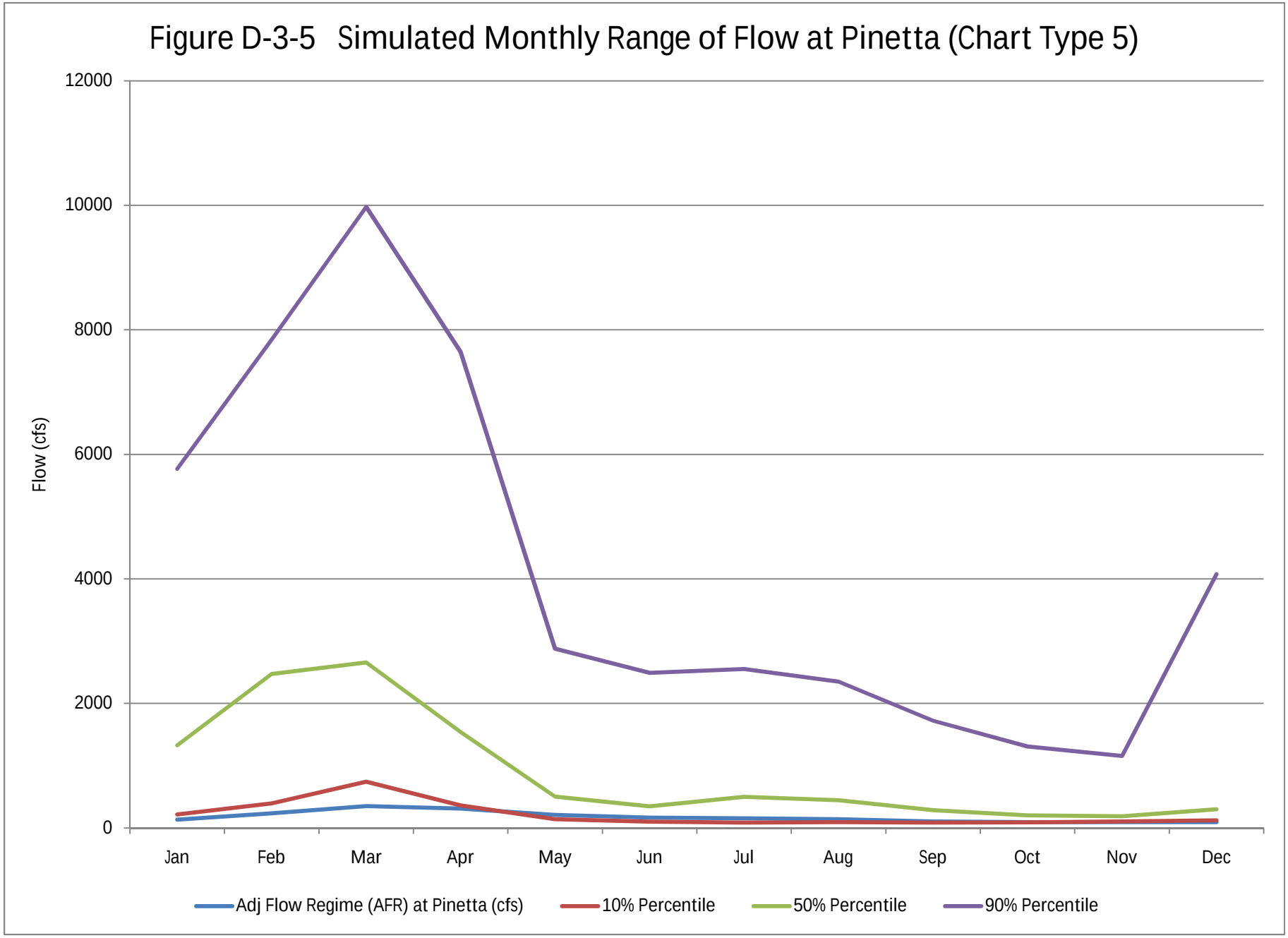


Figure D-3-5 Simulated Monthly Range of Flow at Pinetta (Chart Type 5)
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Pinetta (cfs)
10% Percentile
50% Percentile
90% Percentile

Figure D-4-1 Average Percentage of Flow Compared to Flow Regime at Statenville (Chart Type 1)

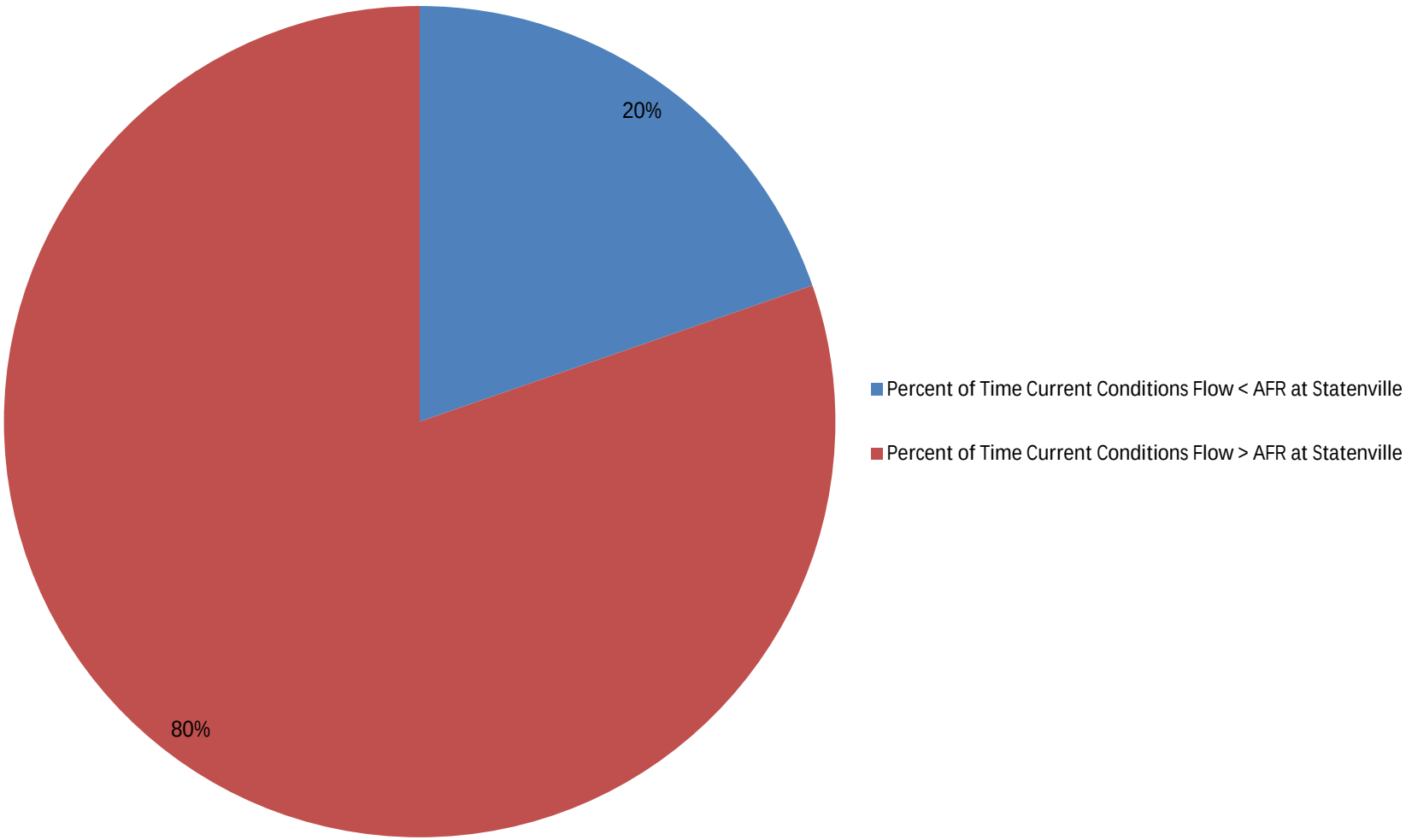


Figure D-4-2 Current Conditions Flow Less Than Adjusted Flow Regime at Statenville (Chart Type 2)

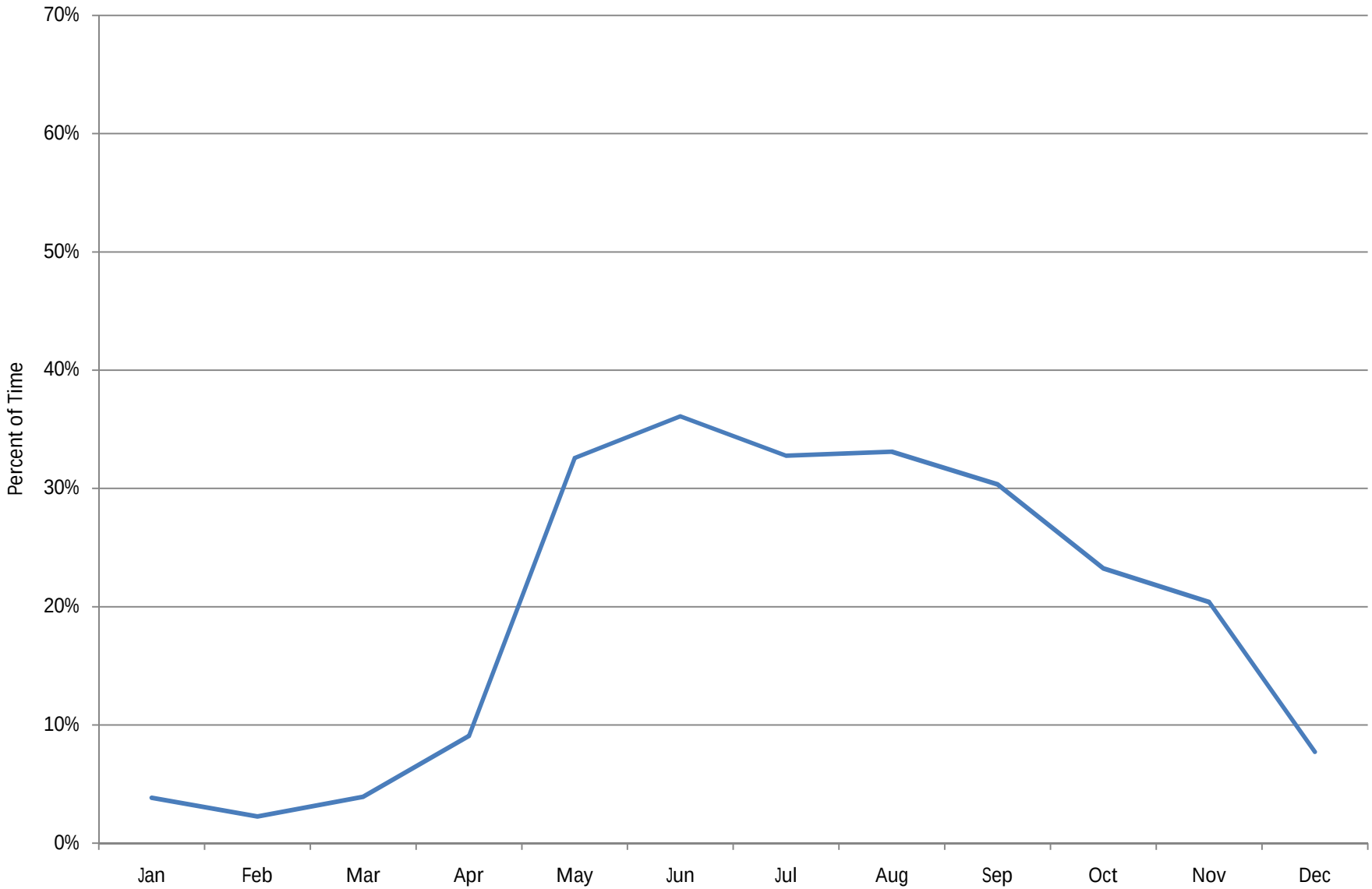


Figure D-4-3 Range of Deficit of Flow Regime at Statenville (Chart Type 3)

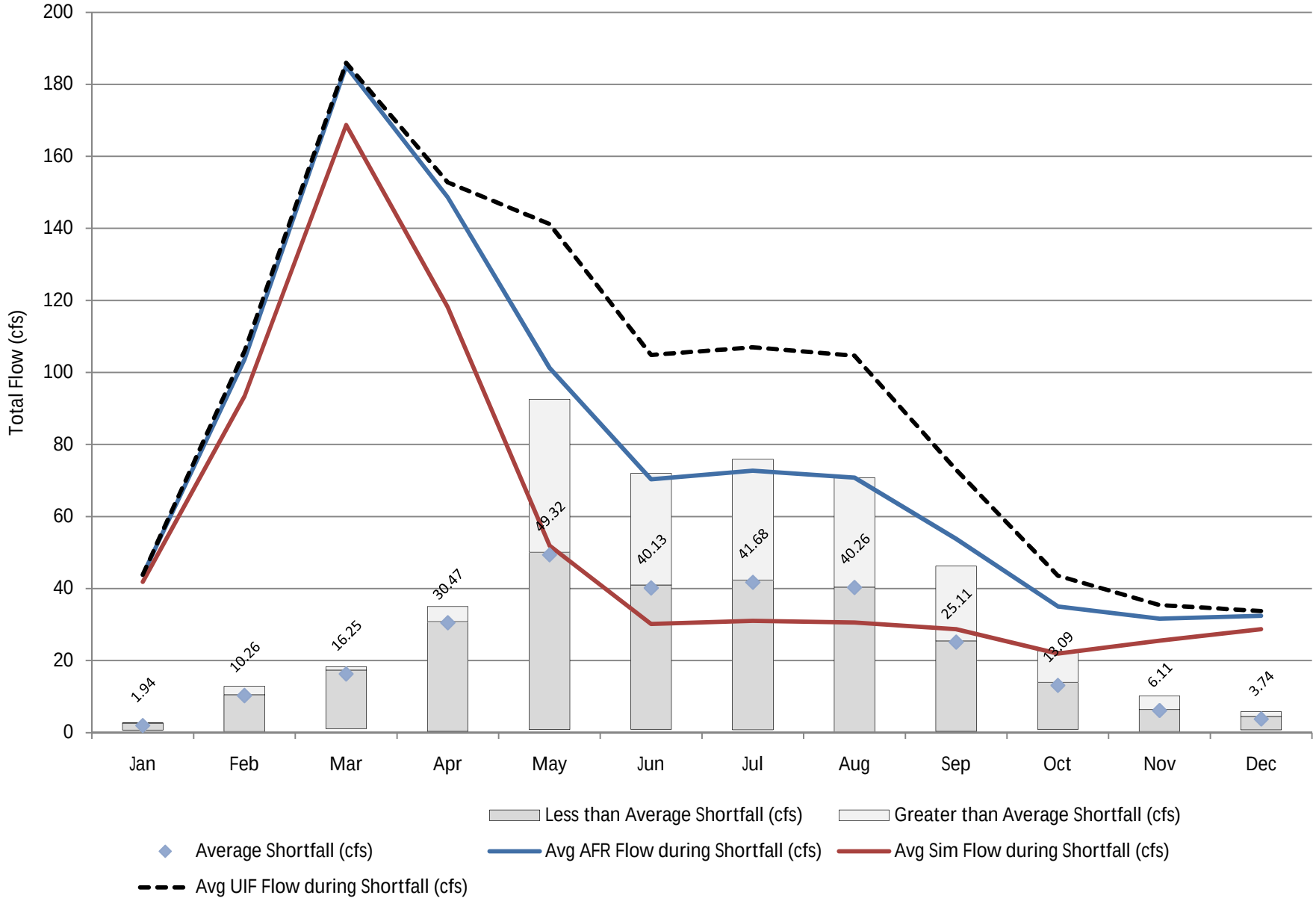


Figure D-4-4 Unimpaired Monthly Range of Flow at Statenville (Chart Type 4)

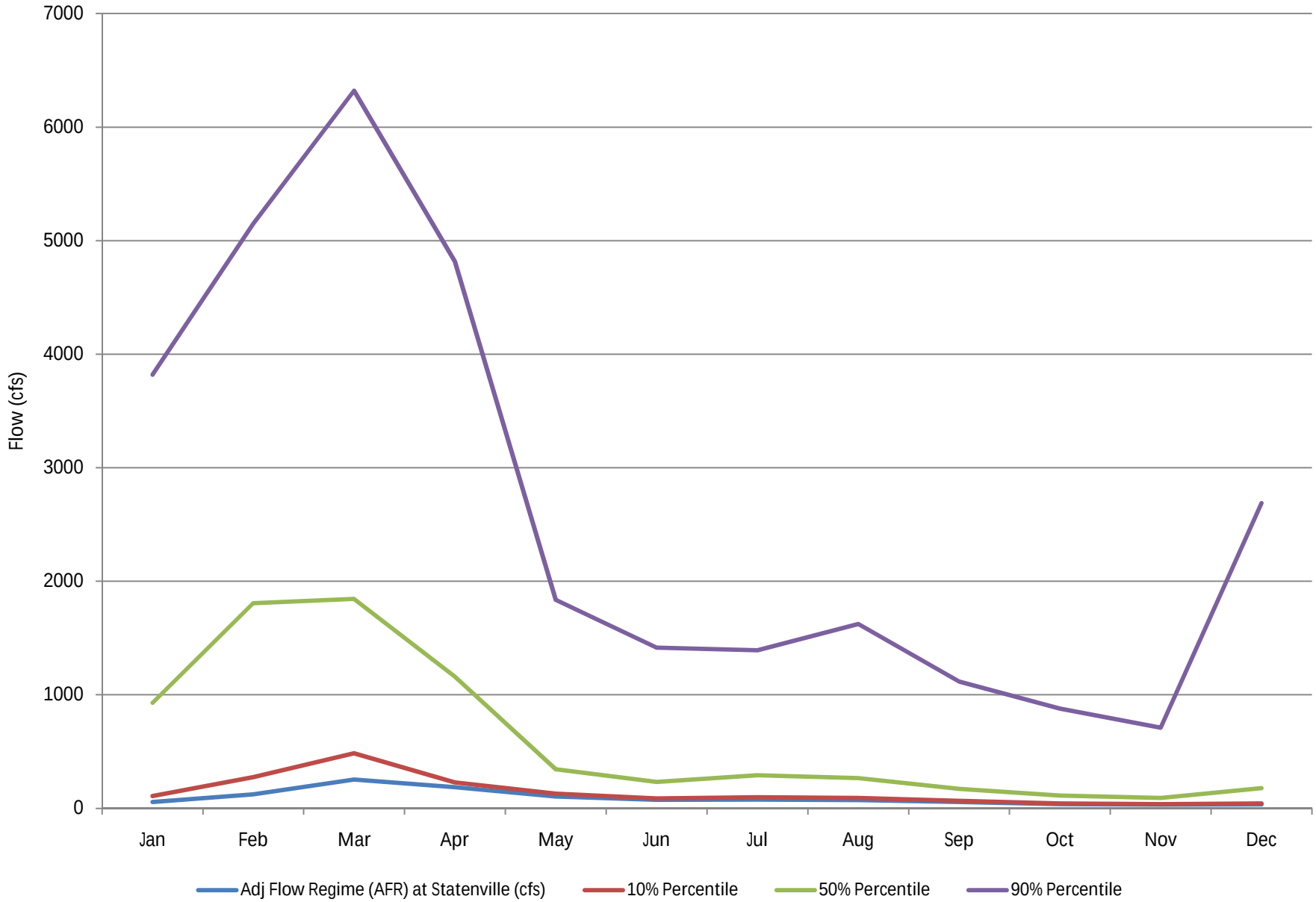


Figure D-4-5 Simulated Monthly Range of Flow at Statenville (Chart Type 5)

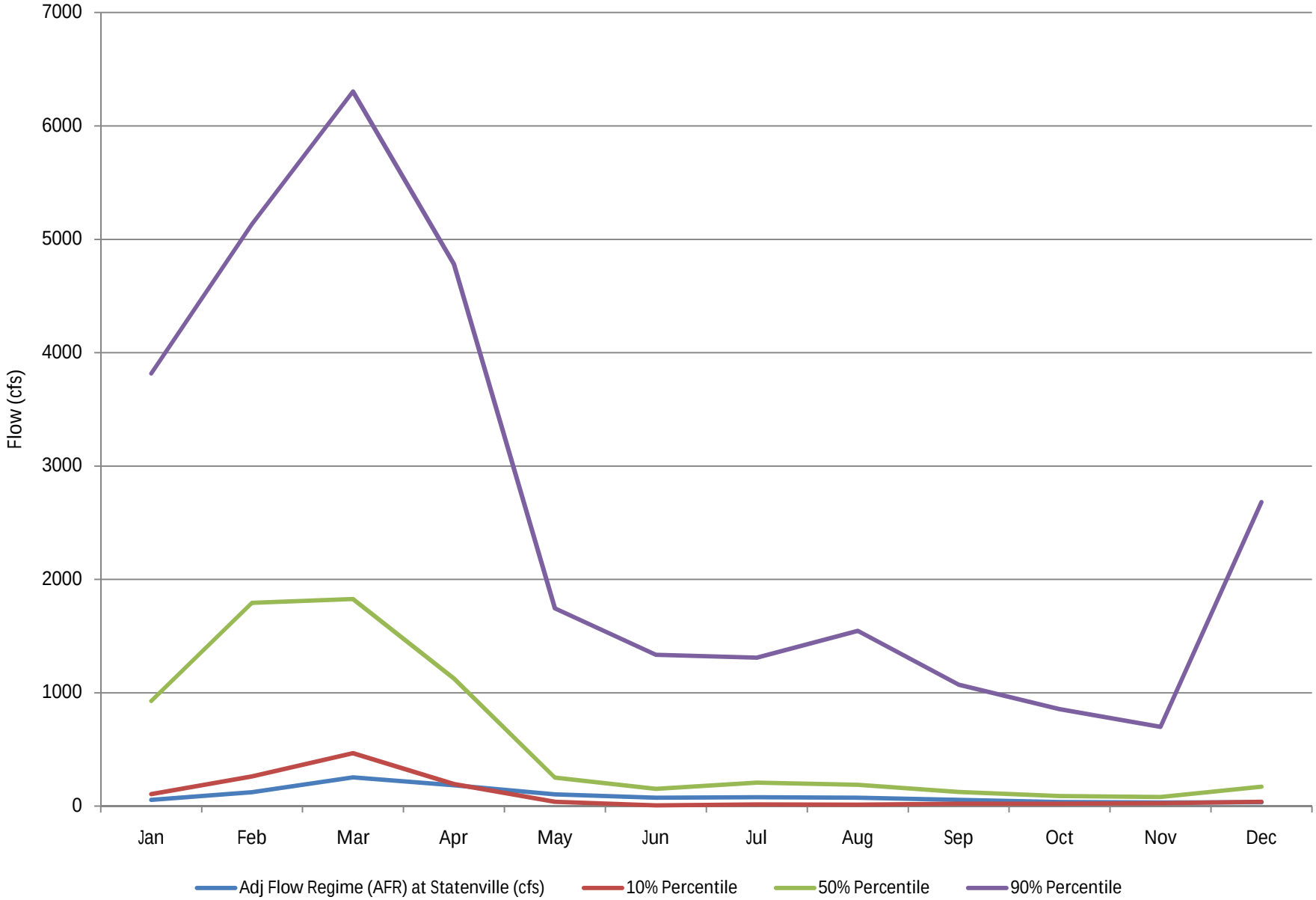


Figure D-5-1 Average Percentage of Flow Compared to Flow Regime at Atkinson (Chart Type 1)

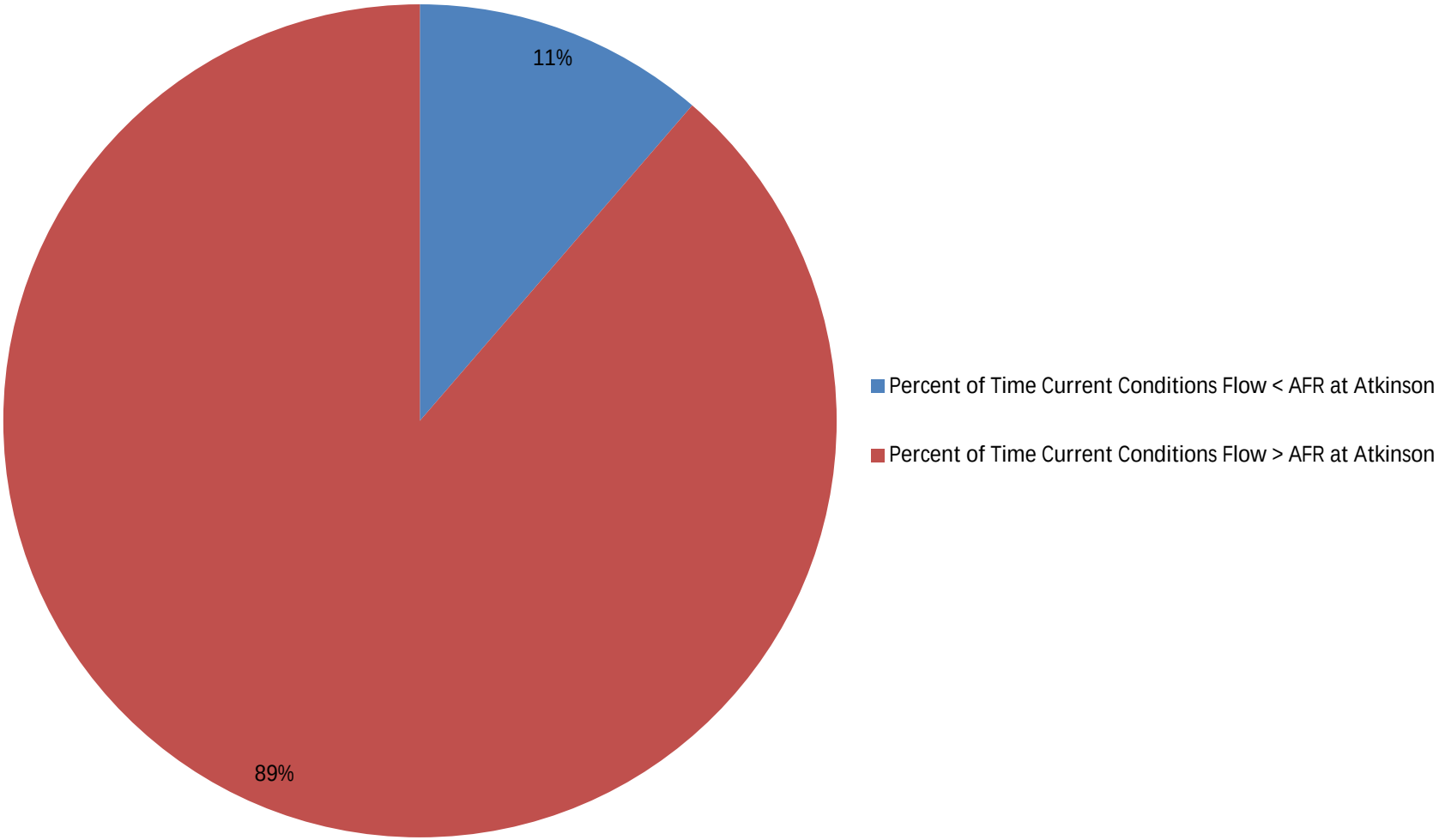


Figure D-5-2 Current Conditions Flow Less Than Adjusted Flow Regime at Atkinson (Chart Type 2)

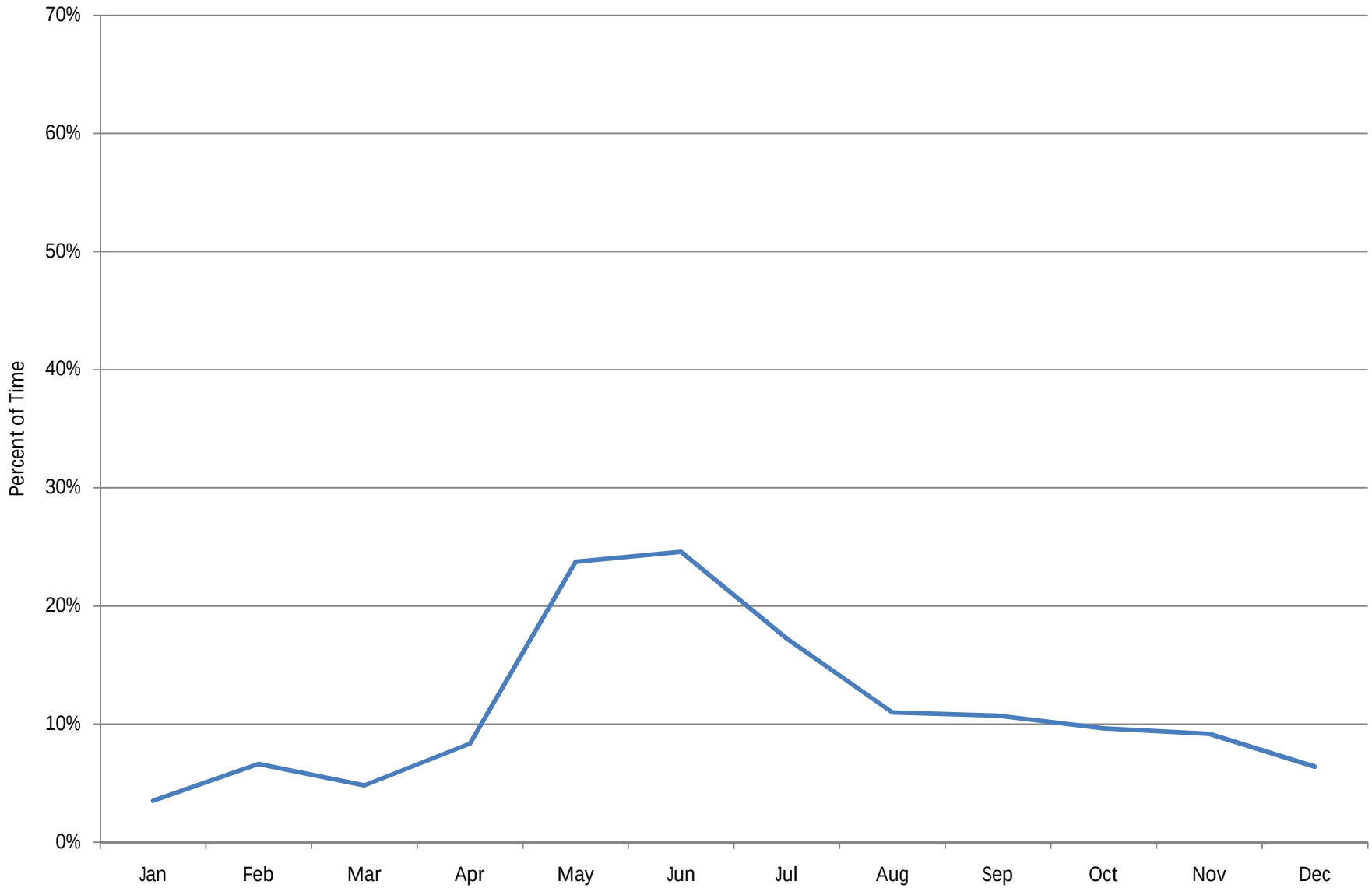


Figure D-5-3 Range of Deficit of Flow Regime at Atkinson (Chart Type 3)

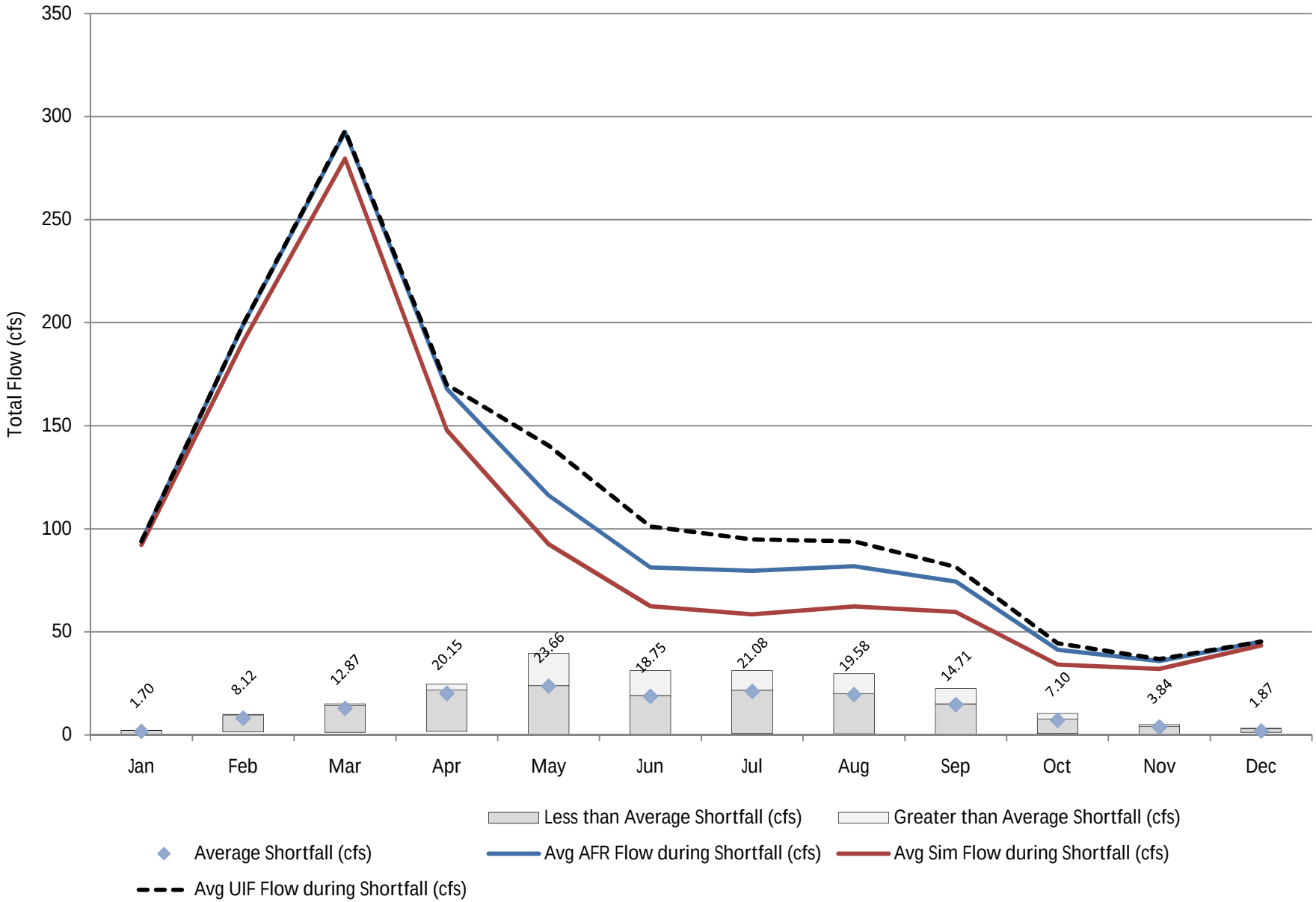


Figure D-5-4 Unimpaired Monthly Range of Flow at Atkinson (Chart Type 4)

Figure D-5-5 Simulated Monthly Range of Flow at Atkinson (Chart Type 5)

Figure D-6-1 Average Percentage of Flow Compared to Flow Regime at Jennings (Chart Type 1)

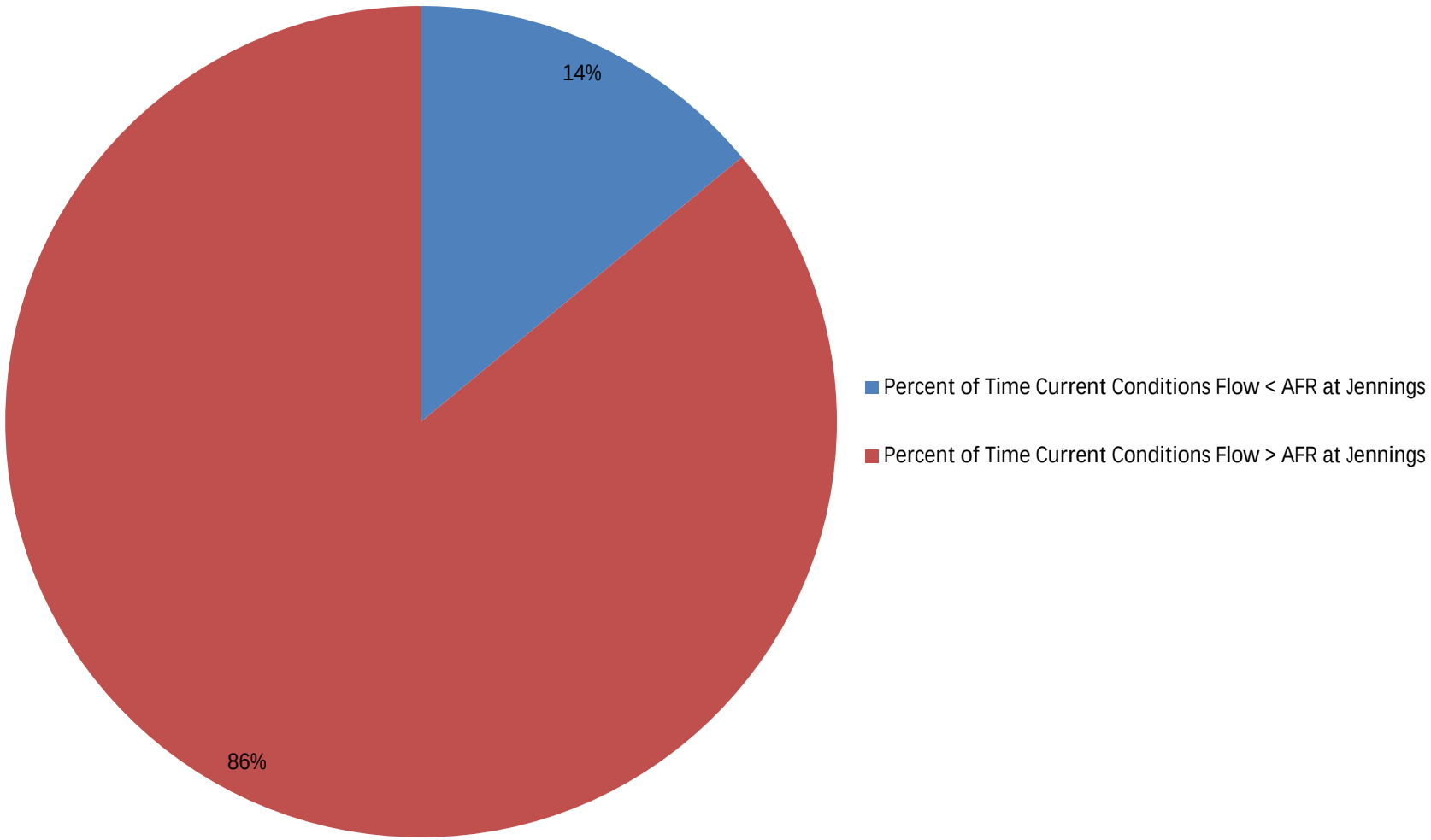


Figure D-6-2 Current Conditions Flow Less Than Adjusted Flow Regime at Jennings (Chart Type 2)

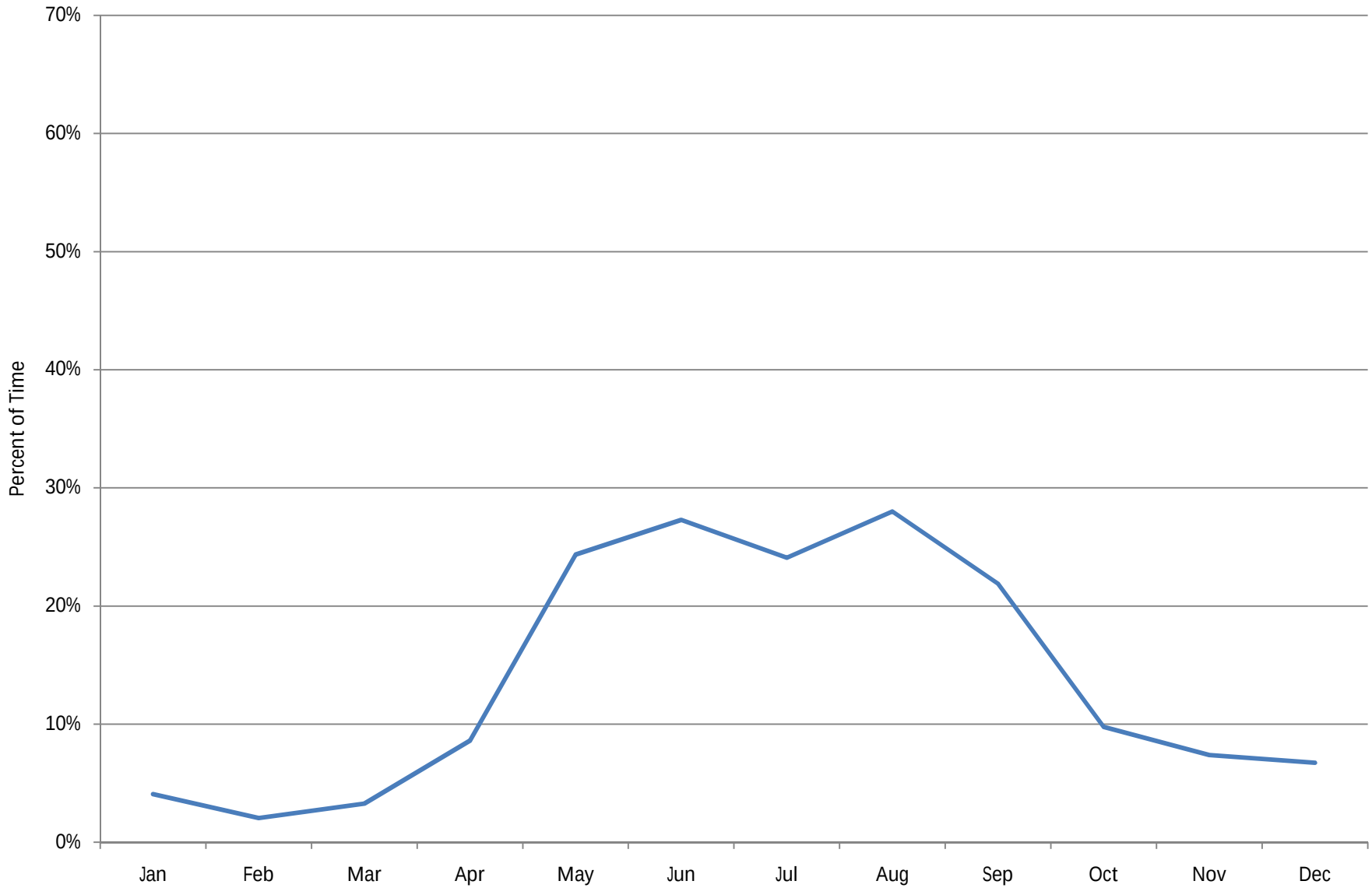


Figure D-6-3 Range of Deficit of Flow Regime at Jennings (Chart Type 3)

Figure D-6-4 Unimpaired Monthly Range of Flow at Jennings (Chart Type 4)

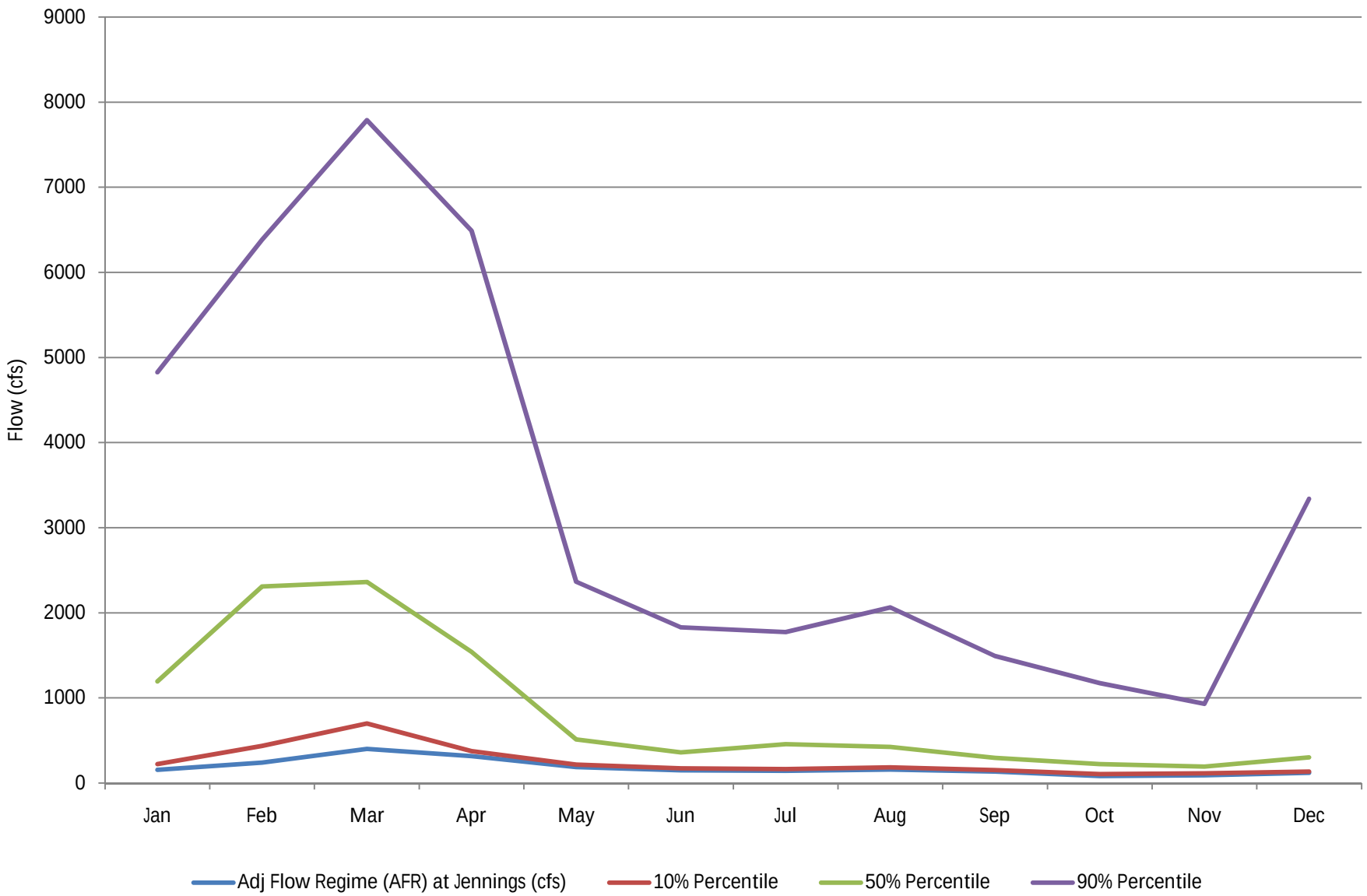


Figure D-6-5 Simulated Monthly Range of Flow at Jennings (Chart Type 5)

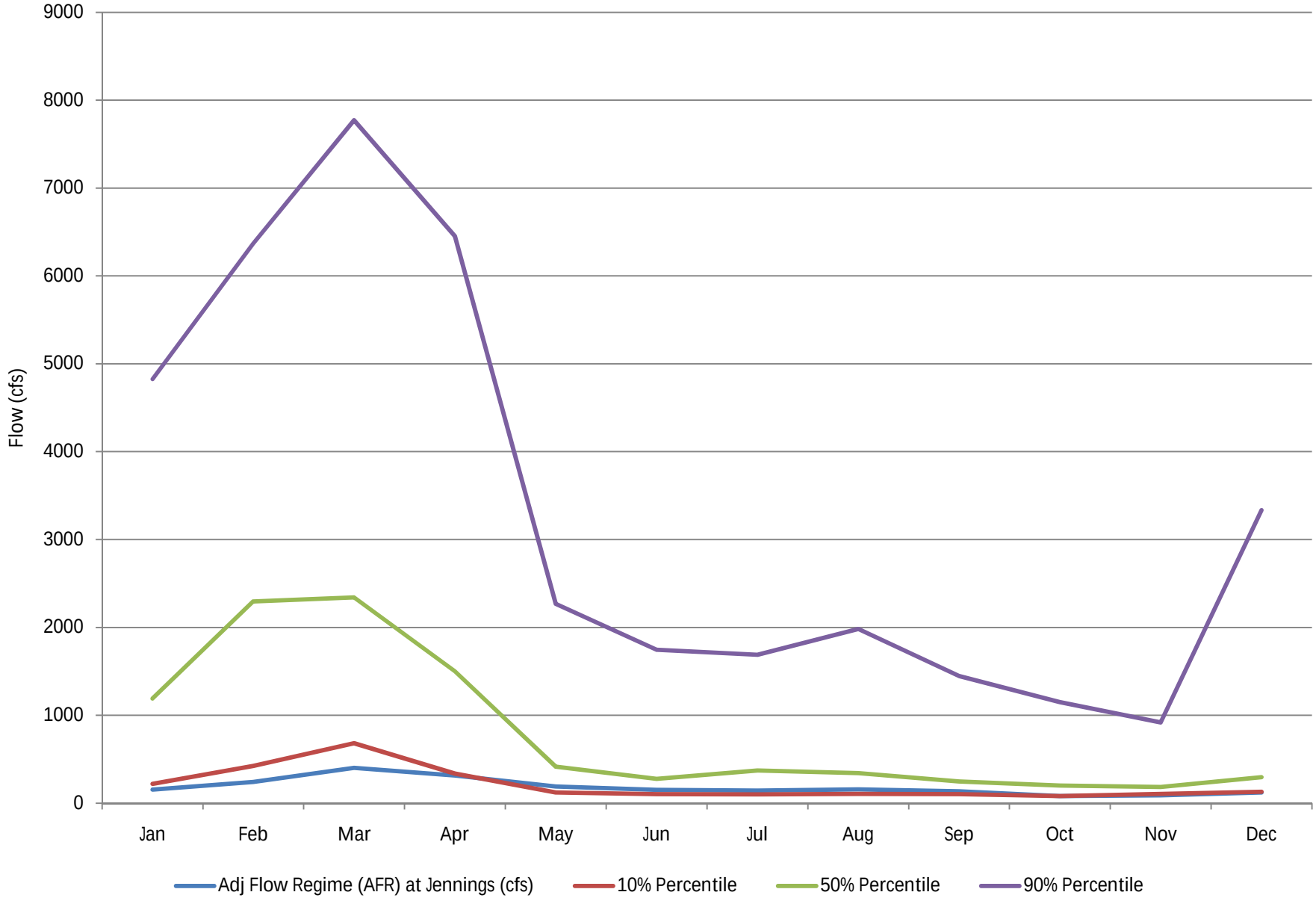


Figure D-7-1 Average Percentage of Flow Compared to Flow Regime at Fargo (Chart Type 1)

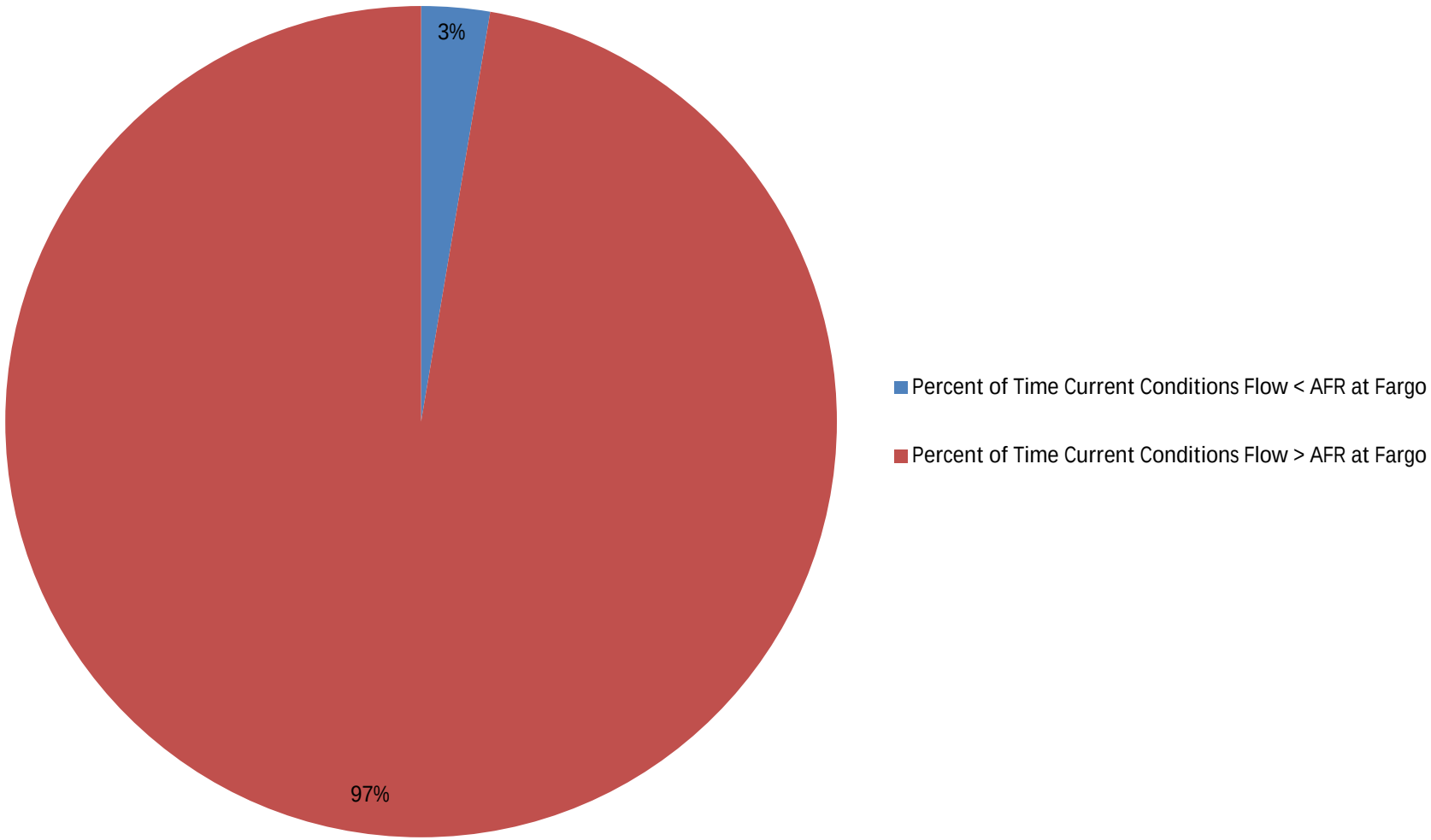


Figure D-7-2 Current Conditions Flow Less Than Adjusted Flow Regime at Fargo (Chart Type 2)

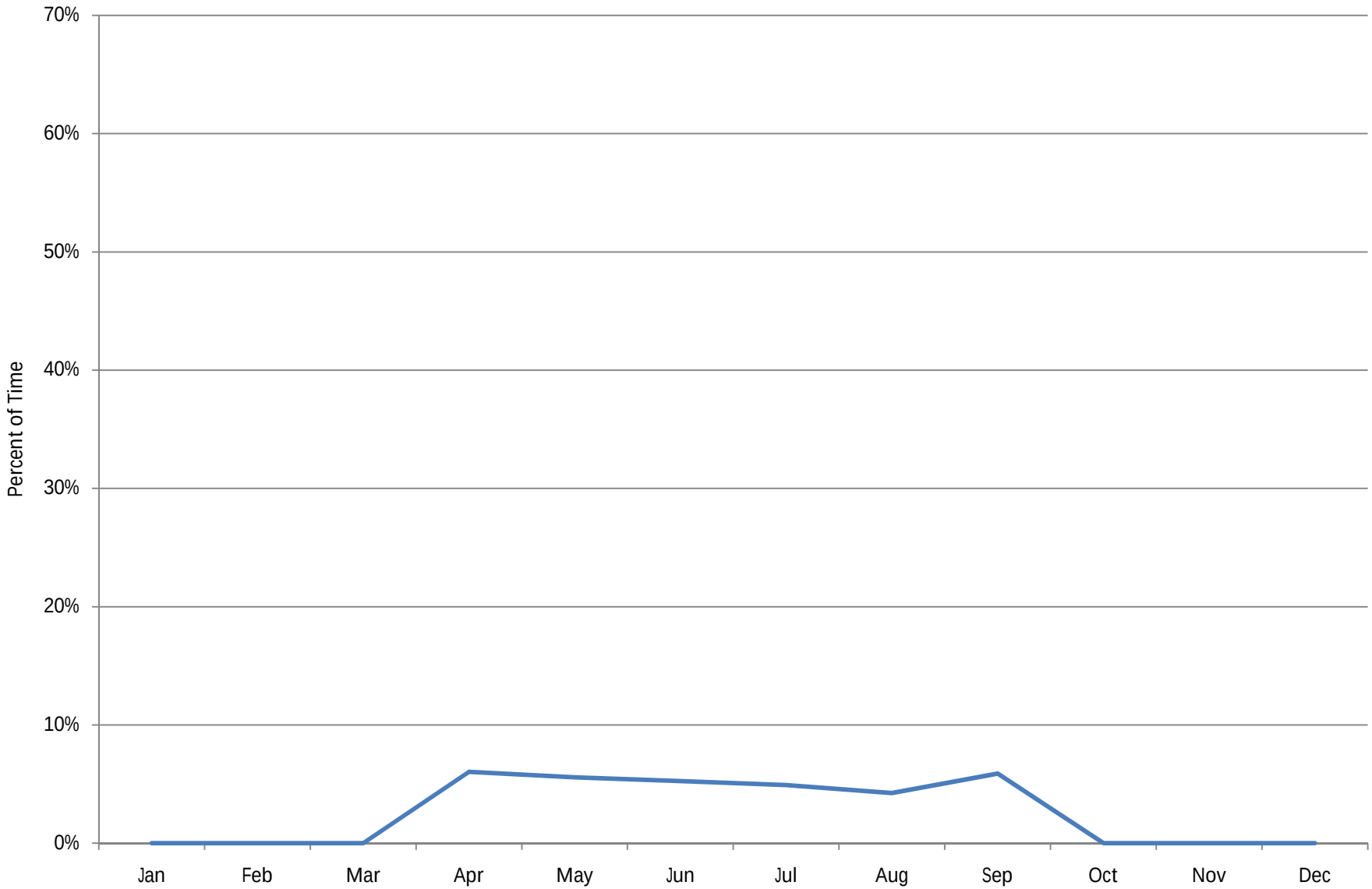
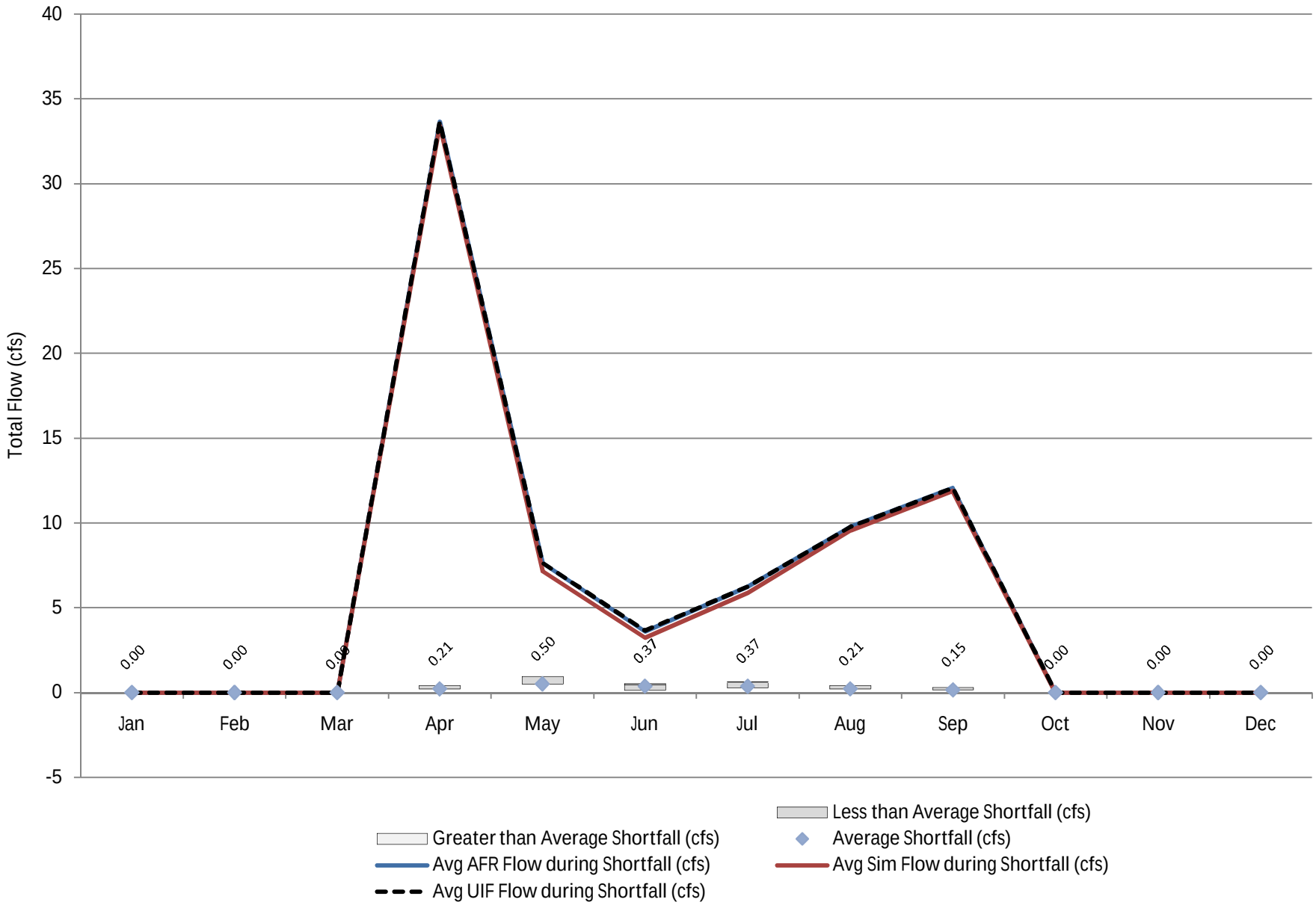


Figure D-7-3 Range of Deficit of Flow Regime at Fargo (Chart Type 3)



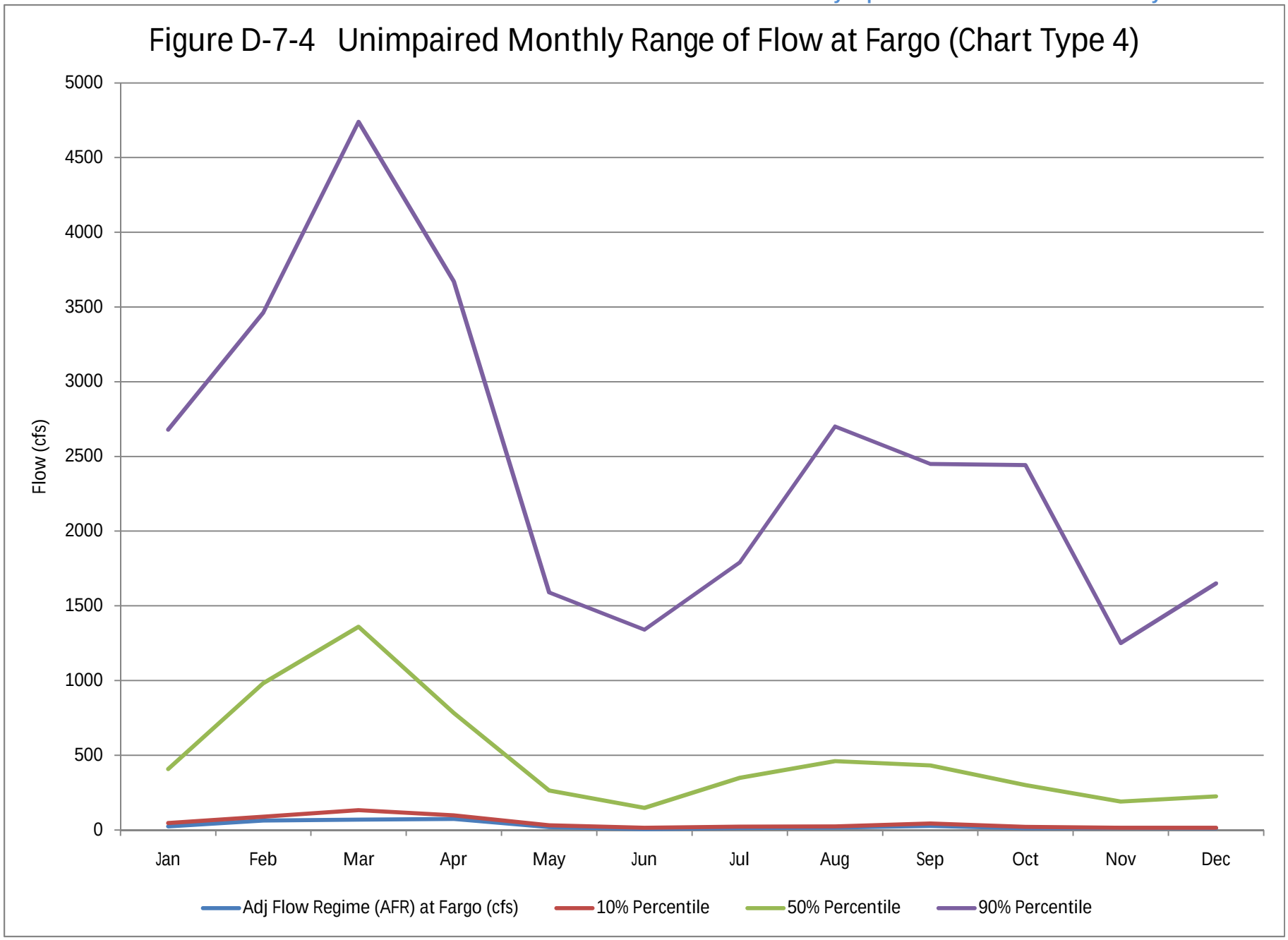


Figure D-7-4 Unimpaired Monthly Range of Flow at Fargo (Chart Type 4)
Flow (cfs)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Fargo (cfs)
10% Percentile
50% Percentile
90% Percentile

Figure D-7-5 Simulated Monthly Range of Flow at Fargo (Chart Type 5)

Figure D-8-1 Average Percentage of Flow Compared to Flow Regime at Gross (Chart Type 1)

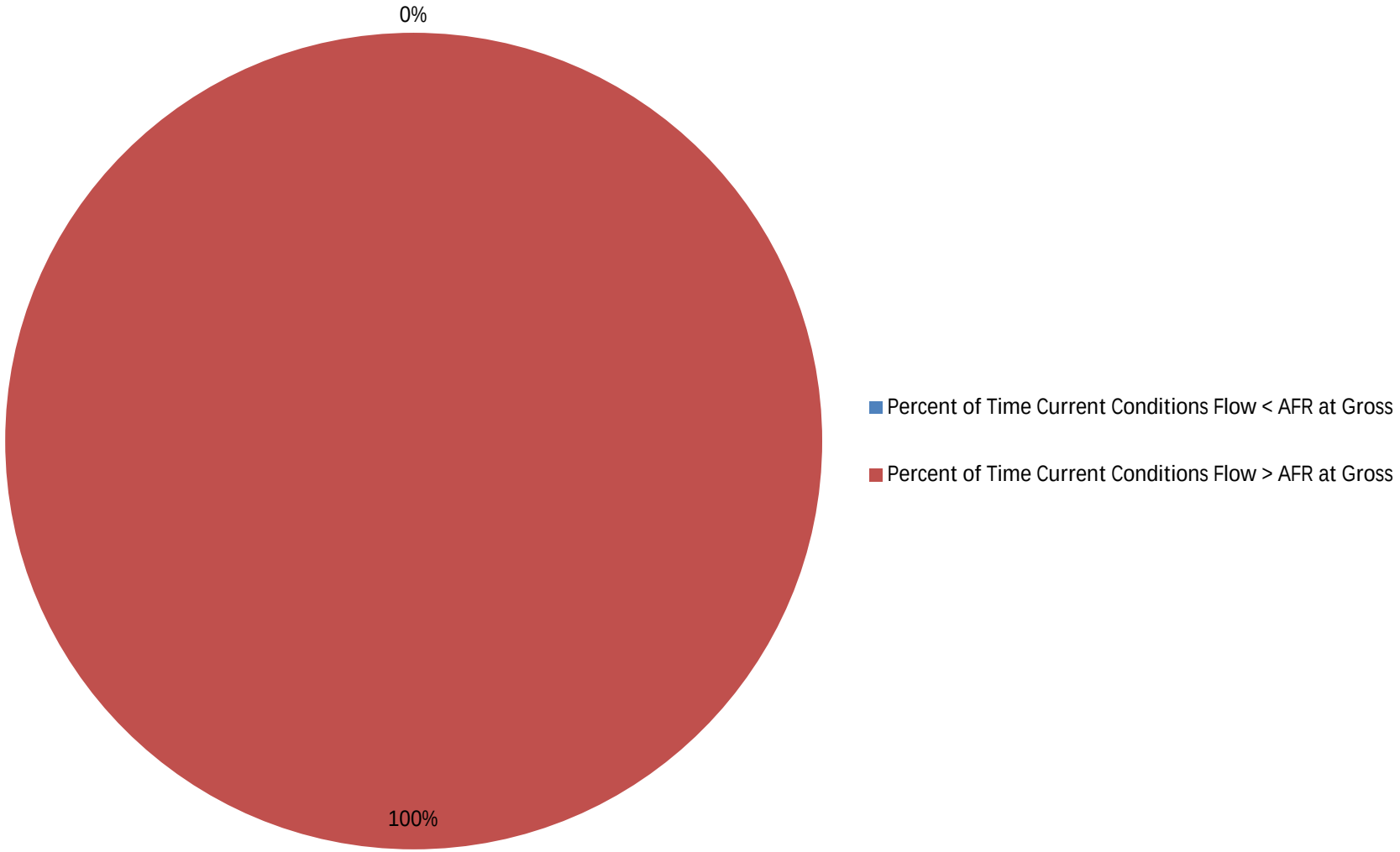


Figure D-8-2 Current Conditions Flow Less Than Adjusted Flow Regime at Gross (Chart Type 2)

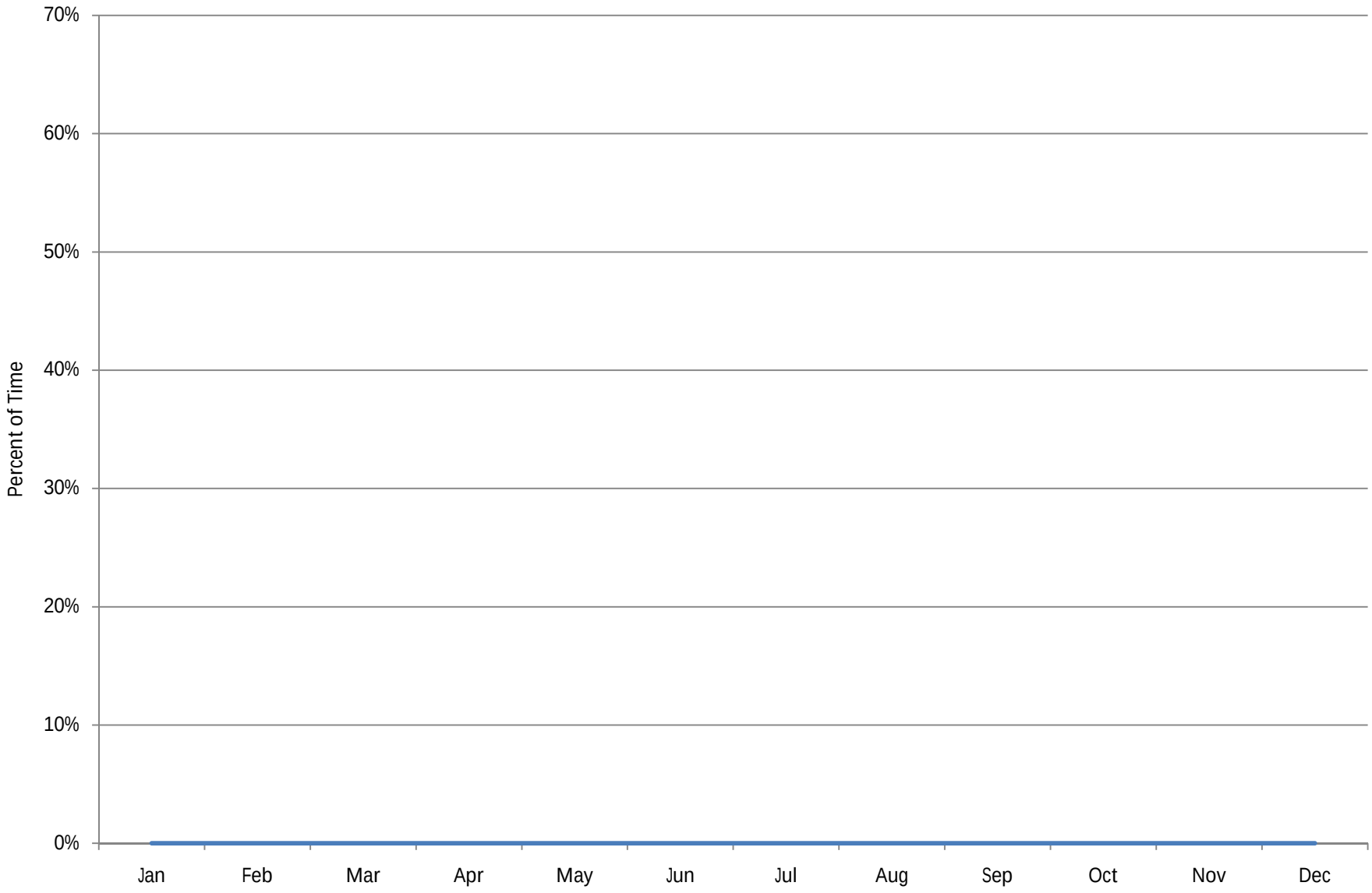
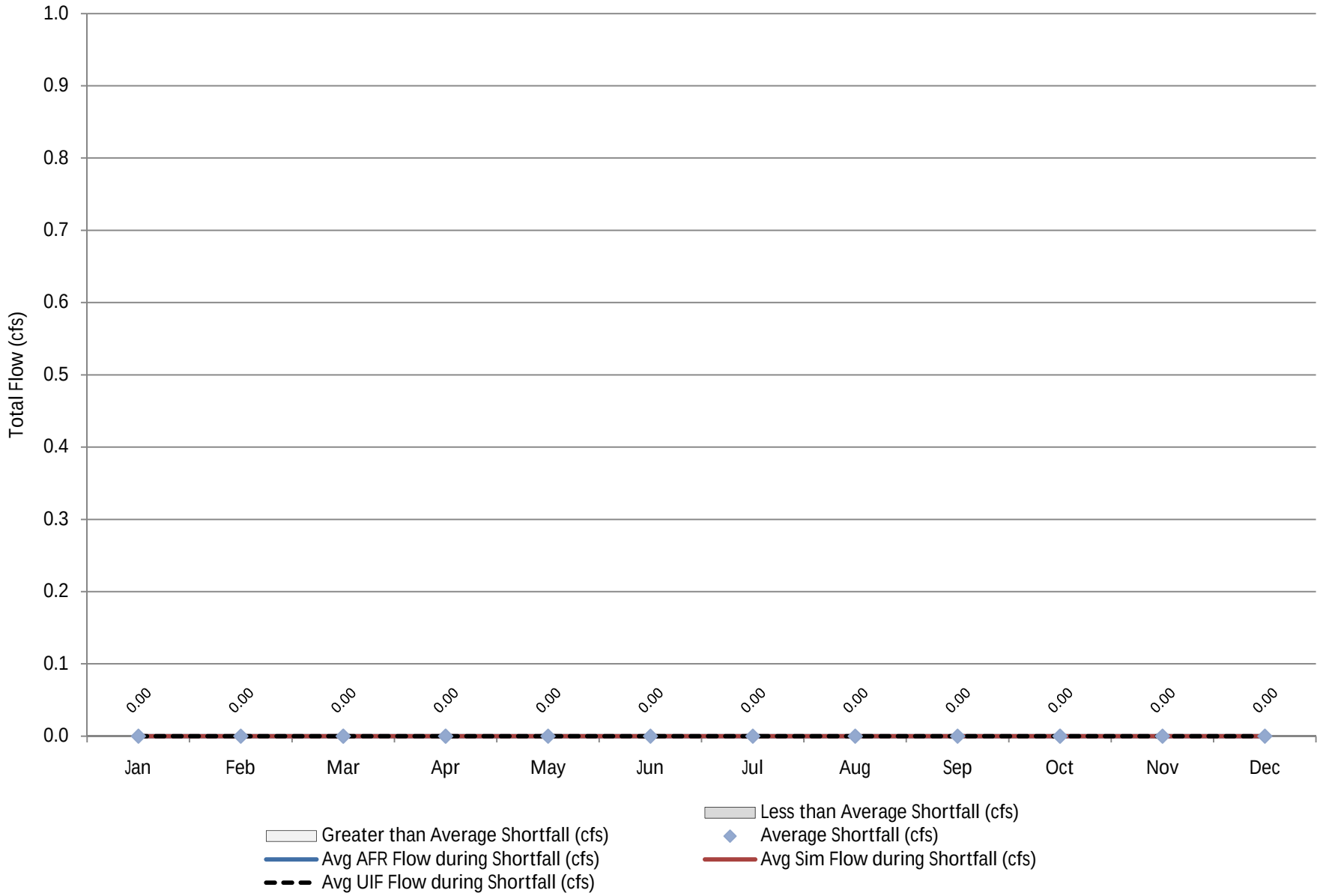


Figure D-8-3 Range of Deficit of Flow Regime at Gross (Chart Type 3)



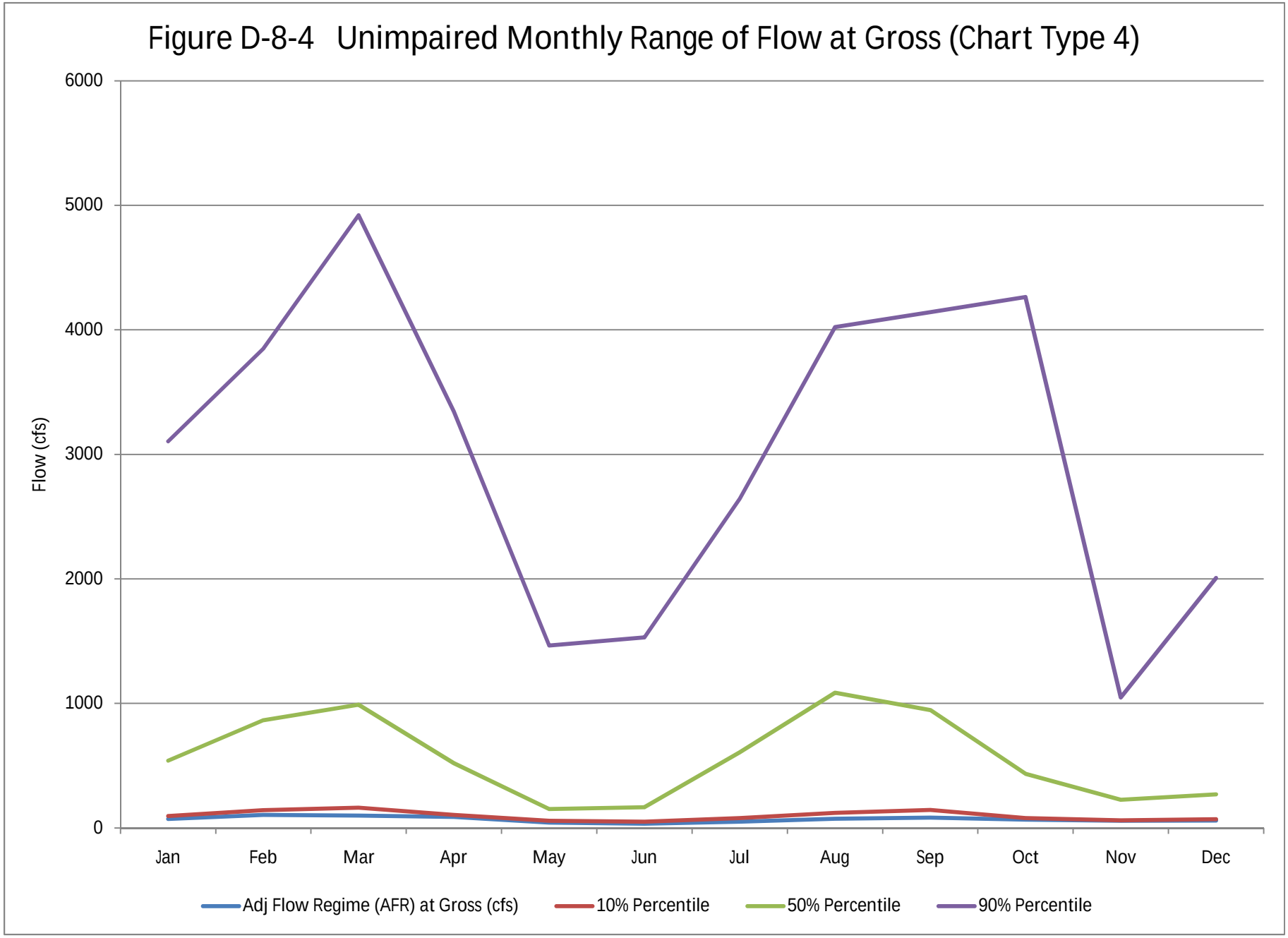


Figure D-8-4 Unimpaired Monthly Range of Flow at Gross (Chart Type 4)
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Gross (cfs)
10% Percentile
50% Percentile
90% Percentile

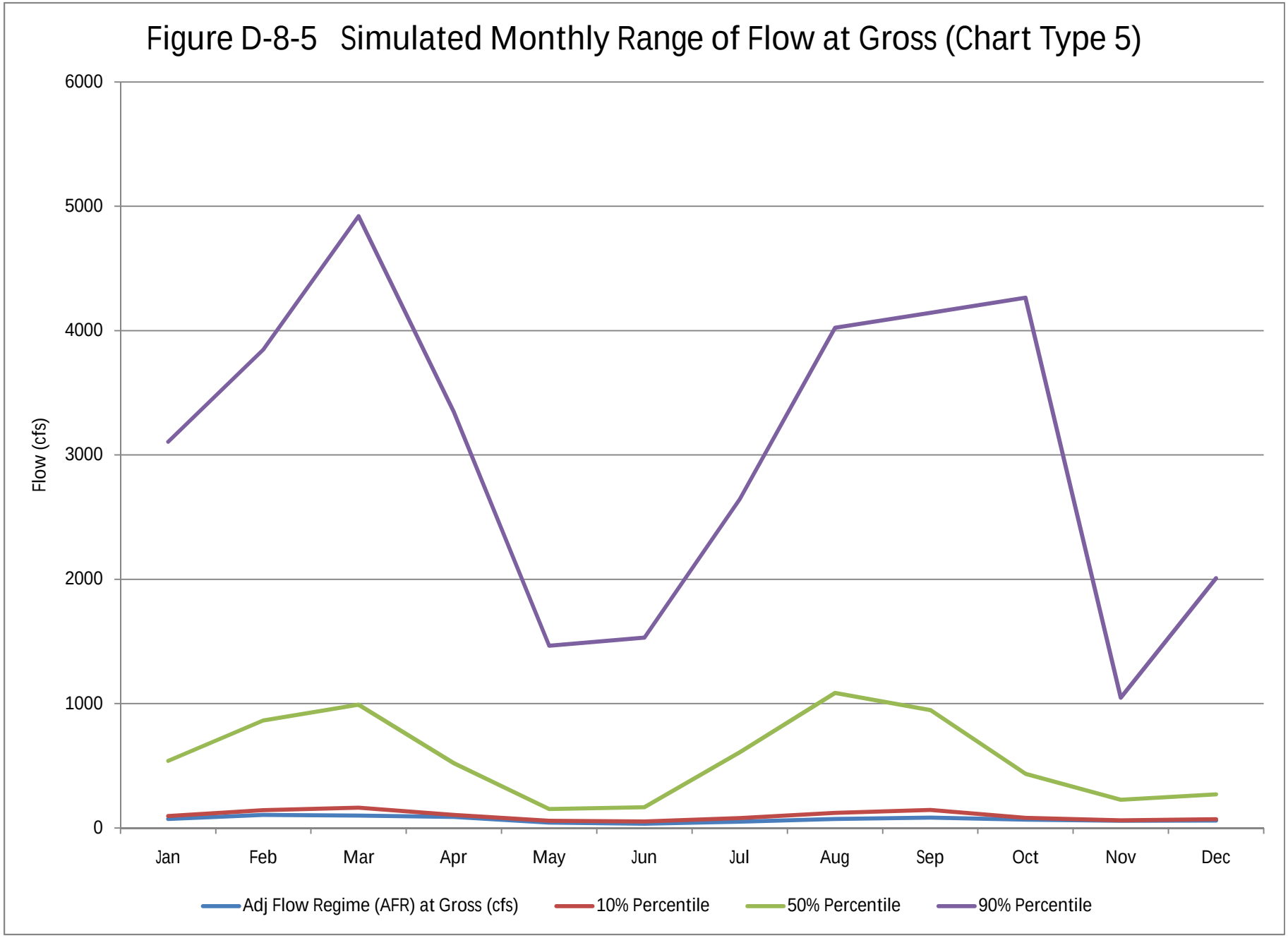


Figure D-8-5 Simulated Monthly Range of Flow at Gross (Chart Type 5)
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Gross (cfs)
10% Percentile
50% Percentile
90% Percentile

Appendix E

Savannah-Ogeechee

Charts depicting flows and shortages relative to flow regime by planning node for current conditions model.

1. Augusta
2. Clyo
3. Savannah
4. Claxton
5. Kings Ferry
6. Eden

Chart type 1 is a pie chart that shows the percentage of daily flows above and below the adjusted flow regime. The percentage of time above the adjusted flow regime is an indication of how often the flow regime can be met and withdrawals can be made.

Chart type 2 shows the percentage of time that flows are below the adjusted flow regime for each month of the year, indicating months in which water availability is most constrained. The higher the percentage, the more often there are shortfalls, hence more water availability constraints.

Chart type 3 shows certain monthly statistics during periods of shortfalls. Namely, average simulated river flows, average adjusted flow regime flows, and average unimpaired flows are shown by line plots. In addition, each month's average shortfall and the range between the largest and smallest shortfall are shown by bar plots. This chart shows the magnitude of a shortfall for a given month relative to the typical flows available during the month only on the days shortfalls occur. Flows for days without shortfalls are not included in generating these statistics.

Chart type 4 shows plots of monthly values of the adjusted flow regime and the 10-percentile (the lowest 10 percent of unimpaired flows), the 50-percentile (mid-range flows), and 90-percentile (all but the top 10 percent) flows. This range of percentiles covers dry, median, and wet conditions, respectively. The chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream if there were no effects of human development.

Chart type 5 shows plots of monthly values of the adjusted flow regime and the lowest 10 percent of simulated flows, i.e., 10-percentile flows, 50-percentile flows, and 90-percentile flows. This chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream under current condition assumptions.

Chart type 6 shows the daily storage and seasonal top of conservation curve for a given reservoir over the period of record. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 7 shows the percentage of storage remaining relative to the seasonal top of conservation pool for a given reservoir over the period of record. The reservoir is 100 percent full when the level is at or above the rule curve. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 8 shows the percentage of time that the remaining storage of a given reservoir is above a given percentage relative to the rule curve. The reservoir is 100 percent full when the level is at or above the rule curve. Storage remaining in the reservoir reflects magnitude and timing of demands.

AFR = Adjusted Flow Regime

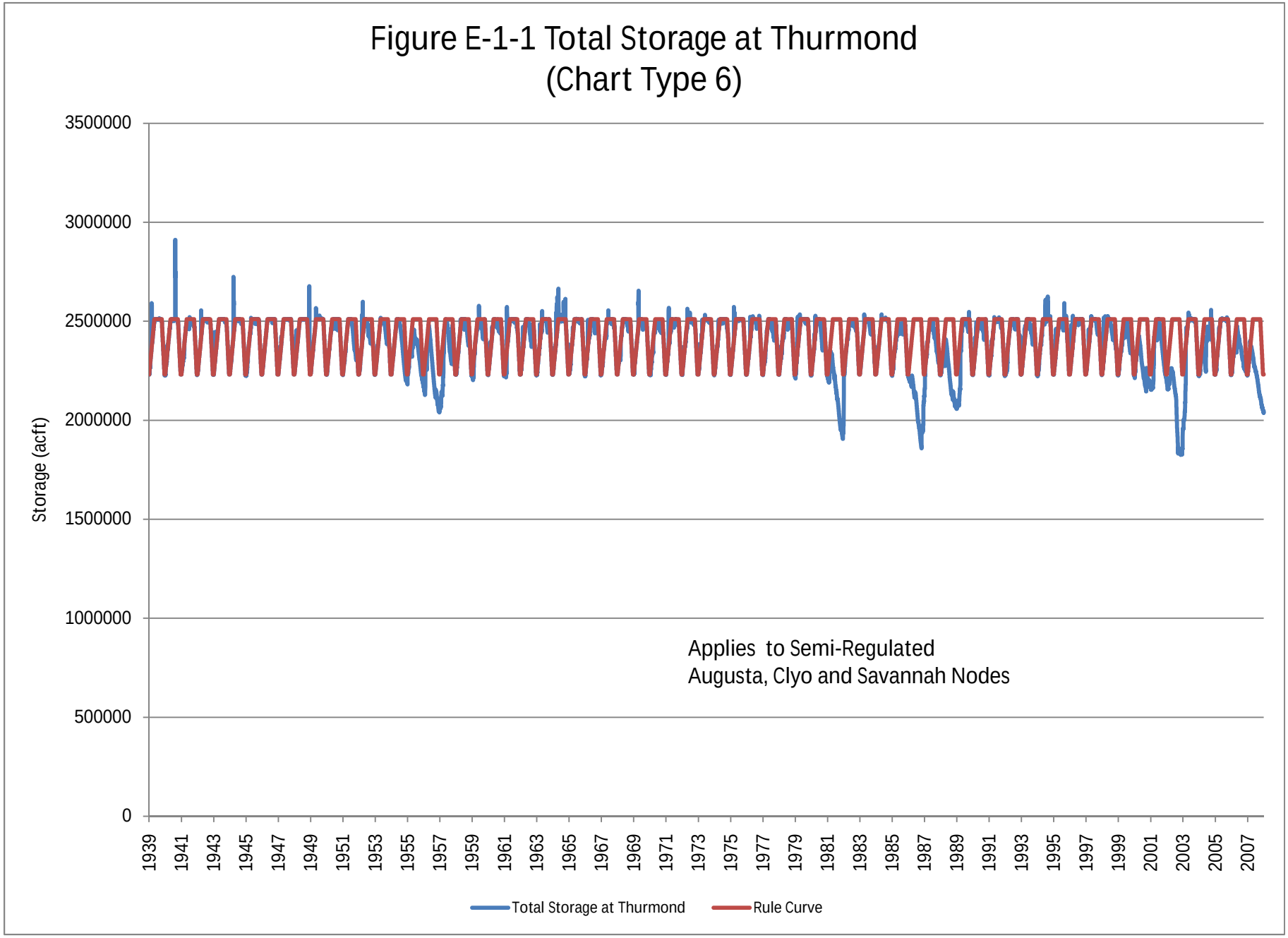


Figure E-1-1 Total Storage at Thurmond
(Chart Type 6)
Storage (acft)
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated
Augusta, Clyo and Savannah Nodes
Total Storage at Thurmond
Rule Curve

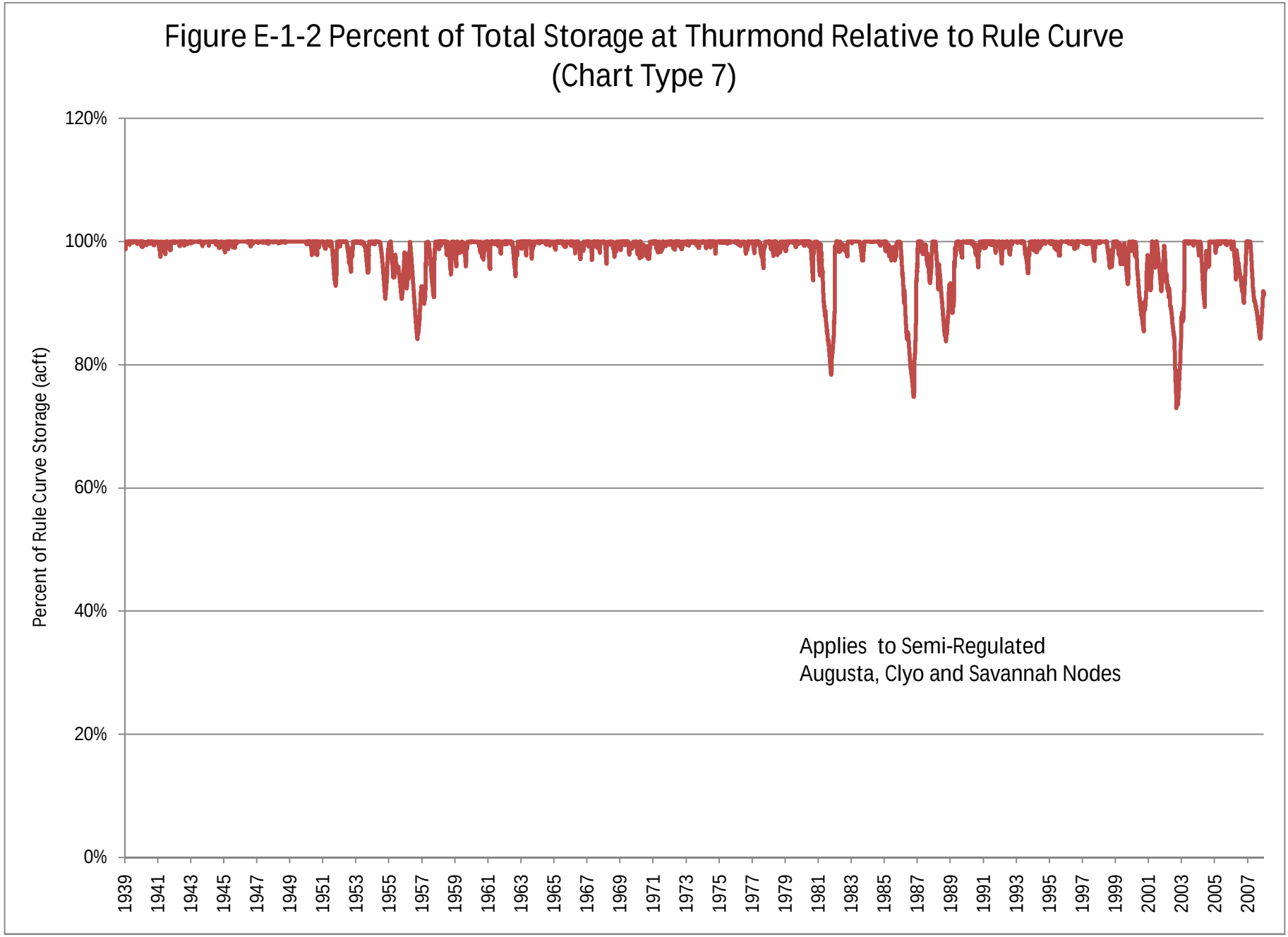


Figure E-1-2 Percent of Total Storage at Thurmond Relative to Rule Curve
(Chart Type 7)
Percent of Rule Curve Storage (acft)
120%
100%
80%
60%
40%
20%
0%
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated
Augusta, Clyo and Savannah Nodes

Figure E-1-3 Frequency of Exceedence of Percent Total Storage at Thurmond Relative to Rule Curve
(Chart Type 8)

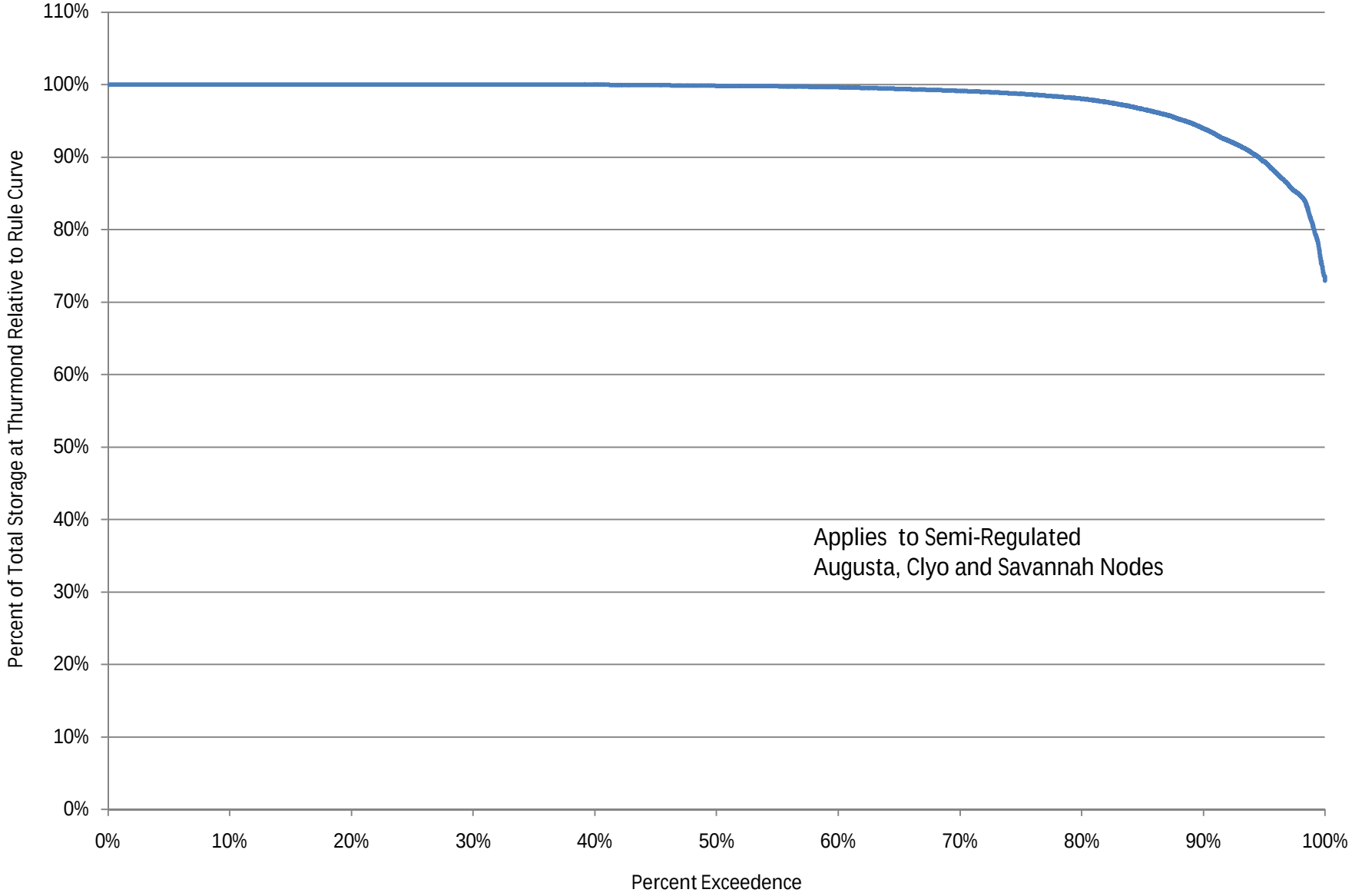


Figure E-4-1 Average Percentage of Flow Compared to Flow Regime at Claxton (Chart Type 1)

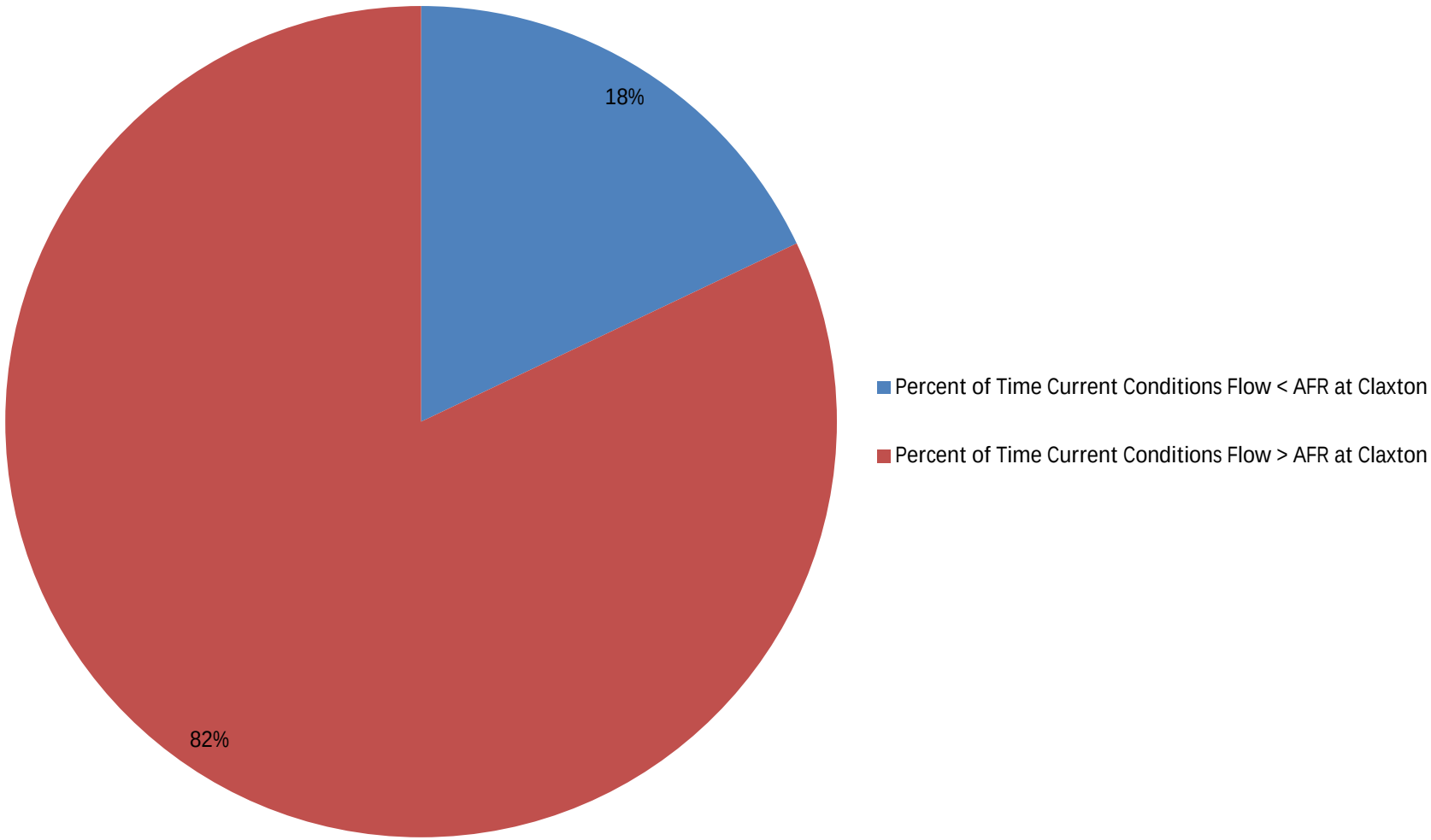
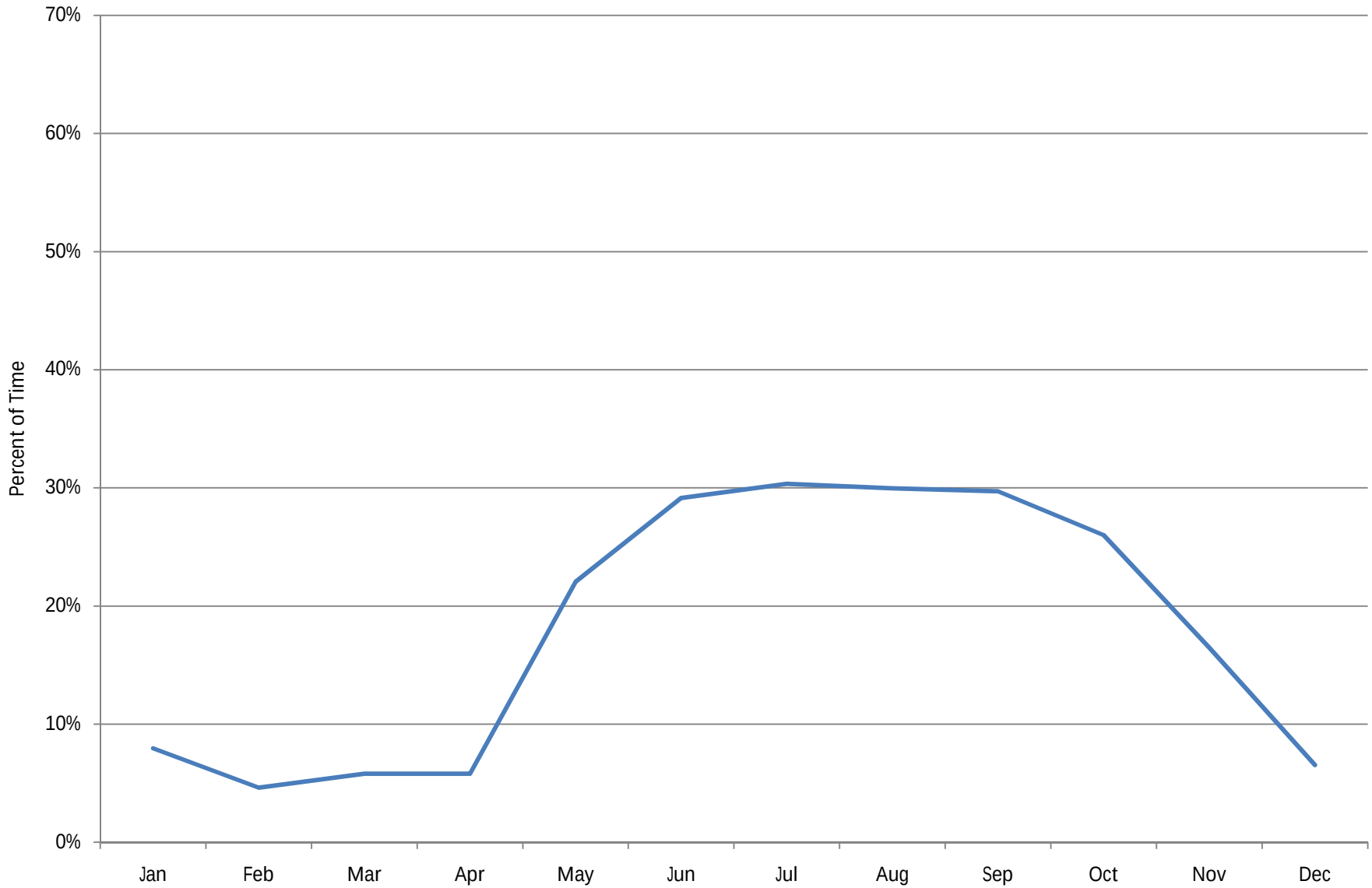


Figure E-4-2 Current Conditions Flow Less Than Adjusted Flow Regime at Claxton (Chart Type 2)



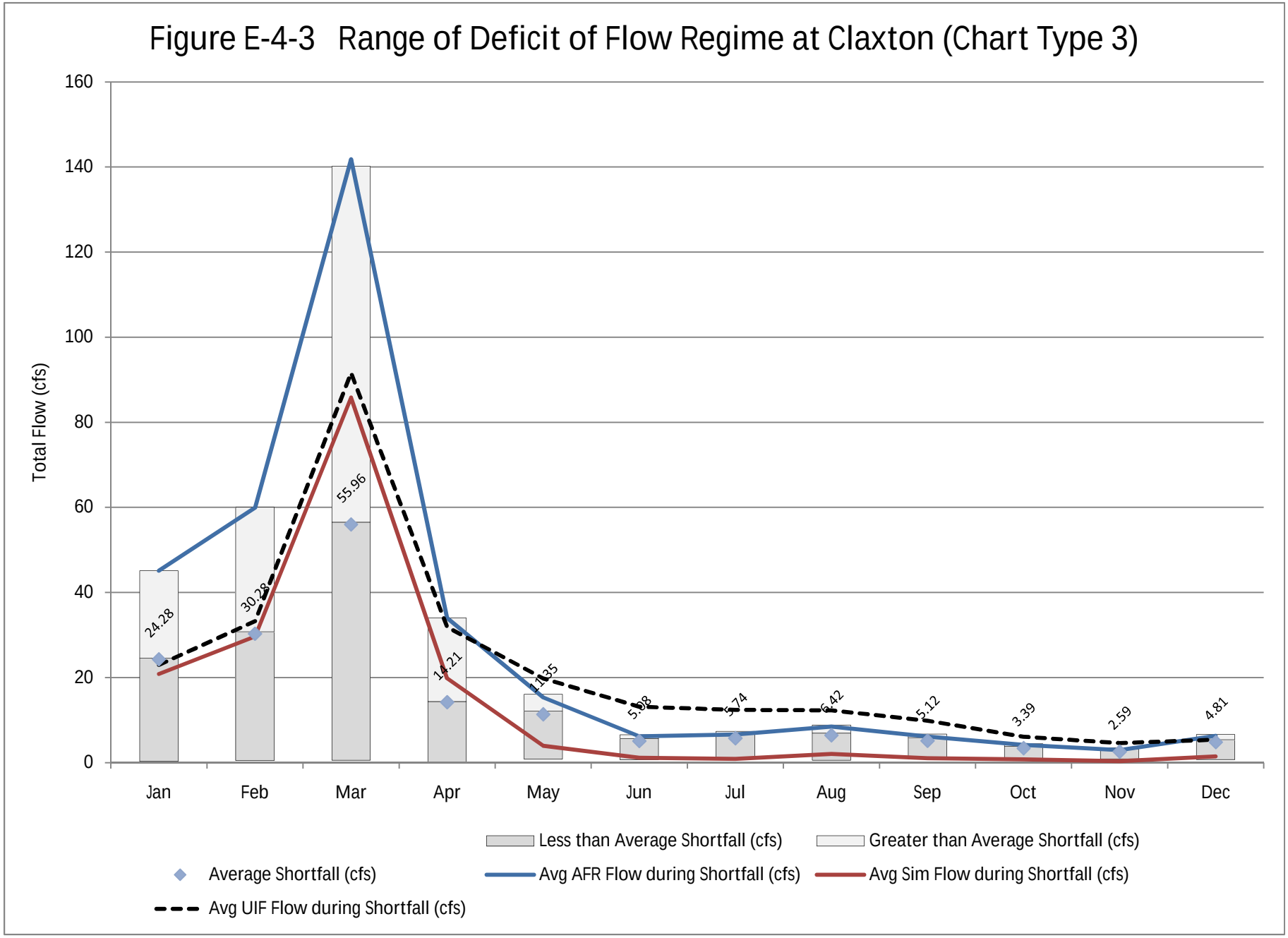


Figure E-4-3 Range of Deficit of Flow Regime at Claxton (Chart Type 3)
Total Flow (cfs)
160
140
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
24.28
30.28
55.96
14.21
11.35
5.88
5.74
6.42
5.12
3.39
2.59
4.81
Less than Average Shortfall (cfs)
Greater than Average Shortfall (cfs)
Average Shortfall (cfs)
Avg AFR Flow during Shortfall (cfs)
Avg Sim Flow during Shortfall (cfs)
Avg UIF Flow during Shortfall (cfs)

Figure E-4-4 Unimpaired Monthly Range of Flow at Claxton (Chart Type 4)

Figure E-4-5 Simulated Monthly Range of Flow at Claxton (Chart Type 5)

Figure E-5-1 Average Percentage of Flow Compared to Flow Regime at Kings Ferry (Chart Type 1)

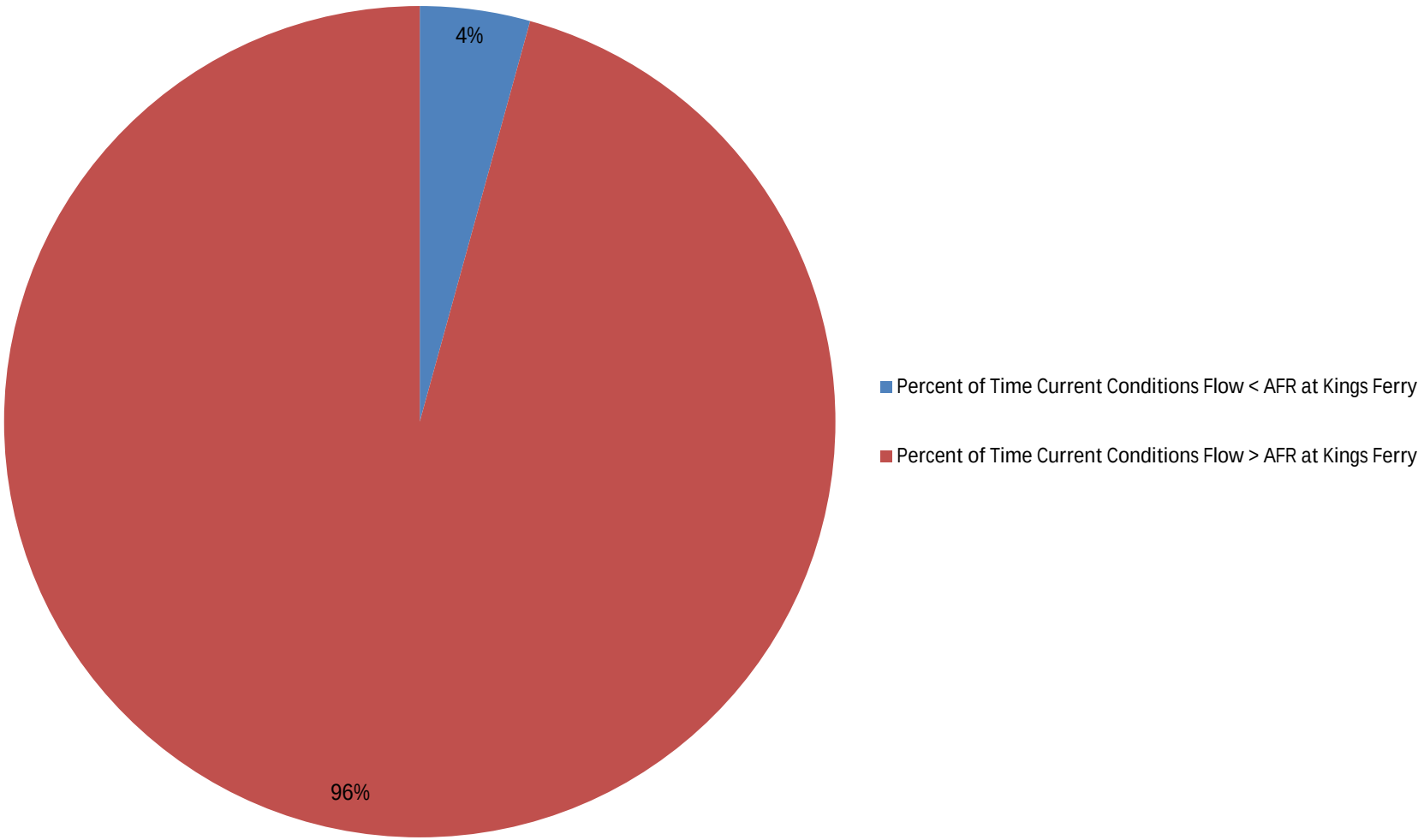


Figure E-5-2 Current Conditions Flow Less Than Adjusted Flow Regime at Kings Ferry (Chart Type 2)

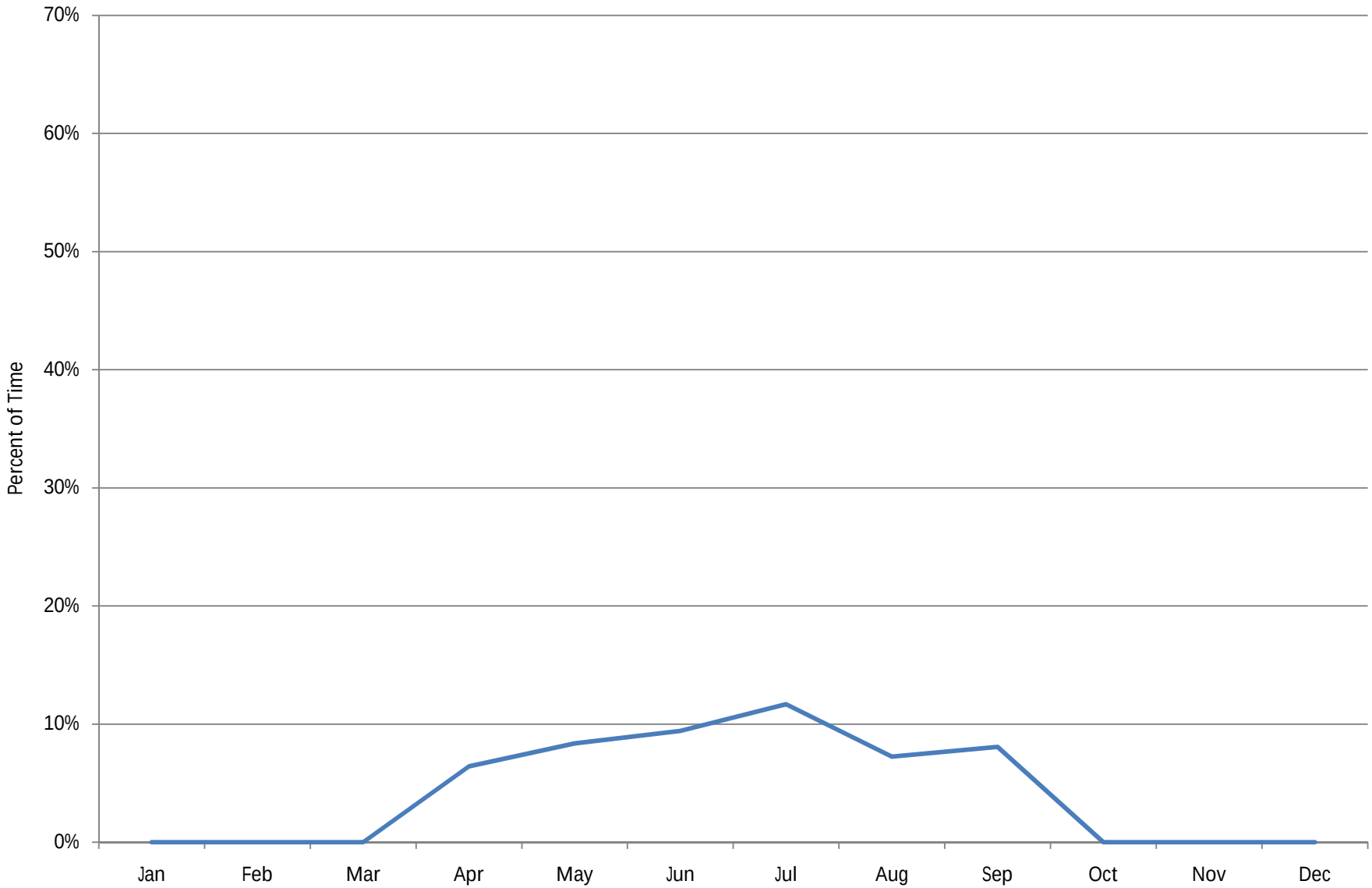
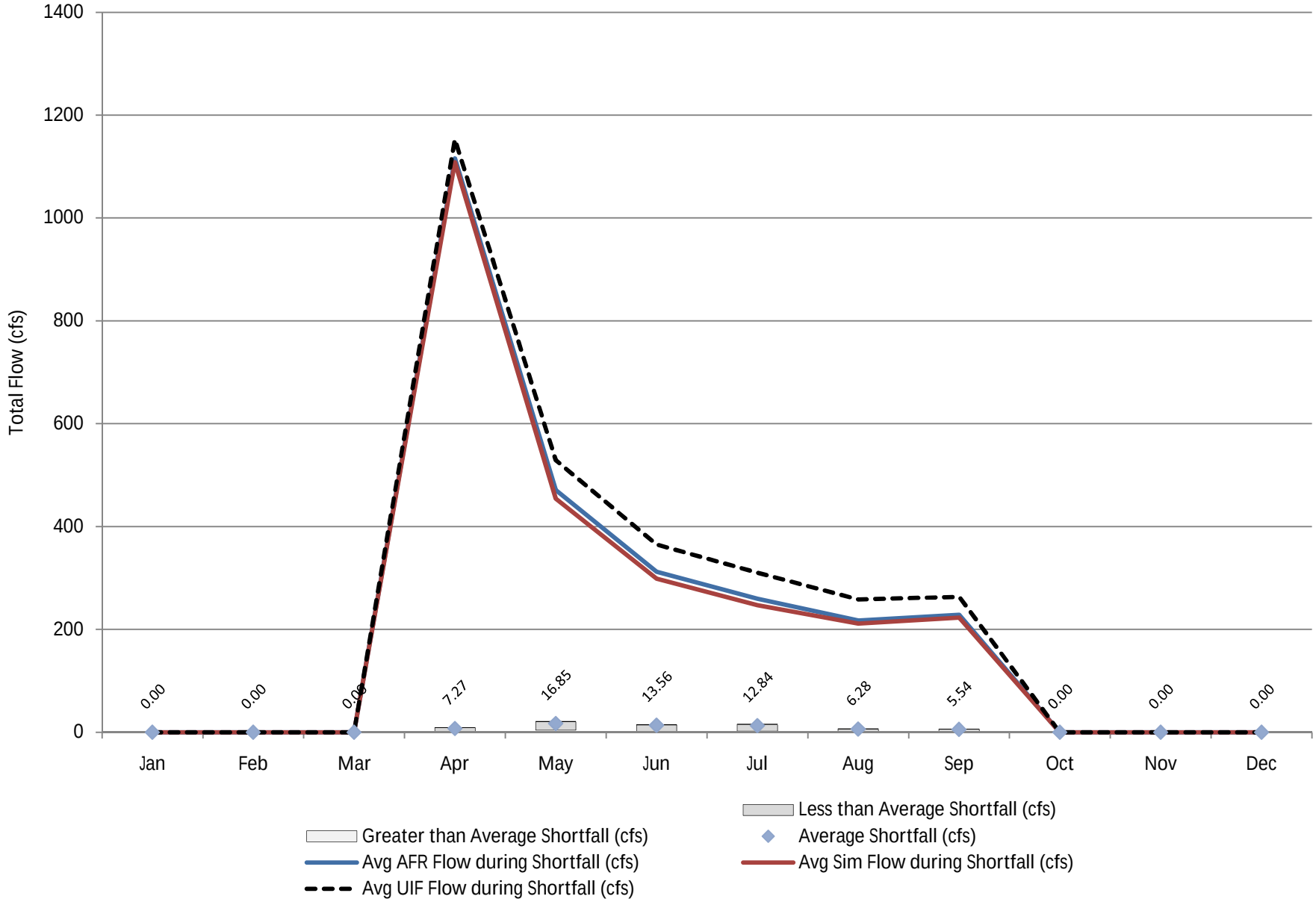


Figure E-5-3 Range of Deficit of Flow Regime at Kings Ferry (Chart Type 3)



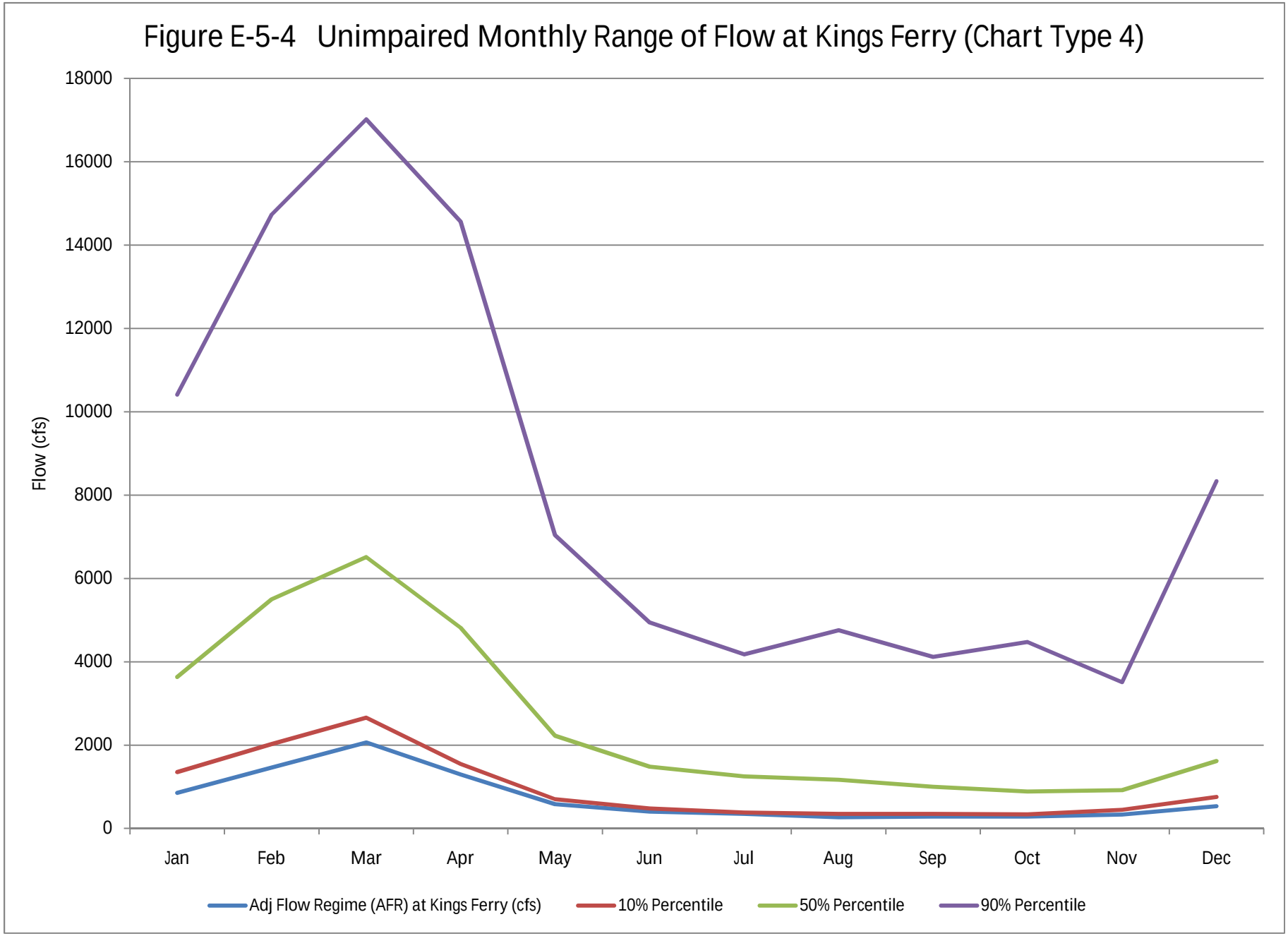


Figure E-5-4 Unimpaired Monthly Range of Flow at Kings Ferry (Chart Type 4)
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Kings Ferry (cfs)
10% Percentile
50% Percentile
90% Percentile

Figure E-5-5 Simulated Monthly Range of Flow at Kings Ferry (Chart Type 5)

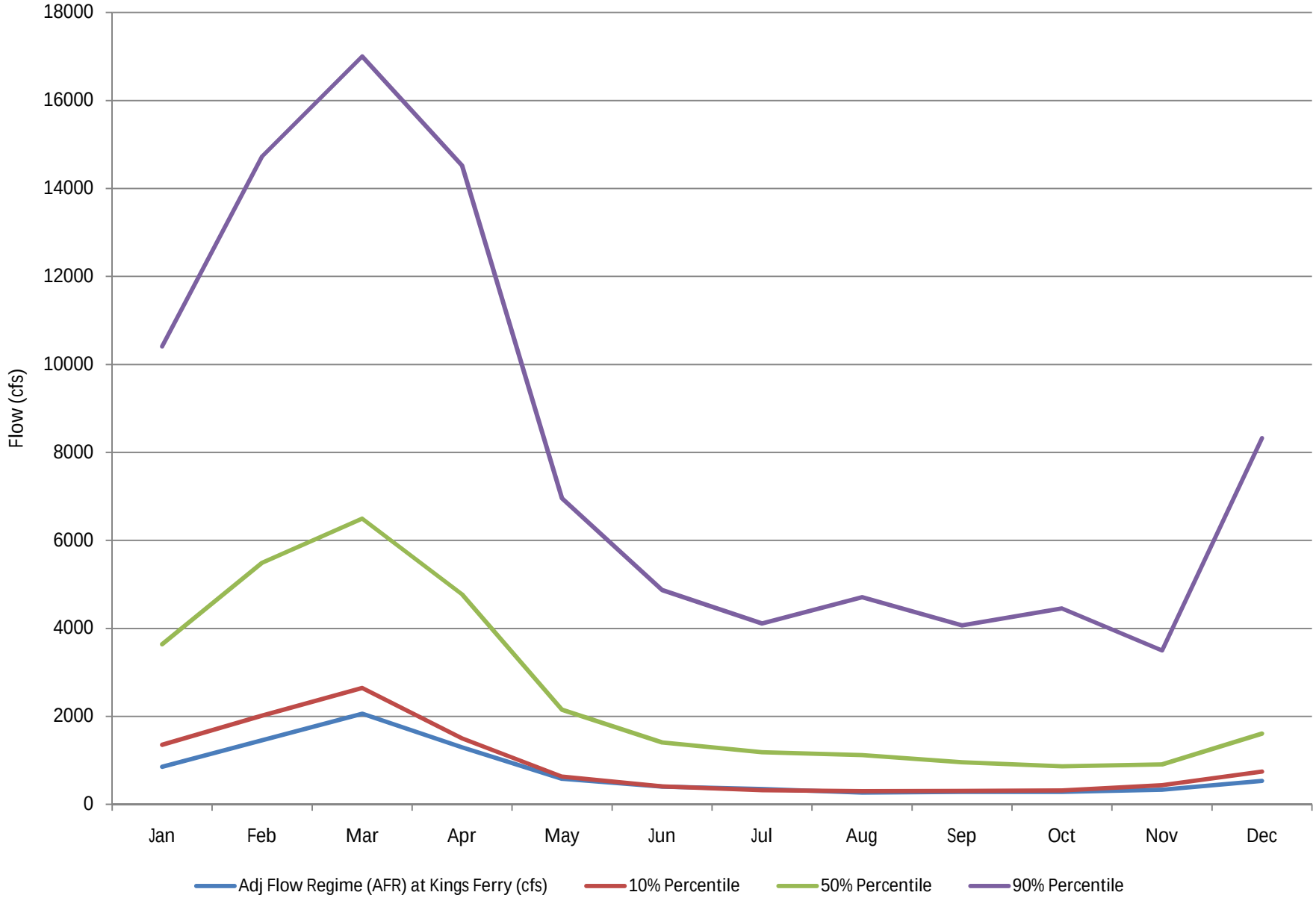


Figure E-6-1 Average Percentage of Flow Compared to Flow Regime at Eden (Chart Type 1)

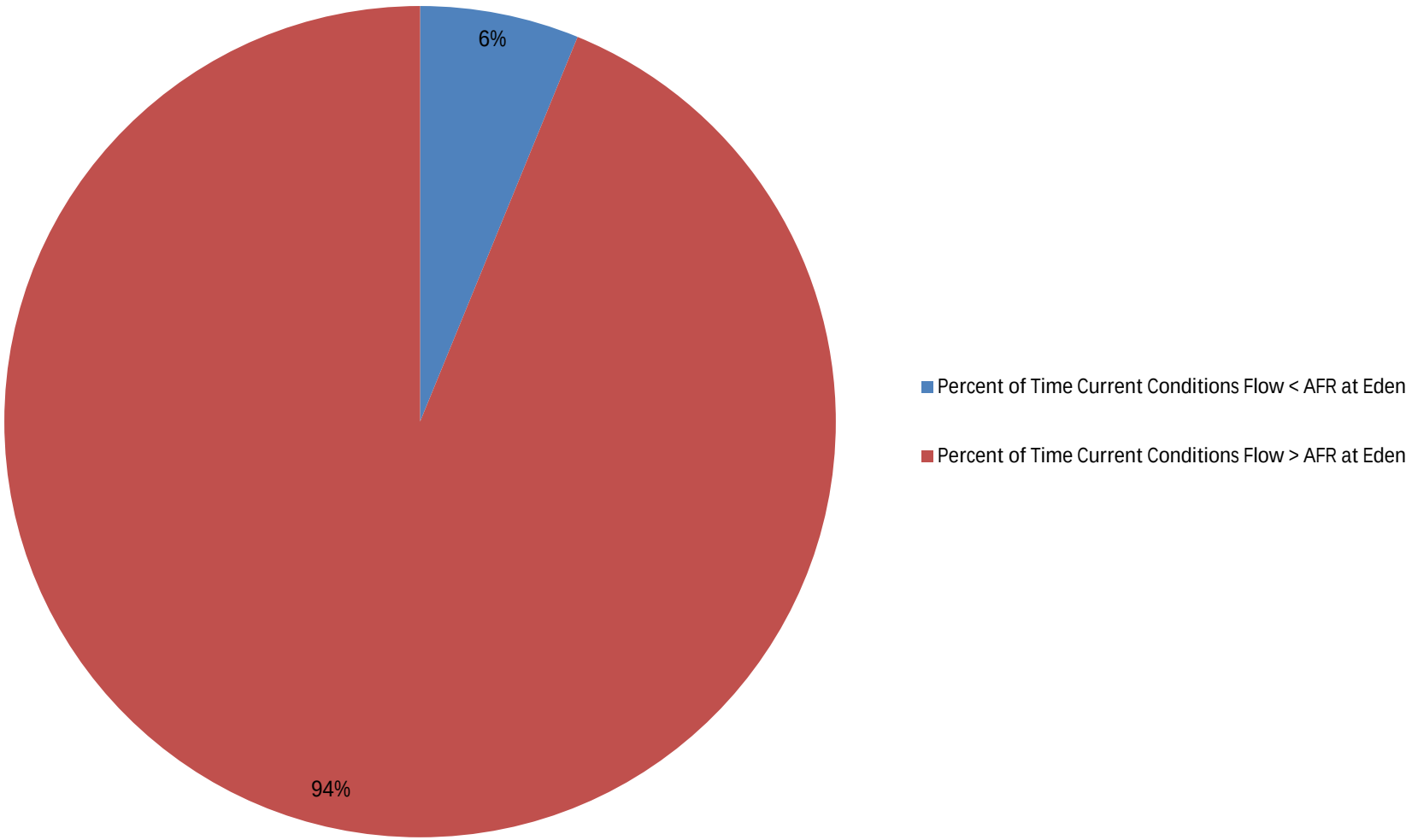


Figure E-6-2 Current Conditions Flow Less Than Adjusted Flow Regime at Eden (Chart Type 2)

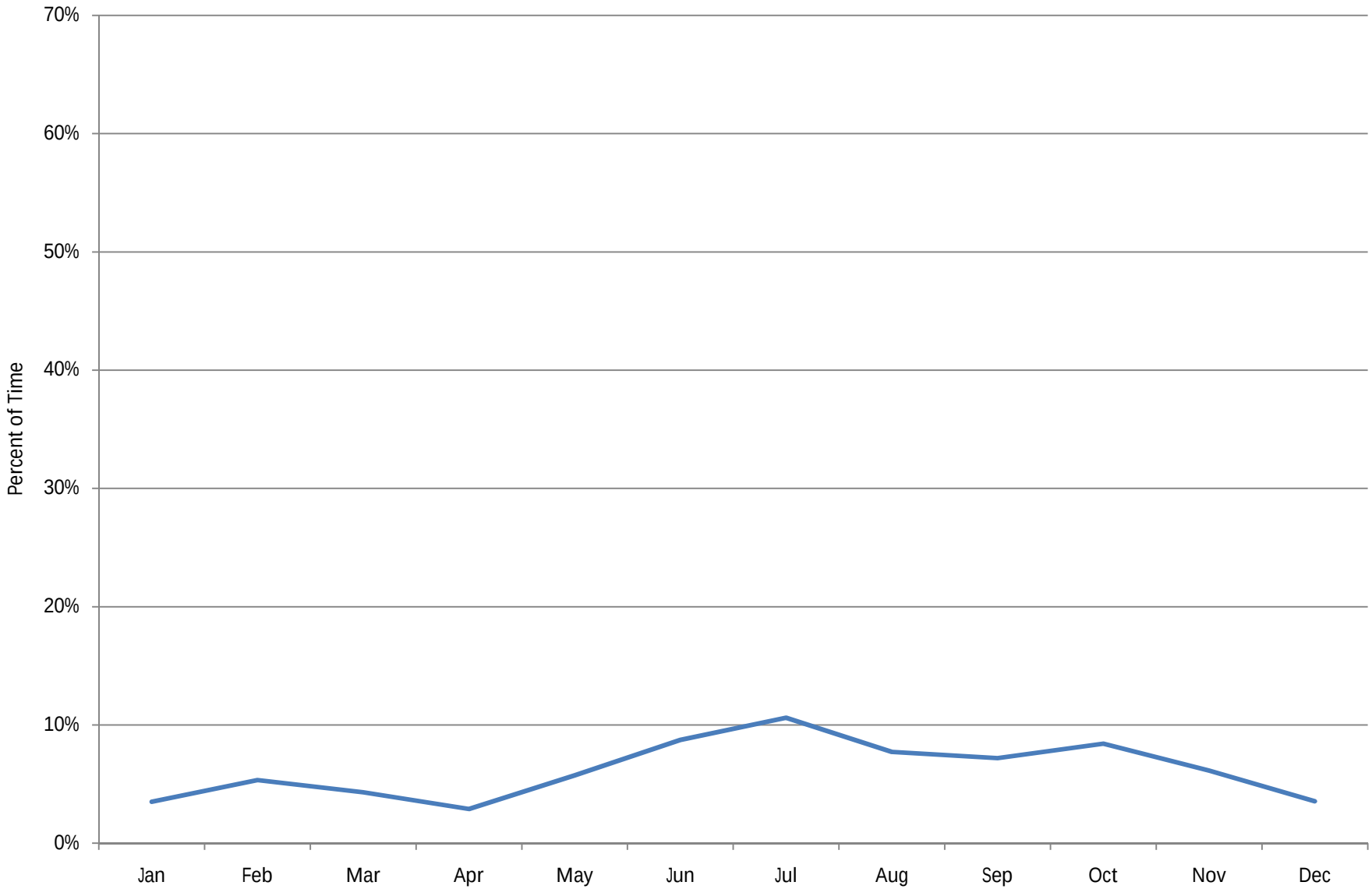
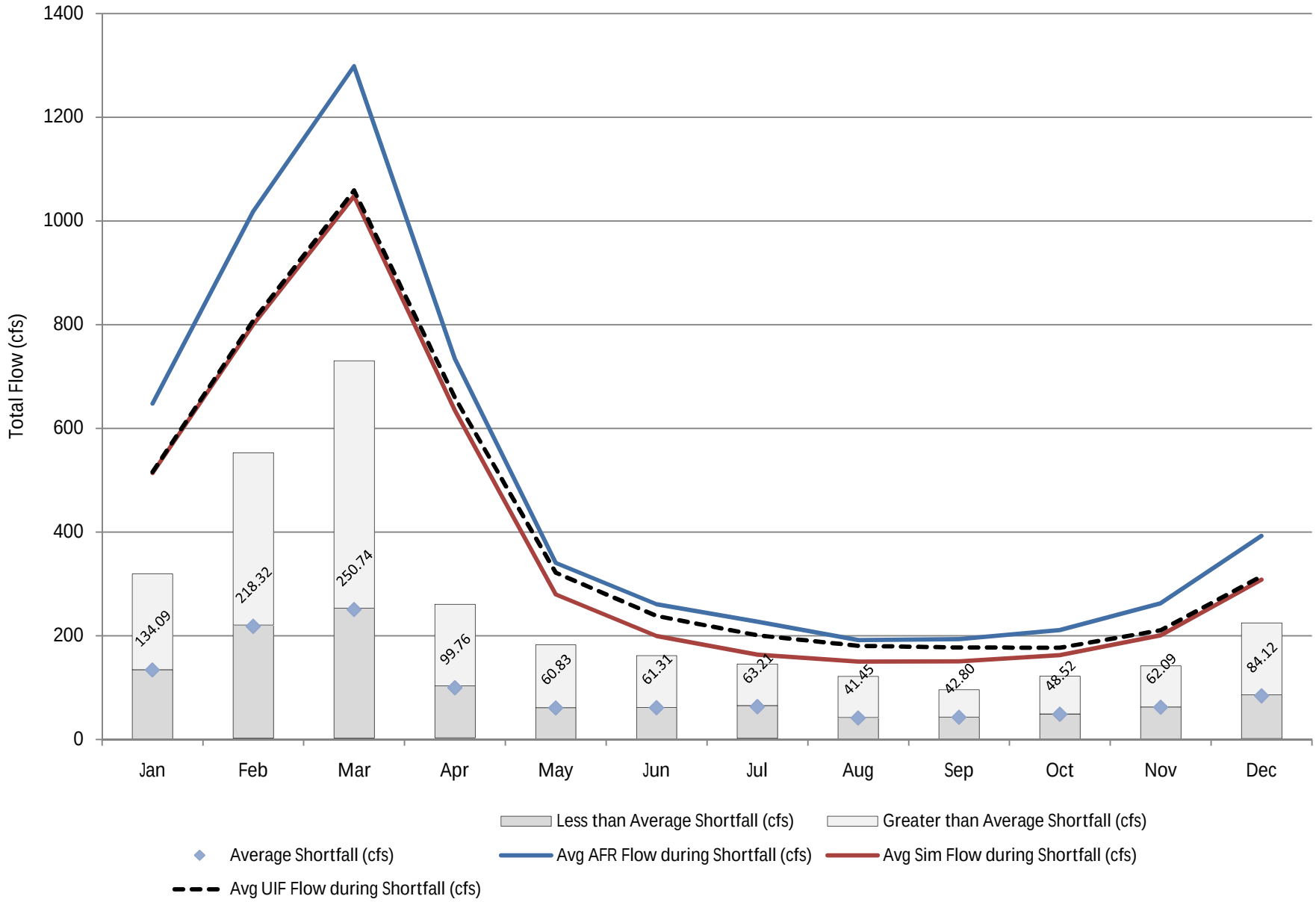


Figure E-6-3 Range of Deficit of Flow Regime at Eden (Chart Type 3)



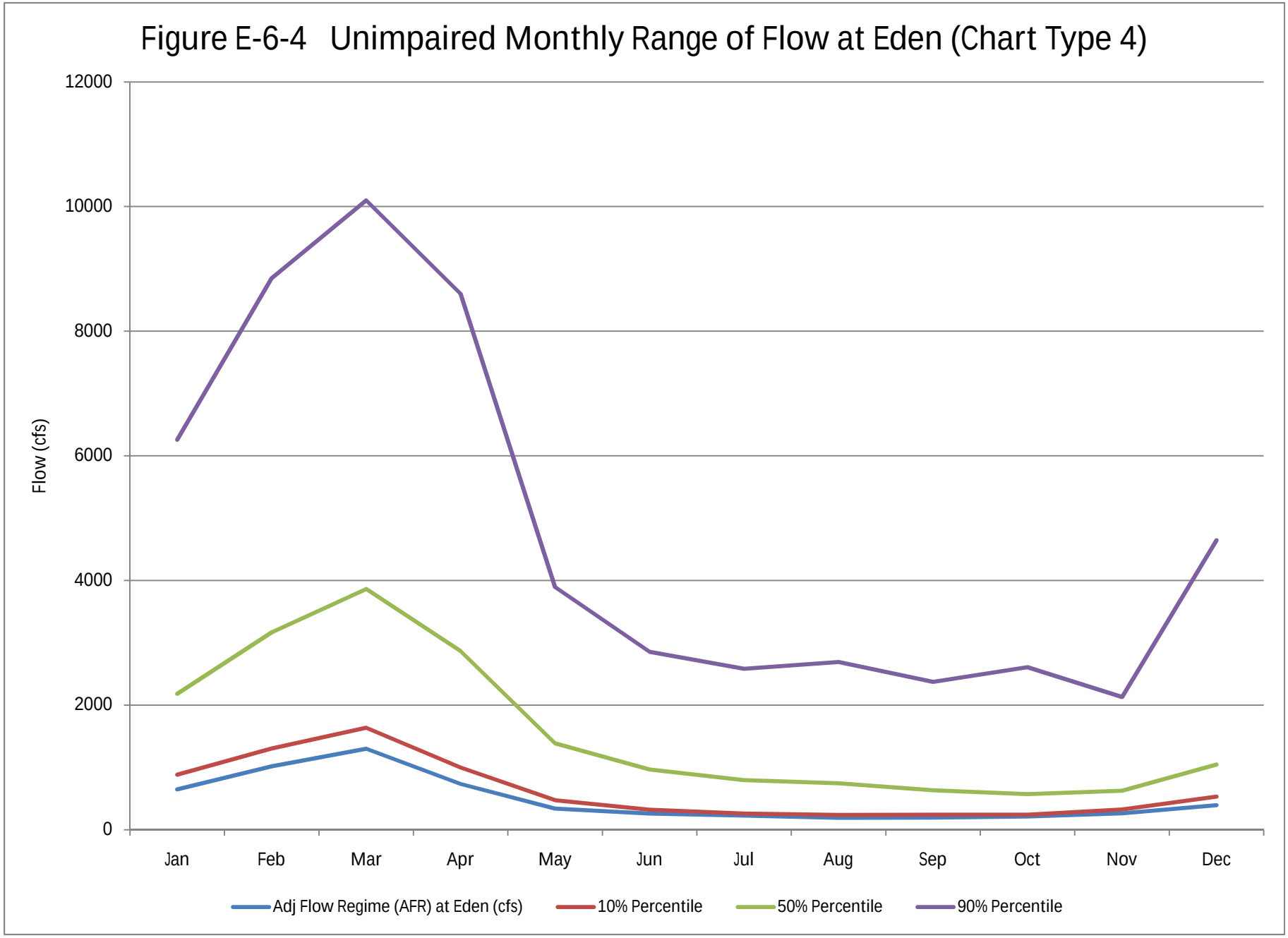
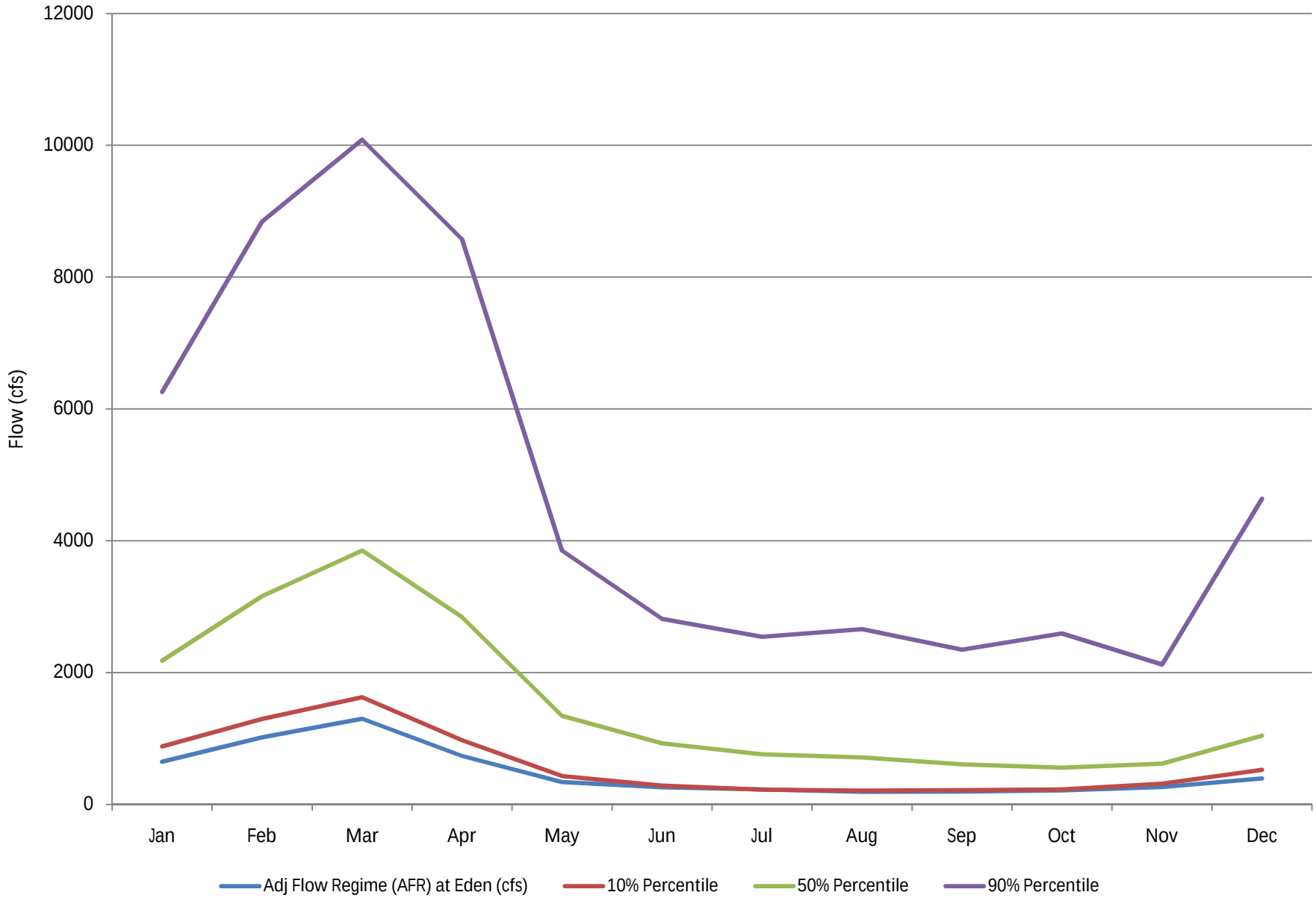


Figure E-6-4 Unimpaired Monthly Range of Flow at Eden (Chart Type 4)
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Eden (cfs)
10% Percentile
50% Percentile
90% Percentile

Figure E-6-5 Simulated Monthly Range of Flow at Eden (Chart Type 5)



Appendix F

Tennessee

Charts depicting flows and shortages relative to flow regime by planning node for current conditions model.

1. New England
2. Chickamauga
3. Copperhill
4. Little Tennessee

Chart type 1 is a pie chart that shows the percentage of daily flows above and below the adjusted flow regime. The percentage of time above the adjusted flow regime is an indication of how often the flow regime can be met and withdrawals can be made.

Chart type 2 shows the percentage of time that flows are below the adjusted flow regime for each month of the year, indicating months in which water availability is most constrained. The higher the percentage, the more often there are shortfalls, hence more water availability constraints.

Chart type 3 shows certain monthly statistics during periods of shortfalls. Namely, average simulated river flows, average adjusted flow regime flows, and average unimpaired flows are shown by line plots. In addition, each month's average shortfall and the range between the largest and smallest shortfall are shown by bar plots. This chart shows the magnitude of a shortfall for a given month relative to the typical flows available during the month only on the days shortfalls occur. Flows for days without shortfalls are not included in generating these statistics.

Chart type 4 shows plots of monthly values of the adjusted flow regime and the 10-percentile (the lowest 10 percent of unimpaired flows), the 50-percentile (mid-range flows), and 90-percentile (all but the top 10 percent) flows. This range of percentiles covers dry, median, and wet conditions, respectively. The chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream if there were no effects of human development.

Chart type 5 shows plots of monthly values of the adjusted flow regime and the lowest 10 percent of simulated flows, i.e., 10-percentile flows, 50-percentile flows, and 90-percentile flows. This chart shows the magnitude of the adjusted flow regime relative to the flows that would be in the stream under current condition assumptions.

Chart type 6 shows the daily storage and seasonal top of conservation curve for a given reservoir over the period of record. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 7 shows the percentage of storage remaining relative to the seasonal top of conservation pool for a given reservoir over the period of record. The reservoir is 100 percent full when the level is at or above the rule curve. The storage remaining in the reservoir reflects the magnitude and timing of demands.

Chart type 8 shows the percentage of time that the remaining storage of a given reservoir is above a given percentage relative to the rule curve. The reservoir is 100 percent full when the level is at or above the rule curve. Storage remaining in the reservoir reflects magnitude and timing of demands.

AFR = Adjusted Flow Regime

Figure F-1-1 Average Percentage of Flow Compared to Flow Regime at New England (Chart Type 1)

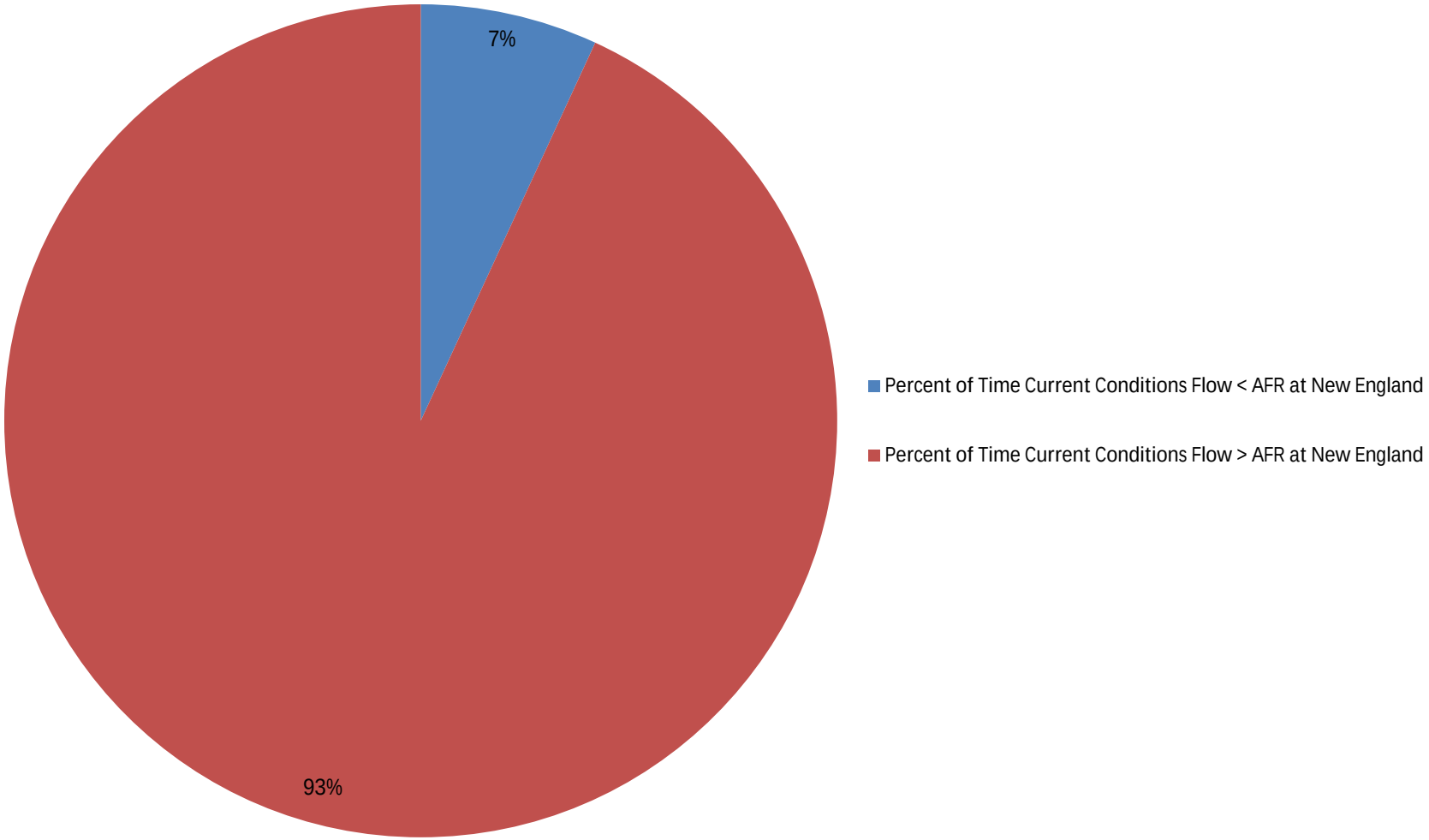


Figure F-1-2 Current Conditions Flow Less Than Adjusted Flow Regime at New England (Chart Type 2)

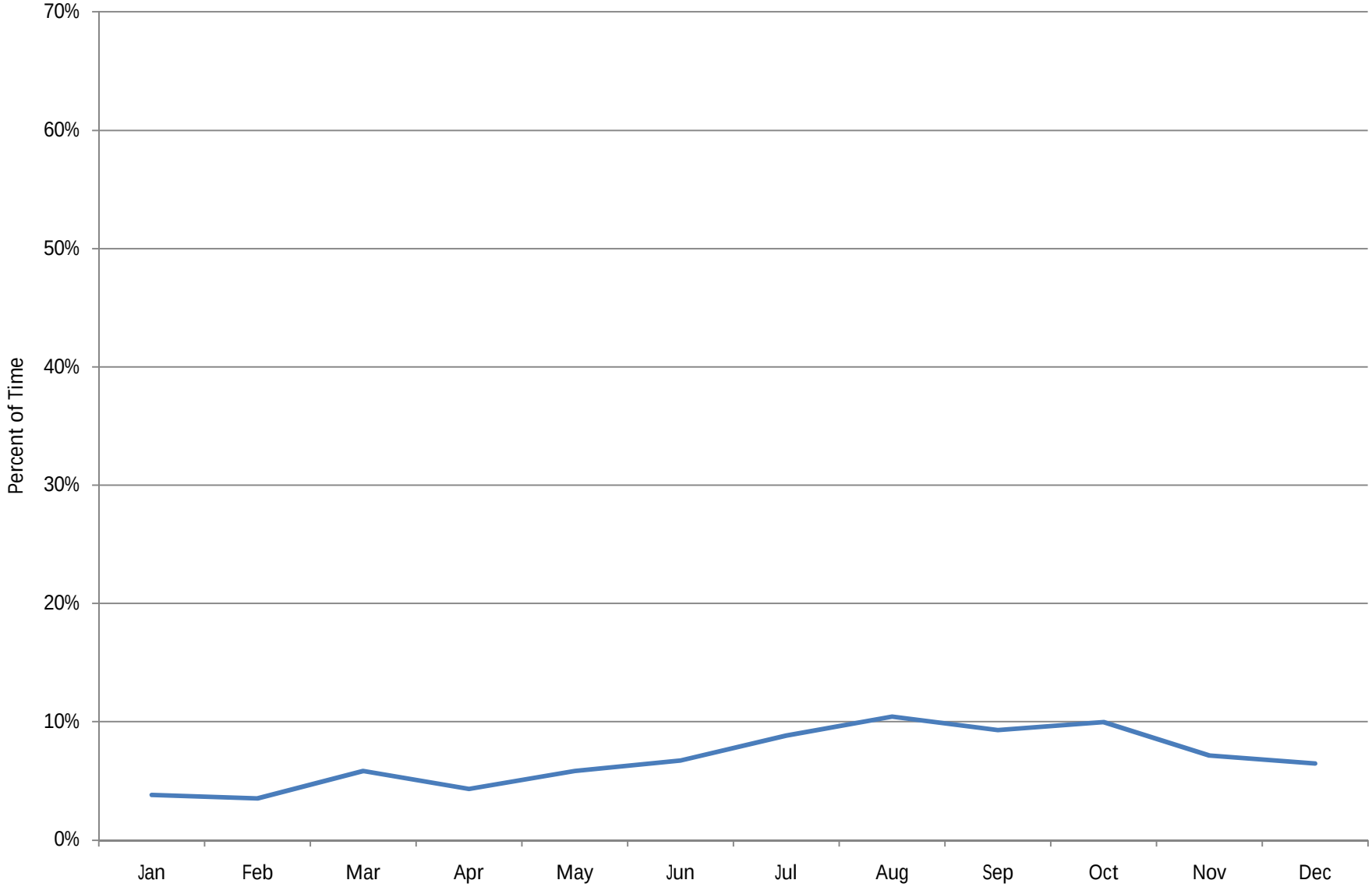


Figure F-1-3 Range of Deficit of Flow Regime at New England (Chart Type 3)

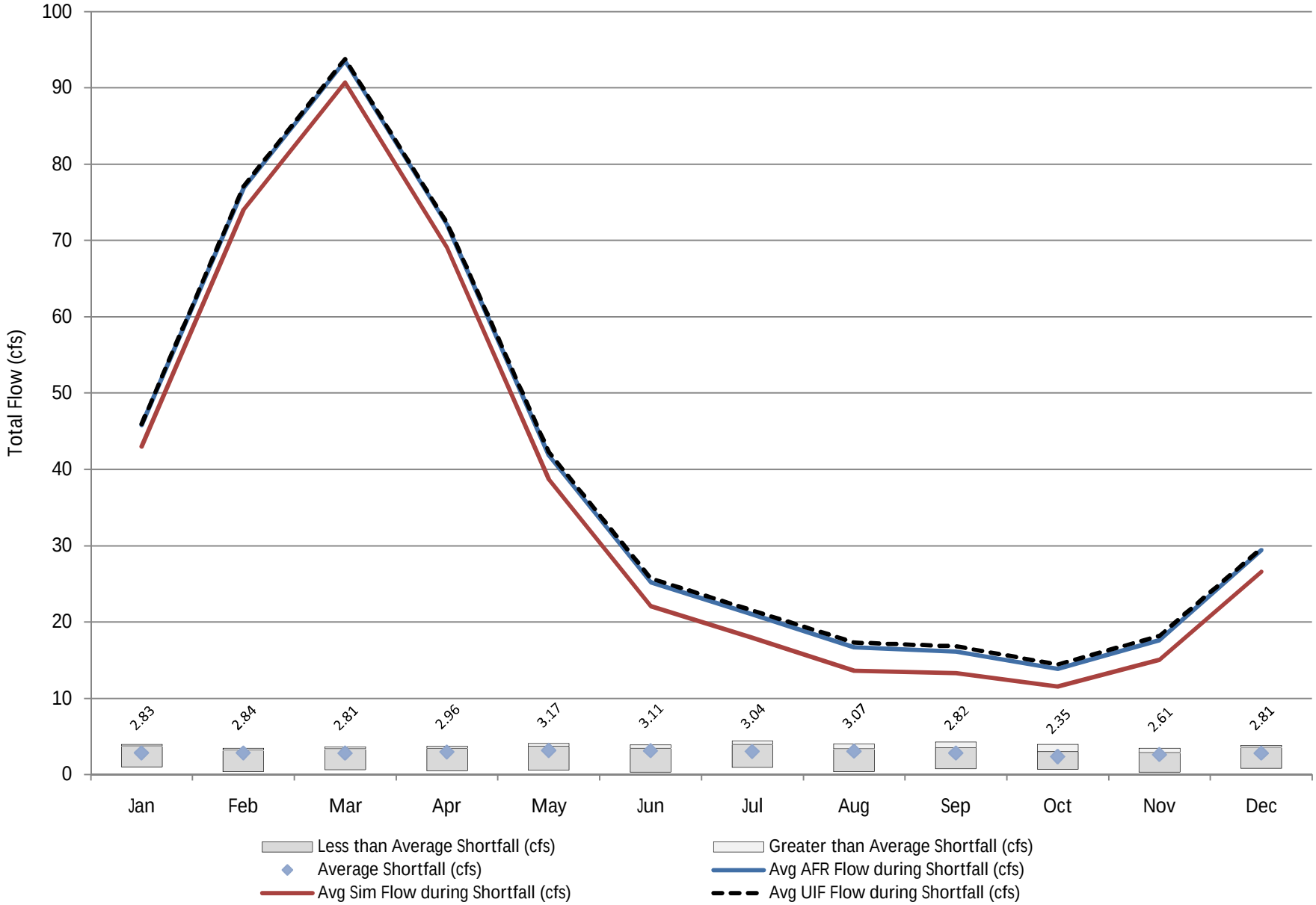


Figure F-1-4 Unimpaired Monthly Range of Flow at New England (Chart Type 4)

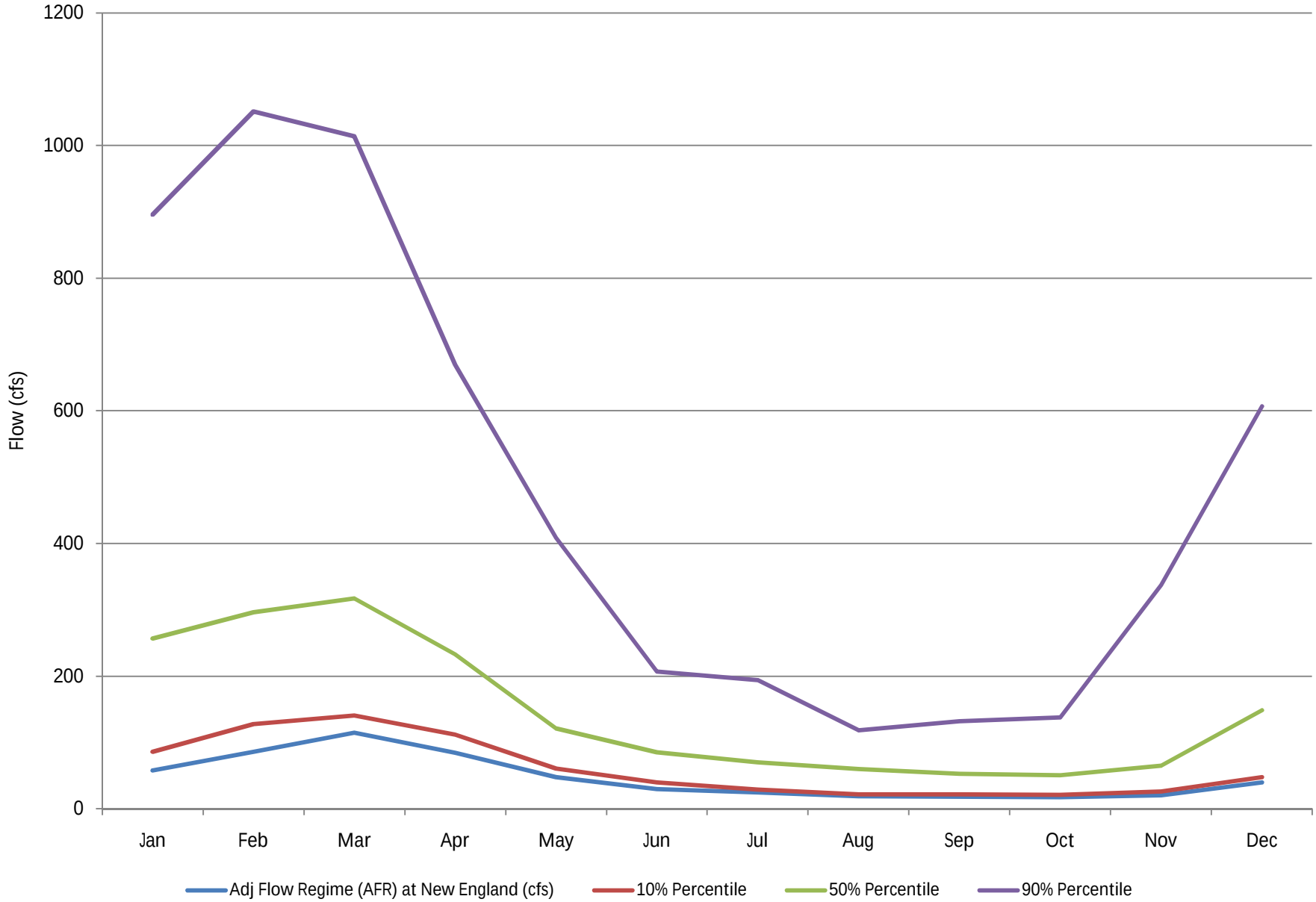


Figure F-1-5 Simulated Monthly Range of Flow at New England (Chart Type 5)

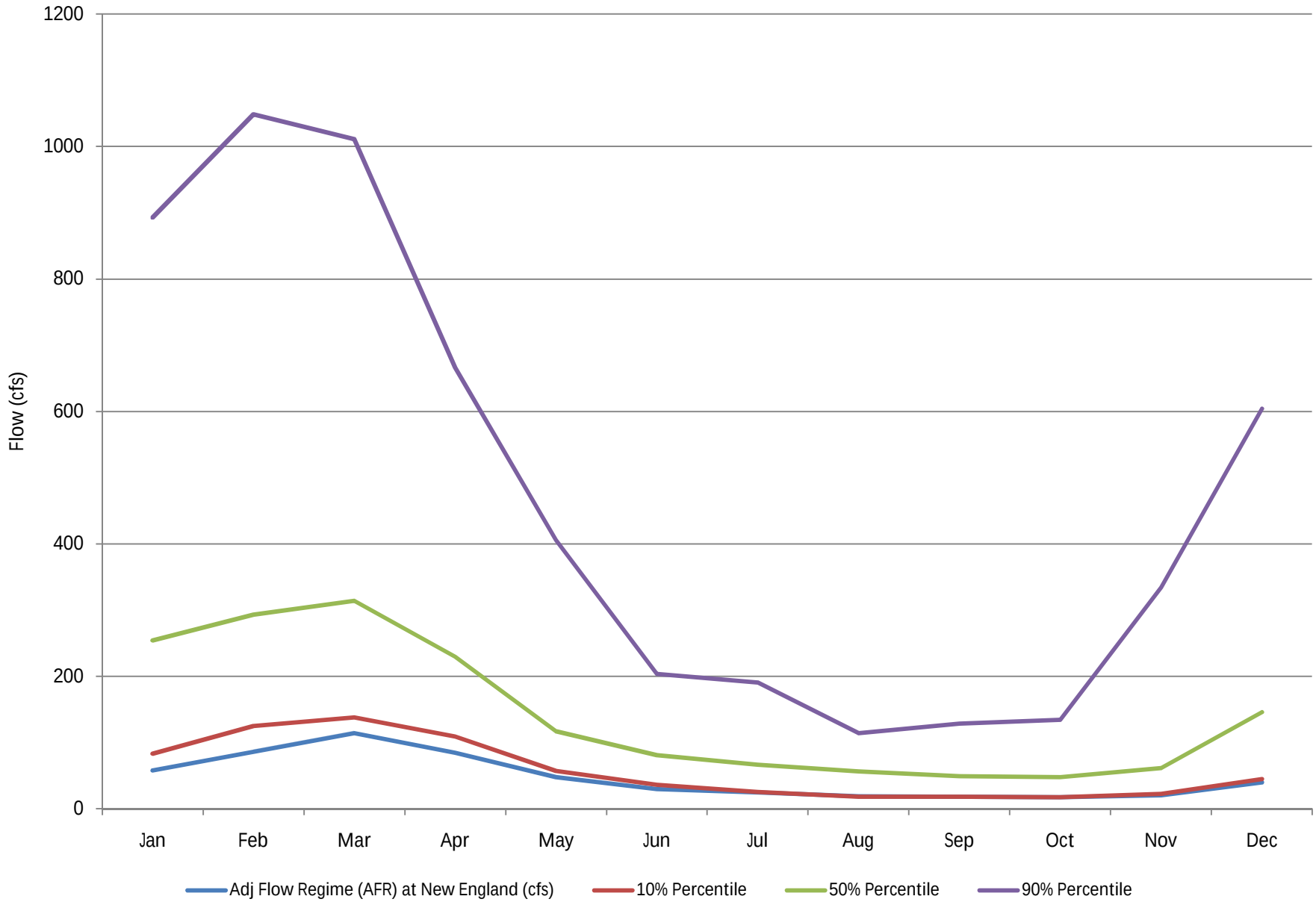


Figure F-2-1 Average Percentage of Flow Compared to Flow Regime at Chickamauga (Chart Type 1)

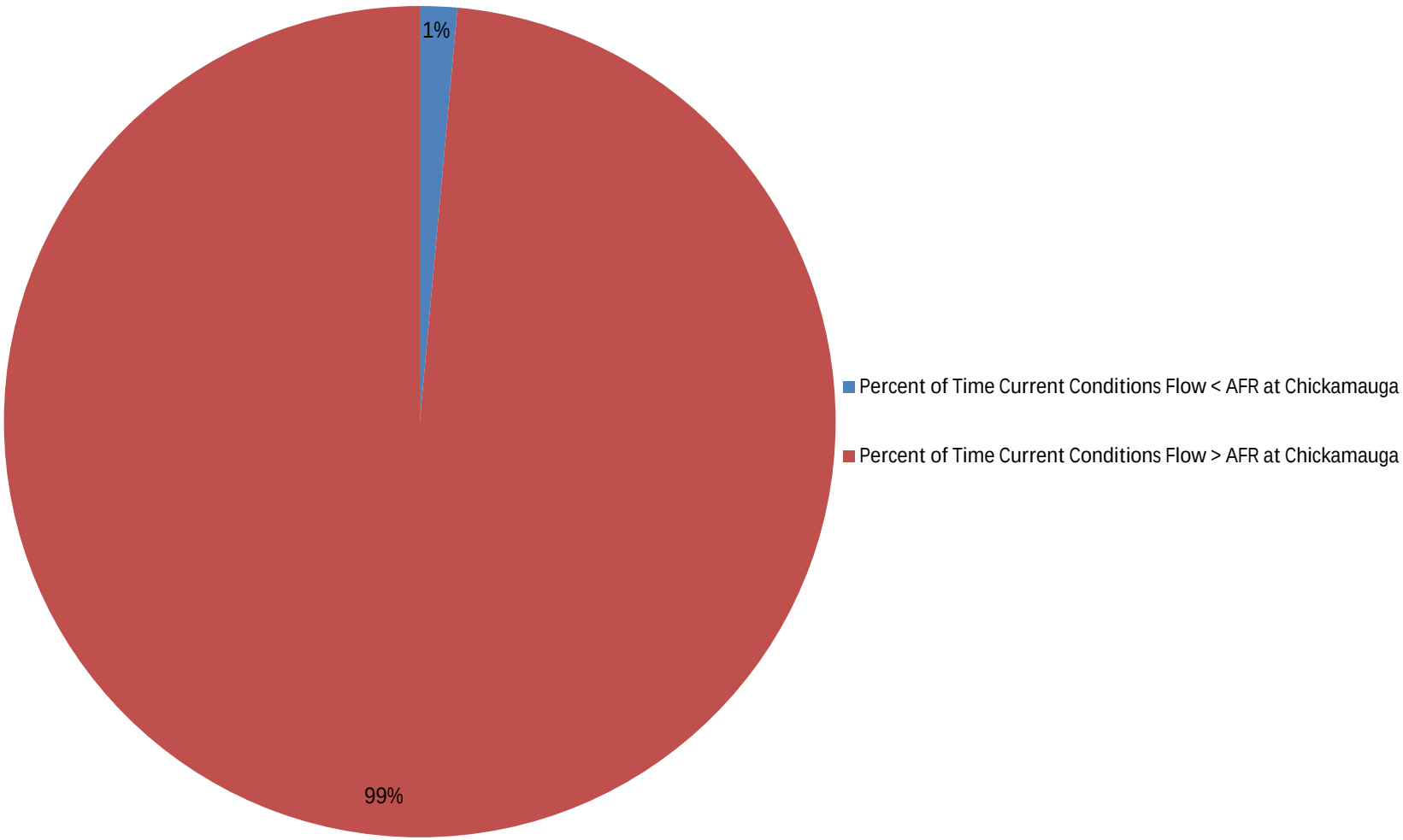


Figure F-2-2 Current Conditions Flow Less Than Adjusted Flow Regime at Chickamauga (Chart Type 2)

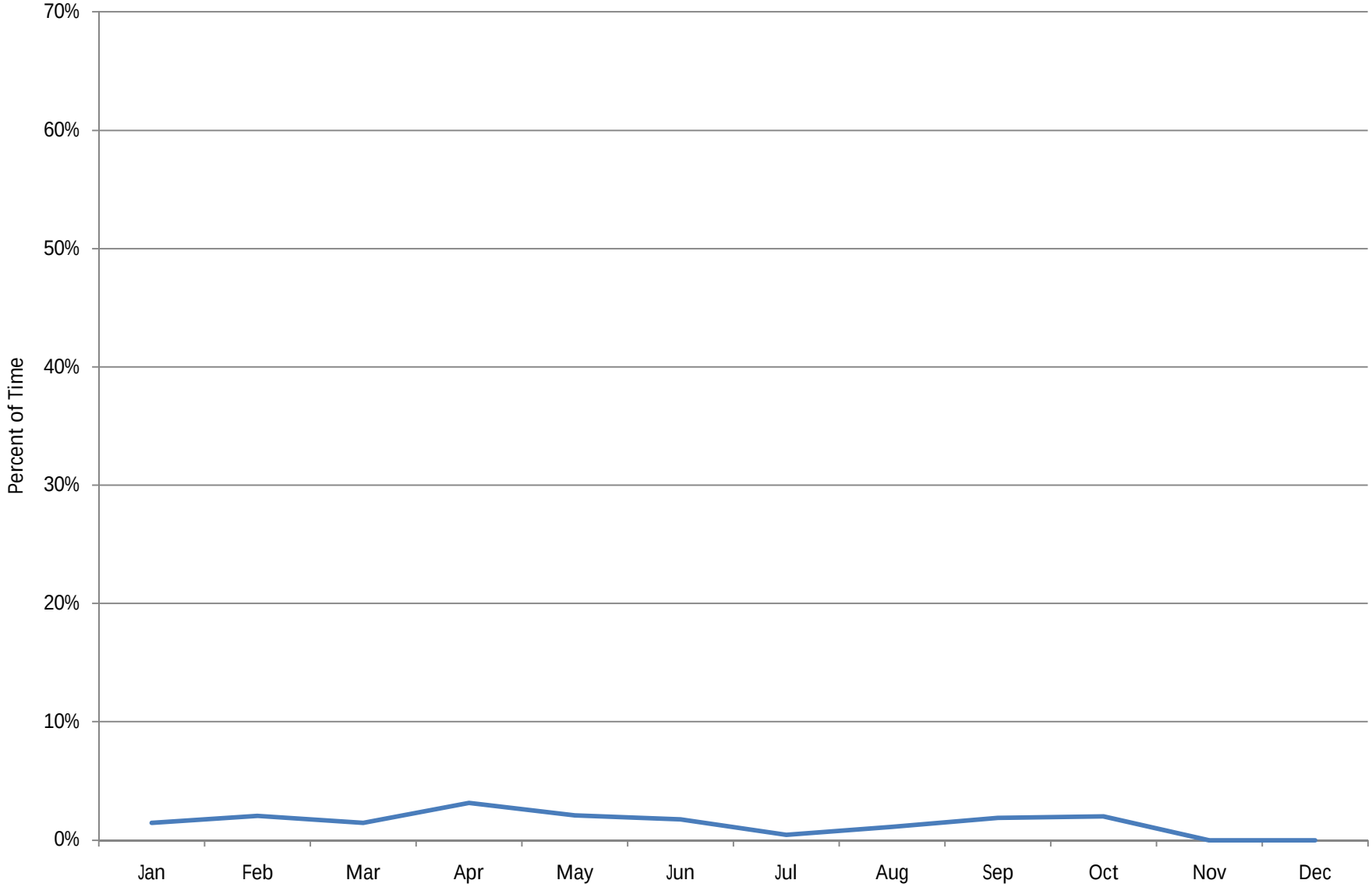


Figure F-2-3 Range of Deficit of Flow Regime at Chickamauga (Chart Type 3)

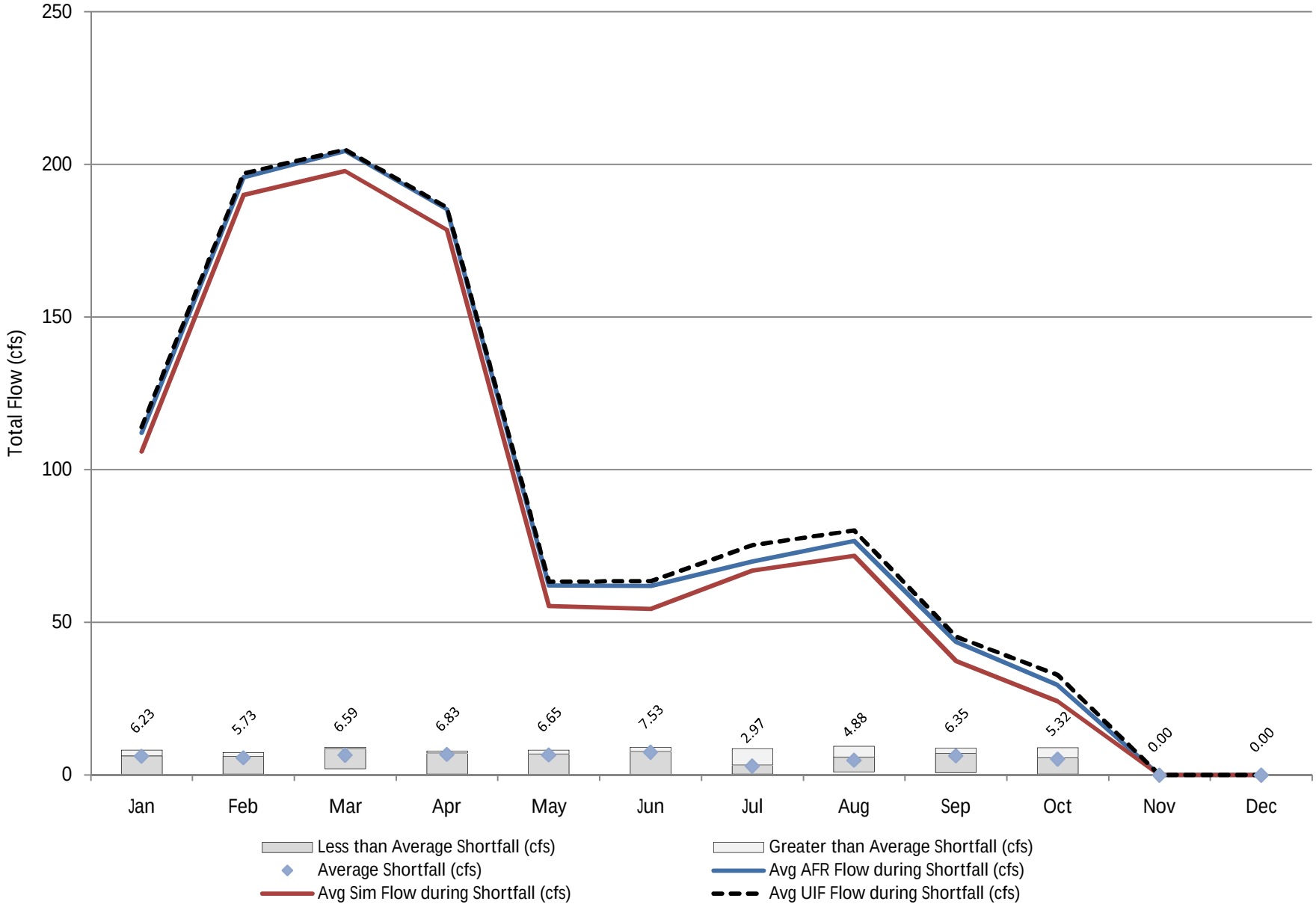
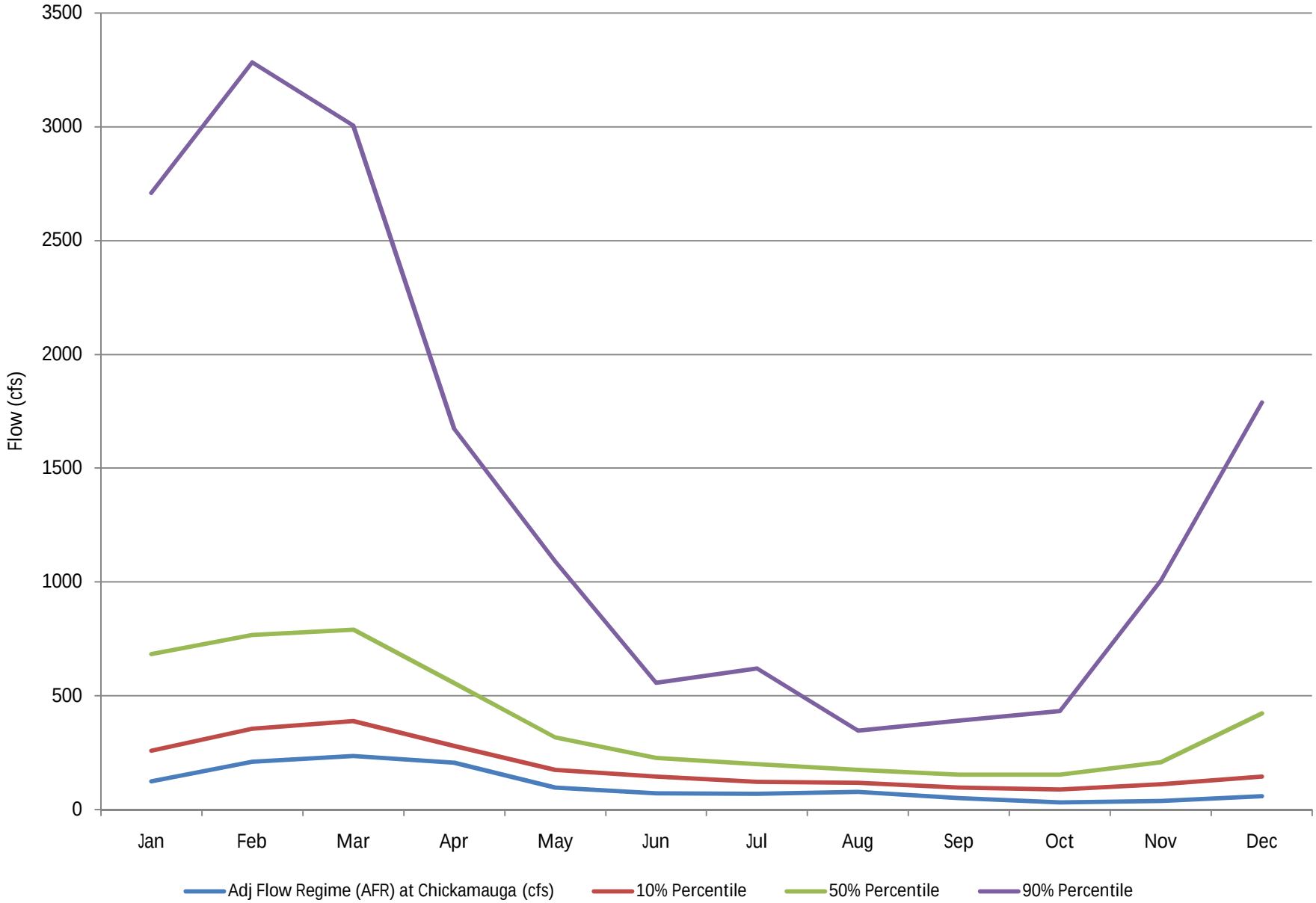


Figure F-2-4 Unimpaired Monthly Range of Flow at Chickamauga (Chart Type 4)



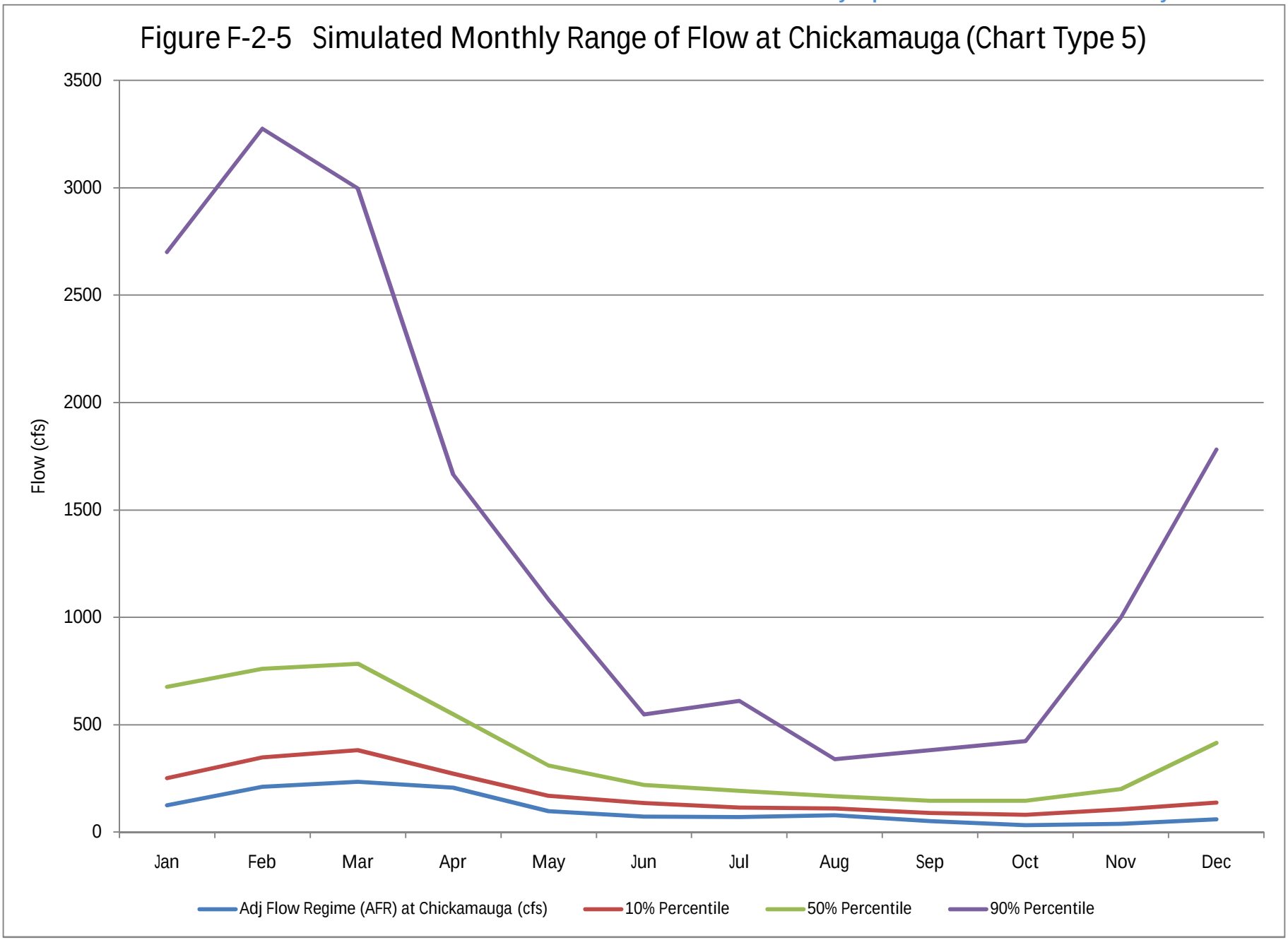


Figure F-2-5 Simulated Monthly Range of Flow at Chickamauga (Chart Type 5)
Flow (cfs)
3500
3000
2500
2000
1500
1000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Adj Flow Regime (AFR) at Chickamauga (cfs)
10% Percentile
50% Percentile
90% Percentile

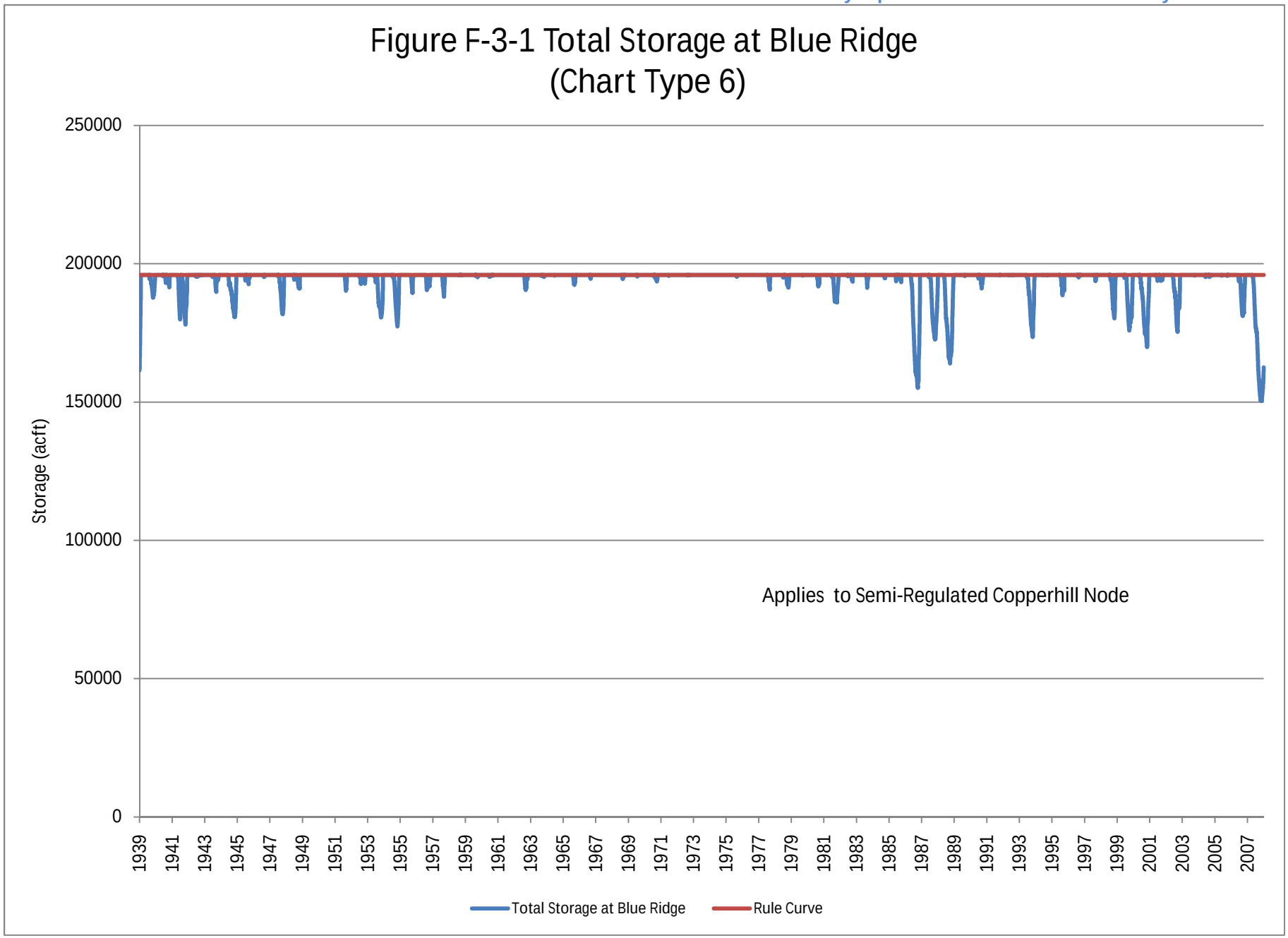


Figure F-3-1 Total Storage at Blue Ridge
(Chart Type 6)
Storage (acft)
250000
200000
150000
100000
50000
0
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-Regulated Copperhill Node
Total Storage at Blue Ridge
Rule Curve

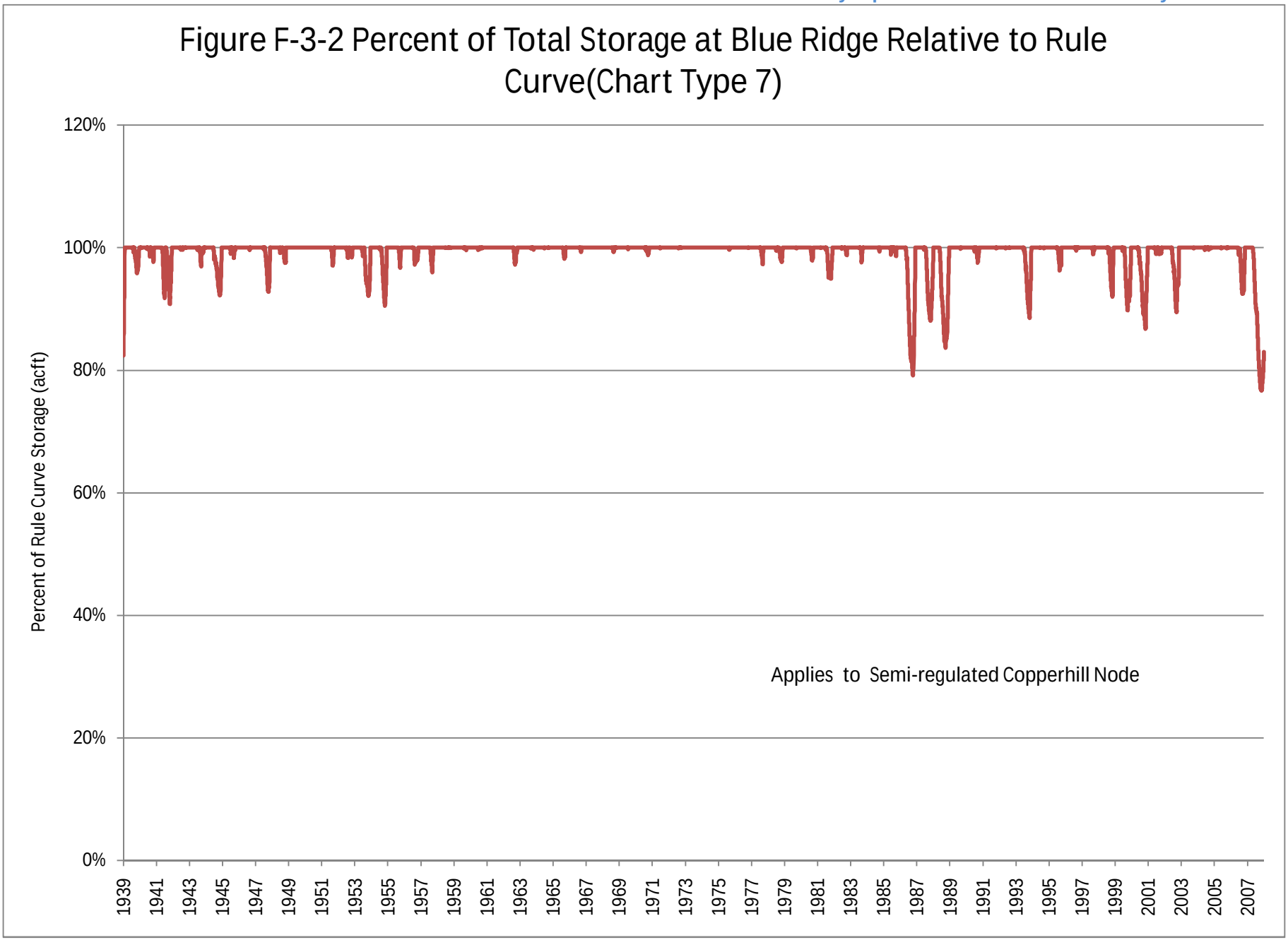


Figure F-3-2 Percent of Total Storage at Blue Ridge Relative to Rule Curve(Chart Type 7)
Percent of Rule Curve Storage (acft)
120%
100%
80%
60%
40%
20%
0%
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Applies to Semi-regulated Copperhill Node

Figure F-3-3 Frequency of Exceedence of Percent Total Storage at Blue Ridge Relative to Rule Curve
(Chart Type 8)

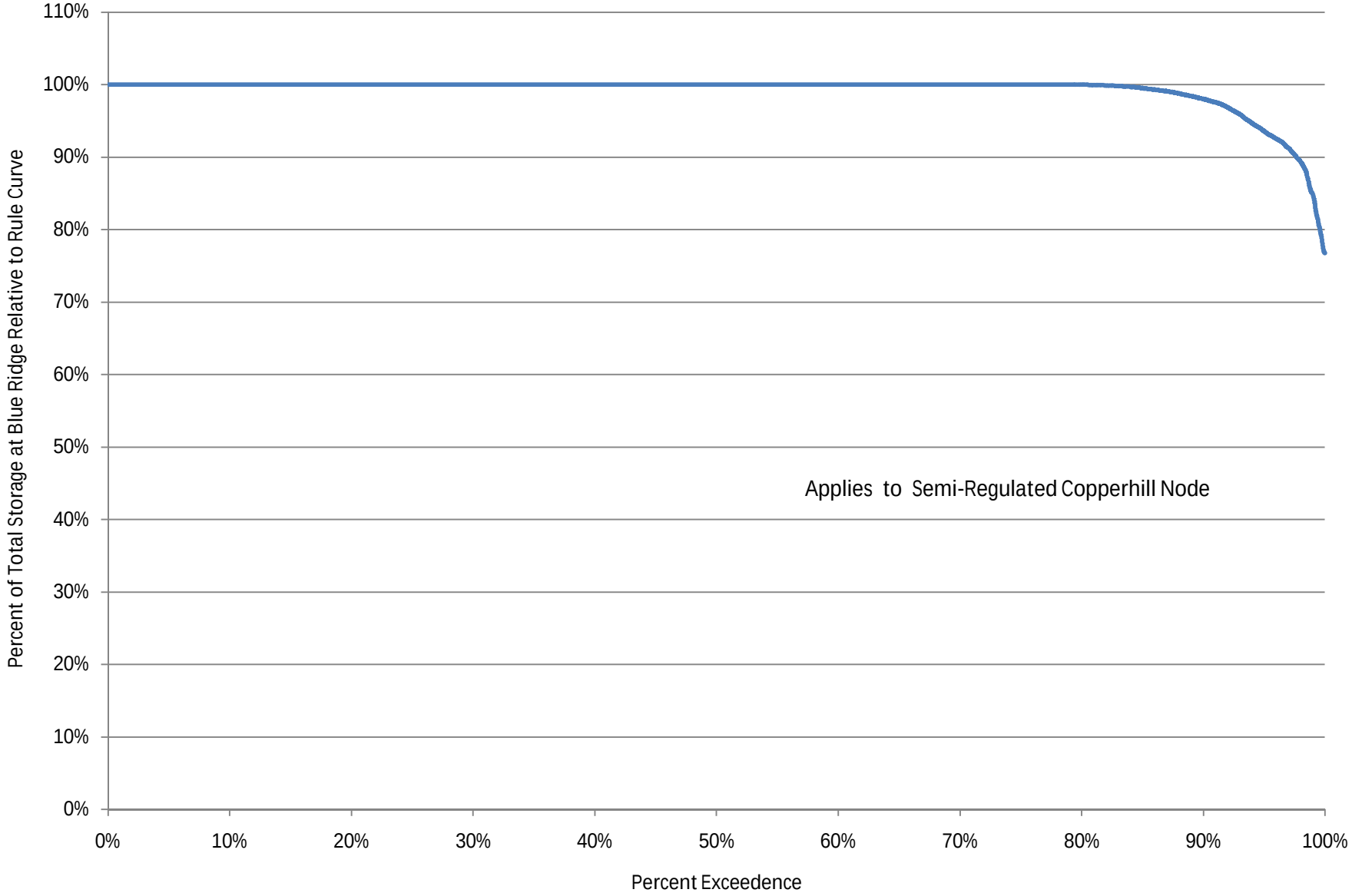


Figure F-4-1 Average Percentage of Flow Compared to Flow Regime at Little Tennessee (Chart Type 1)

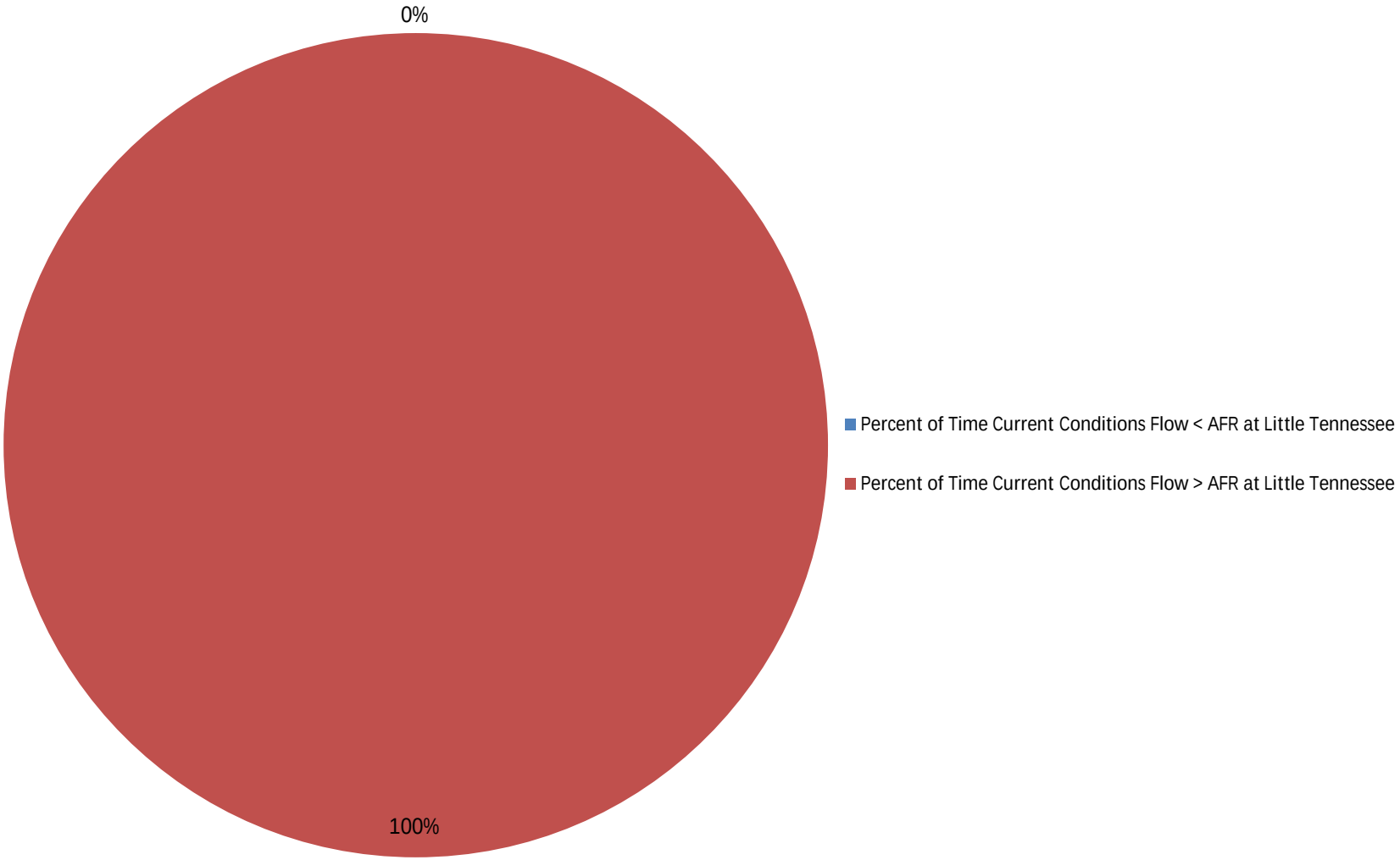


Figure F-4-2 Current Conditions Flow Less Than Adjusted Flow Regime at Little Tennessee (Chart Type 2)

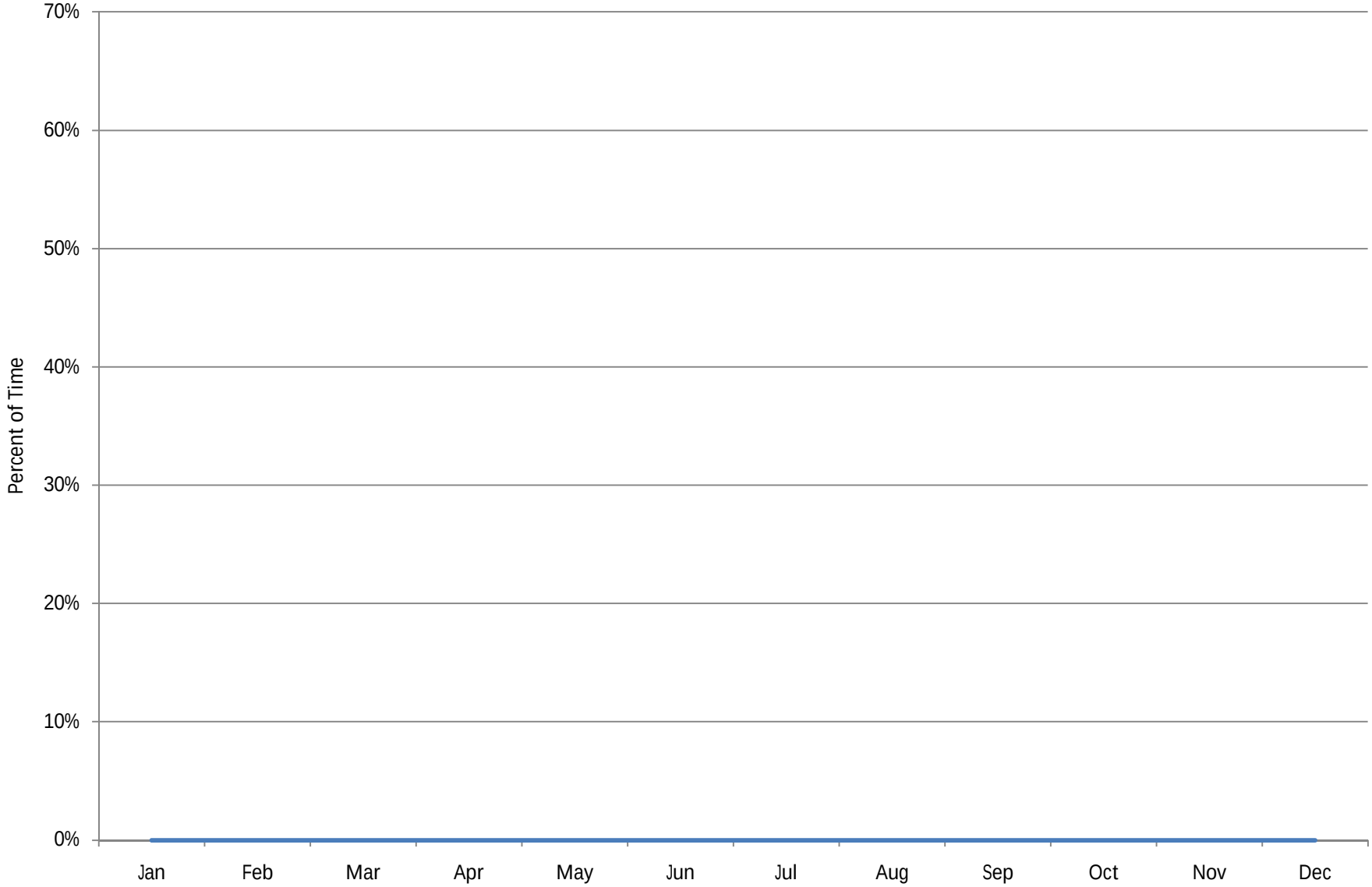


Figure F-4-3 Range of Deficit of Flow Regime at Little Tennessee (Chart Type 3)

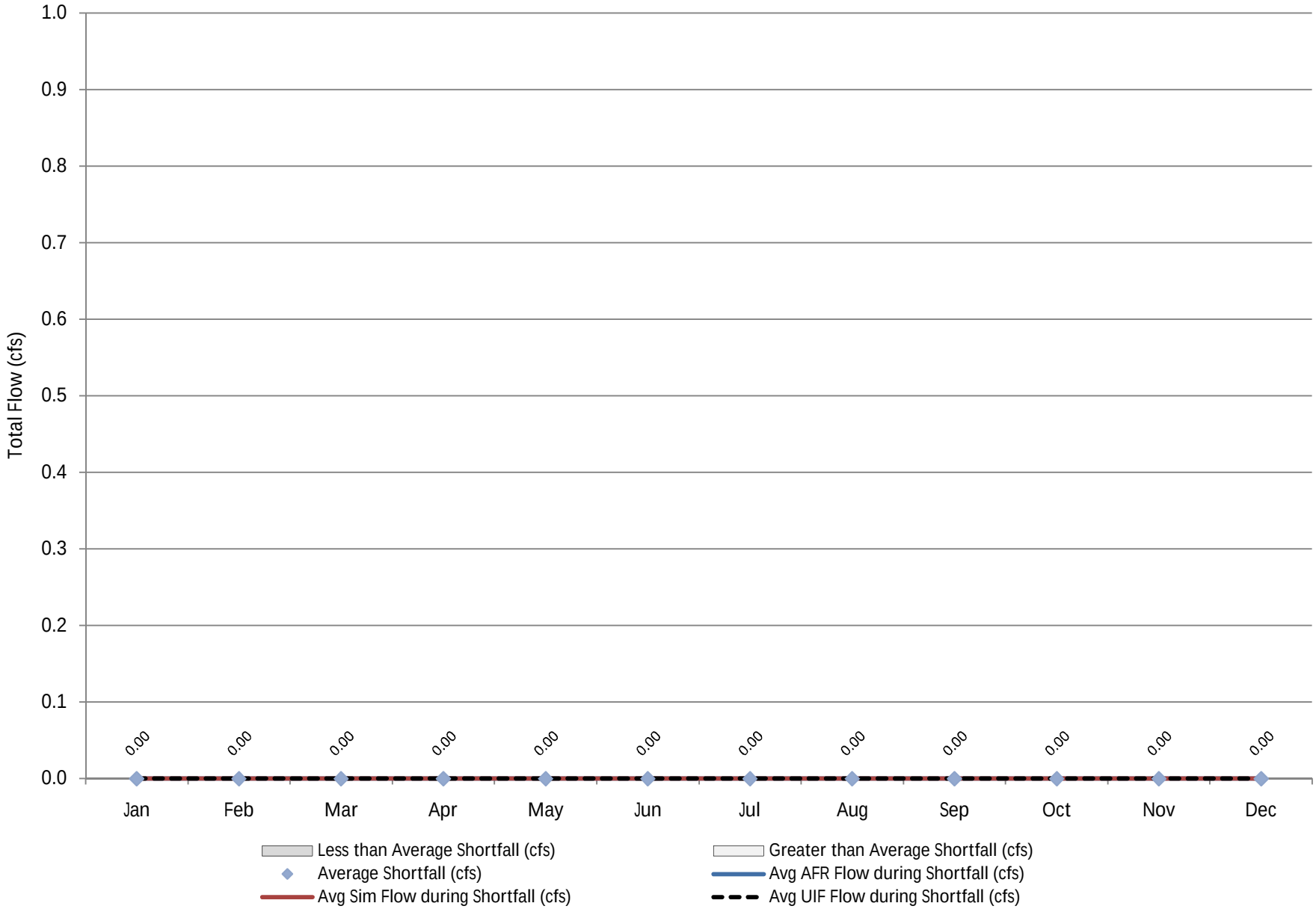


Figure F-4-4 Unimpaired Monthly Range of Flow at Little Tennessee (Chart Type 4)

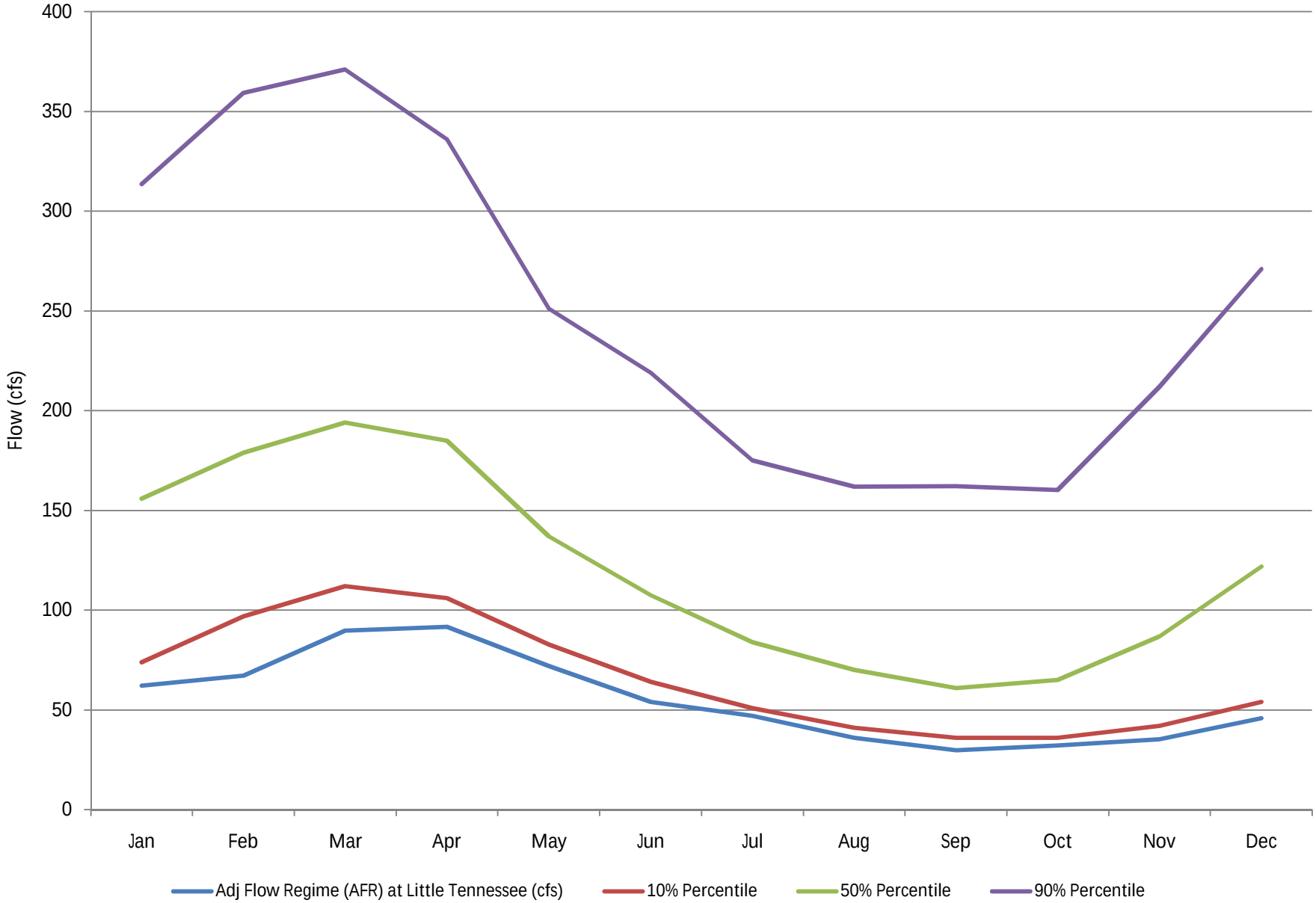


Figure F-4-5 Simulated Monthly Range of Flow at Little Tennessee (Chart Type 5)