Appendix G11A Determining Data on One Span, Original Design Not Known

Situation: A section of line is currently in place, with no recorded data as to the ruling span, design controls, or stringing sags. It is necessary to determine the ruling span and design limits, in order to modify the line (such as adding marker balls, changing the supporting structure, etc.).

Solution: First, it is necessary to determine ruling span and sag data from the actual line. The ruling span should be determined by using the RULING.EXE Utility program. The sag, at a given temperature, must be determined for at least one span. This can be accomplished by measuring the sag with survey methods, or by throwing a ding line over the wire and using the stopwatch method (Use proper safety procedures if the line is hot). For this example, it is assumed that the ruling span was calculated to be 1000 ft and that 7.22 ft of sag were found in a 937 ft span at 60 Deg. F.

```
                LOADINGS
     Deg F     Inch    Lb/Ft   % or Lb
     TEMP      ICE     WIND    TENSION  CODE

      0.0     0.50     4.00              1
     32.0     0.50
    -20.0
     60.0                        -7.22     2
     60.0                                  2
    120.0
```

Step #1:
Remove all limits except for the sag value obtained by survey, entered as a minus value in the tension column. Use the temperature at time of survey, and code=2 since the wire will be approaching final conditions.

```
Ruling Spans

SPAN (Feet)

      937.0
```

Step #2:
The ruling span value (temporary) should match the single span for which the survey data was obtained.

```
RULING SPAN=    937.0 Feet
STRINGING SPANS    English Units
SPAN (Feet) INCR

 1000.0
```

Step #3:
Ignore the sag & tension output.
Enter the ruling span that was calculated from the sum of all the spans

```
Use Final Conditions & Decimal Units

  Stringing Temperatures - Deg F

  Starting Temperature :   60.0

             Increment :    0.0

    Ending Temperature :   60.0
```

Step #4:
Stringing sags should be Final.
Units should be Decimal.

Step #5:
Enter the temperature at which the survey data was obtained.

```
Stringing Sag Table Using Final   Sag          Ruling Span:  937.0 Feet
-------------------------------------------------------------------------
CONDUCTOR      7# 8 ALUMOWELD
-------------------------------------------------------------------------
NESC Heavy Load Zone                Max Tension =  7222.  LB
-------------------------------------------------------------------------
Design:   .0 % Ult. @ 60.0 Deg F,  .00 IN  Ice,   .0  PSF Wind, Final
-------------------------------------------------------------------------
H Tens   3980.
  (LBS)   -----
Temp F >   60.
 Sag      Feet
 Span    -----
1000.0    8.22
```

Step #6:
Print stringing sag values.

Step #7:
The sag value obtained is the ruling span sag for the given ruling span,at the temperature of survey.

```
                LOADINGS
     Deg F     Inch    Lb/Ft   % or Lb
     TEMP      ICE     WIND    TENSION  CODE

      0.0     0.50     4.00              1
     32.0     0.50
    -20.0
     60.0                                  2
     60.0                        -8.22     2
    120.0
```

Step #8:
Create a new Problem File, using the sag obtained above as the only design condition. When sag & tension are processed, review the output to be sure that design conditions have not been exceeded.