

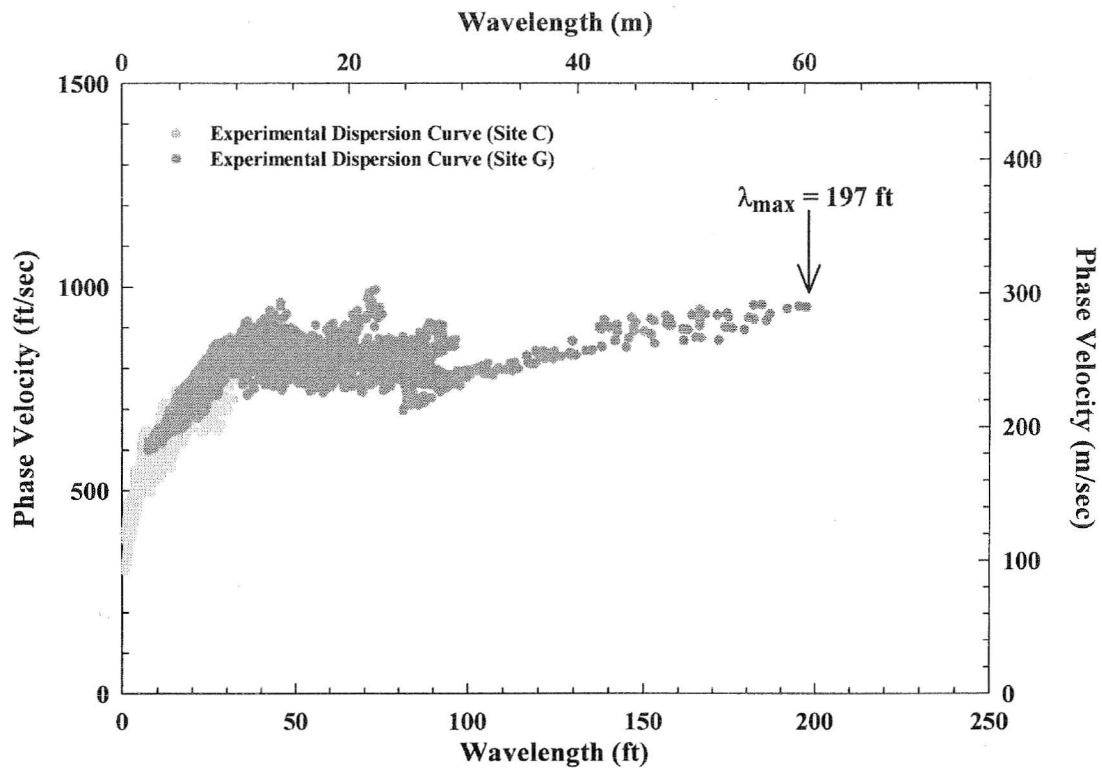


Figure P.31 Experimental Dispersion Curve Measured during Third Site Visit at Site C at Vogtle, GA; Linear Wavelength Axis

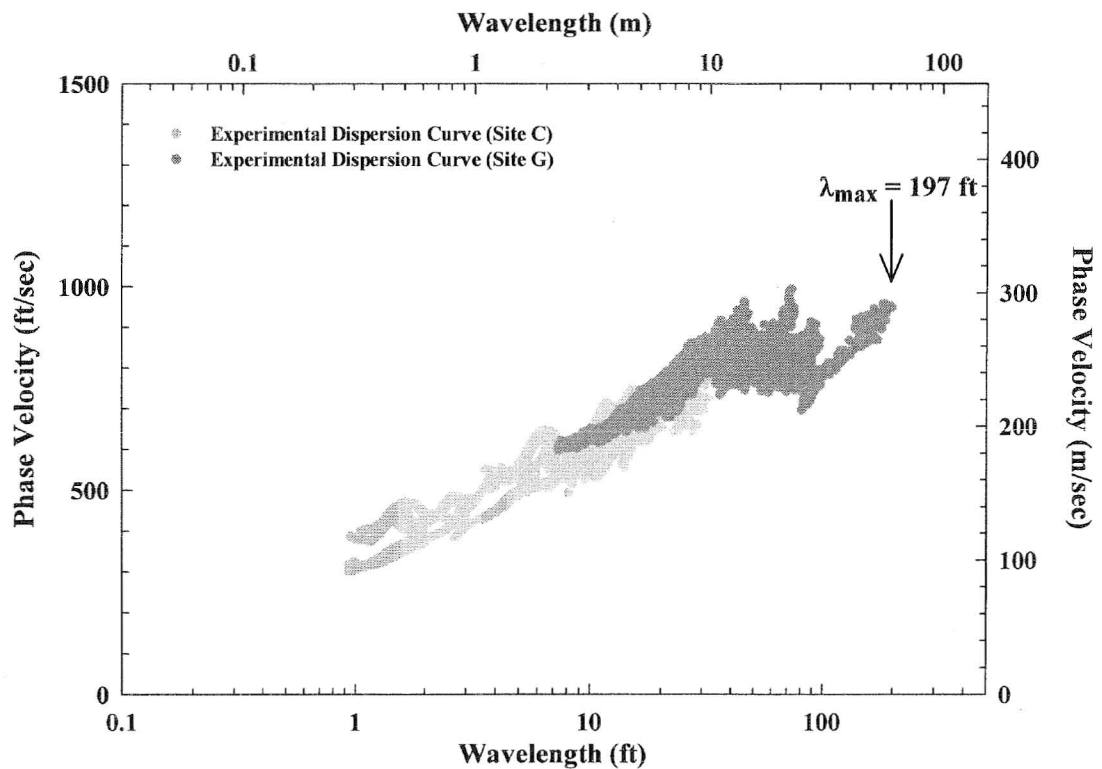


Figure P.32 Experimental Dispersion Curve Measured during Third Site Visit at Site C at Vogtle, GA; Logarithmic Wavelength Axis

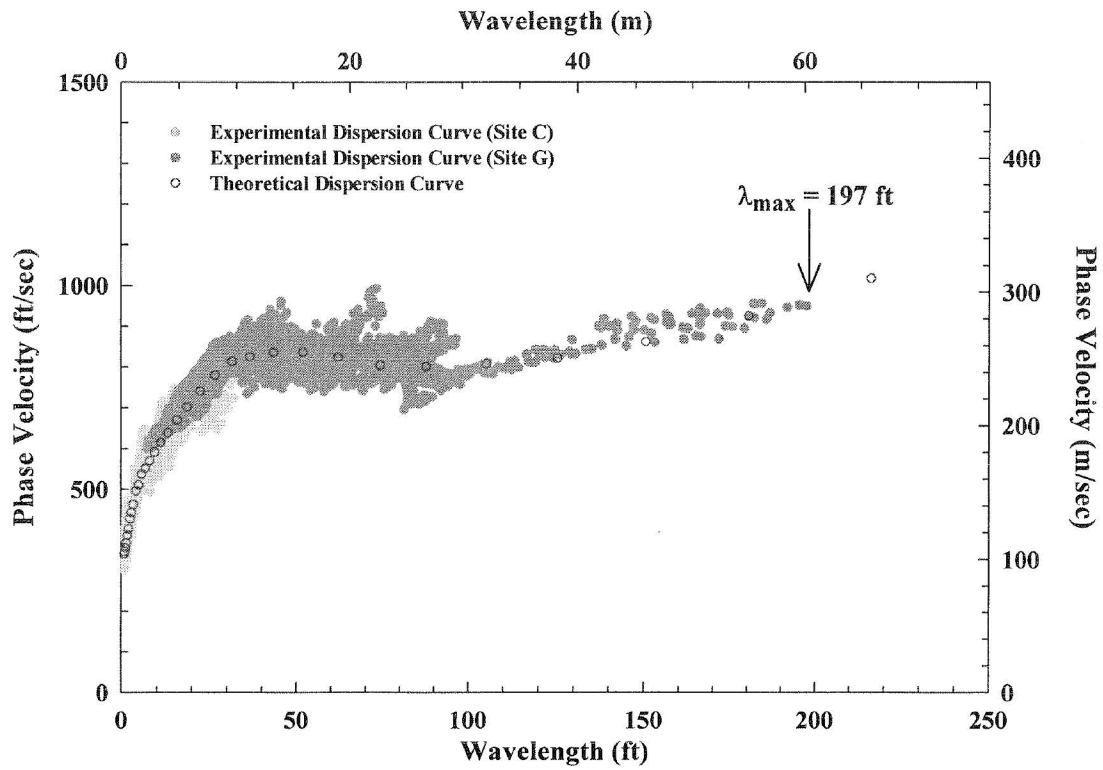


Figure P.33 Experimental and Theoretical Dispersion Curves from Site C in Third Site Visit at Vogtle, GA; Linear Wavelength Axis

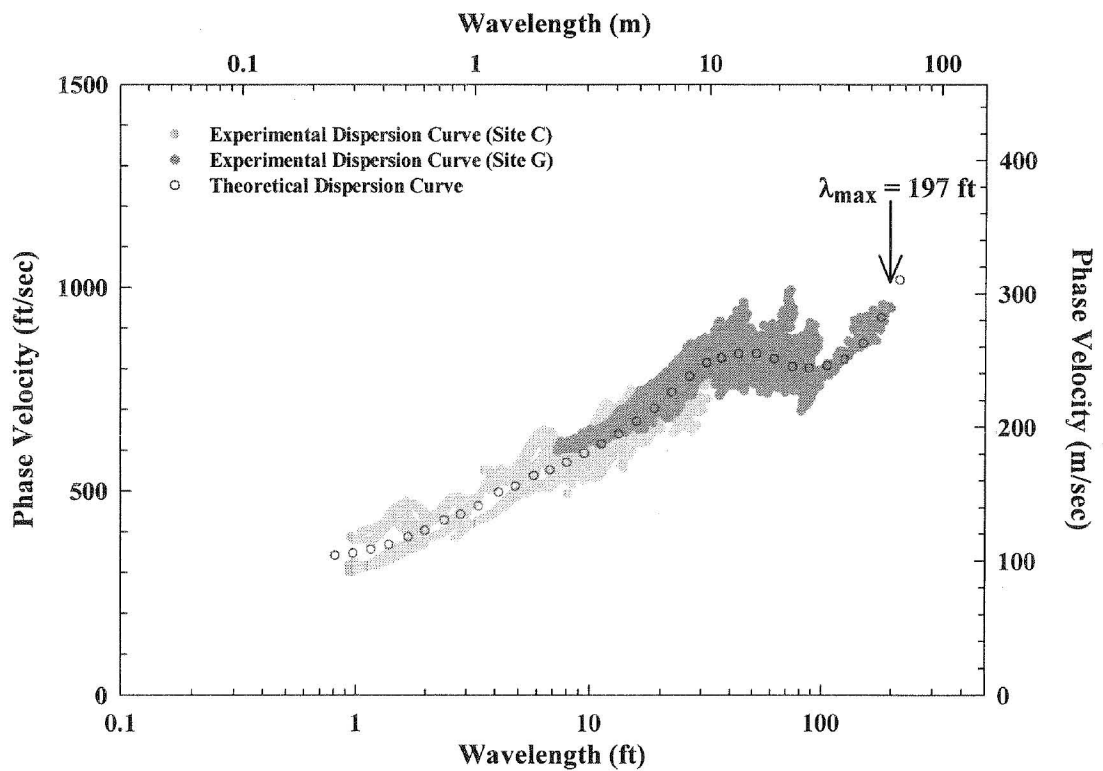


Figure P.34 Experimental and Theoretical Dispersion Curves from Site C in Third Site Visit at Vogtle, GA; Logarithmic Wavelength Axis



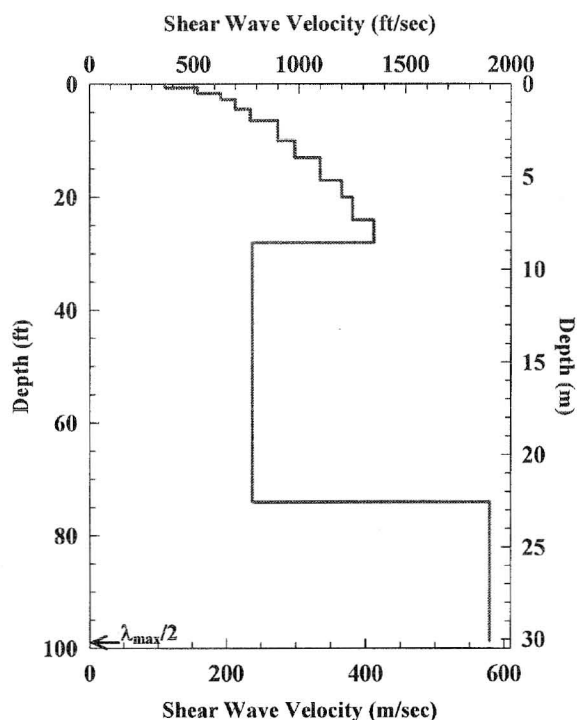


Figure P.35 Shear Wave Velocity Profile Determined at Site C during Third Site Visit at Vogtle, GA

Table P.4 Profile Parameters Used to Develop Preliminary Theoretical Dispersion Curve at Site C in the Third Site Visit at Vogtle, GA

| Layer NP.        | Thickness, ft | Depth to Top of Layer, ft | S-Wave Velocity, ft/s | Assumed Poisson's Ratio | P-Wave Velocity, ft/s | Assumed Total Unit Weight, pcf |
|------------------|---------------|---------------------------|-----------------------|-------------------------|-----------------------|--------------------------------|
| 1                | 0.7           | 0.0                       | 365                   | 0.24                    | 624                   | 128                            |
| 2                | 1.0           | 0.7                       | 520                   | 0.24                    | 889                   | 128                            |
| 3                | 1.1           | 1.7                       | 630                   | 0.24                    | 1077                  | 128                            |
| 4                | 1.7           | 2.8                       | 700                   | 0.24                    | 1197                  | 128                            |
| 5                | 2.0           | 4.5                       | 770                   | 0.24                    | 1317                  | 128                            |
| 6                | 3.6           | 6.5                       | 900                   | 0.24                    | 1539                  | 128                            |
| 7                | 3.0           | 10.1                      | 980                   | 0.24                    | 1676                  | 128                            |
| 8                | 4.0           | 13.1                      | 1100                  | 0.24                    | 1881                  | 128                            |
| 9                | 3.0           | 17.1                      | 1200                  | 0.24                    | 2052                  | 128                            |
| 10               | 4.0           | 20.1                      | 1250                  | 0.24                    | 2137                  | 128                            |
| 11               | 4.0           | 24.1                      | 1350                  | 0.24                    | 2308                  | 128                            |
| 12               | 46.0          | 28.1                      | 780                   | 0.24                    | 1334                  | 128                            |
| 13 <sup>#</sup>  | 24.9          | 74.1                      | 1900                  | 0.42                    | 5000                  | 135                            |
| 14 <sup>#</sup>  | 5.1           | 99.0                      | 1900                  | 0.42                    | 5000                  | 135                            |
| 15 <sup>*#</sup> | Half Space    | 104.1                     | 2200                  | 0.38                    | 5000                  | 135                            |

\* Layer below maximum depth of the  $V_s$  Profile.

# Layer below water table.

Performed by Yin-Cheng Lin Checked by K. H. Stokoe, II  
Yin-Cheng Lin Kenneth H. Stokoe, II

# Appendix Q

## SASW Measurements of Third Site Visit at Vogtle, GA Site Location: Site D

|                                                                        |      |
|------------------------------------------------------------------------|------|
| 1. Data Sheet(s).....                                                  | Q.2  |
| 2. Phase Plots from SASW Tests.....                                    | Q.4  |
| 3. Table of Masking Parameters .....                                   | Q.14 |
| 4. Experimental Dispersion Curves .....                                | Q.17 |
| 5. Matching the Experimental and Theoretical<br>Dispersion Curves..... | Q.18 |
| 6. Shear Wave Velocity Profile .....                                   | Q.19 |
| 7. Table of Profile Parameters .....                                   | Q.19 |

### 3 - Receiver SASW Data Sheet

Page 1 of 1

Project : Vogtle

Data Sheet # : SA3 #4

Location : D(SA3#4)

Disk # : SA3#4

Date/(Time) : Dec, 27, 2007 : ~ : )

elev = 232.58

Personnel : Stokoe, Tuan

Sketch

Recorded by : Tuan

Checked by : Stokoe

R1 I.D. : UT07-4.5H2-04

R2 I.D. : UT07-4.5H2-02

R3 I.D. : UT07-4.5H2-03

| Distance (ft) |         |         | Impact    |     | Impact Source | Record # | Freq. Range (Hz) | Notes |
|---------------|---------|---------|-----------|-----|---------------|----------|------------------|-------|
| S - R1        | R1 - R2 | R2 - R3 | Direction |     |               |          |                  |       |
| 1             | 1       | 2       | For       | Rev | Small         | 3D1      | 0 - 800          |       |
| 1             | 1       | 2       | For       | Rev | "             | 3D2      | 0 - 800          |       |
| 3             | 3       | 6       | For       | Rev | Med           | 3D3      | 0 - 400          |       |
| 3             | 3       | 6       | For       | Rev | "             | 3D4      | 0 - 400          |       |
| 9             | 9       | 18      | For       | Rev | big           | 3D5      | 0 - 200          |       |
| 9             | 9       | 18      | For       | Rev | sledge        | 3D6      | 0 - 200          |       |
| 9             | 9       | 18      | For       | Rev | big           | 3D7      | 0 - 200          |       |
| 9             | 9       | 18      | For       | Rev | sledge        | 3D8      | 0 - 200          |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |
|               |         |         | For       | Rev |               |          | ~                |       |

\* Autosequence 3R\_SASW saves F\_2/1, C\_2/1, F\_4/3, C\_4/3, Lin\_1, Lin\_2, Lin\_4

\* Autosequence 3R\_SEWPSIN saves F\_2/1, Var\_2, F\_4/3, Var\_4, Lin\_1, Lin\_2, Lin\_4

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### 3 - Receiver SASW Data Sheet

Page 1 of 1

Project : Vogtle

Data Sheet # : SA3#7

Location : G (A3#7)

Disk # : SA3#7

Date/(Time) : Dec 12/2007 ( : ~ : )

Personnel : Stokoe, Tuan

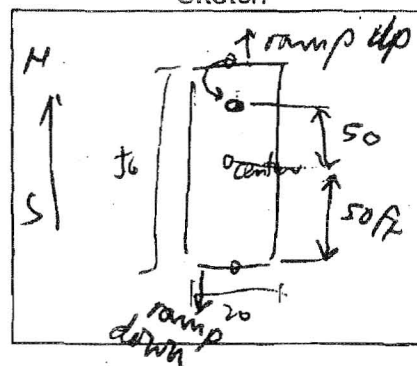
Recorded by : Tuan

Checked by : Stokoe

R1 I.D. : 3773 (1Hz) 26  
 R2 I.D. : 3774 (1Hz) 27  
 R3 I.D. : 3775 (1Hz) 25

Cable

Sketch



| Distance (ft) |         |         | Impact Direction | Impact Source | Record # | Freq. Range | Notes (input voltage) |
|---------------|---------|---------|------------------|---------------|----------|-------------|-----------------------|
| S - R1        | R1 - R2 | R2 - R3 |                  |               |          | (Hz)        |                       |
| 25            | 25      | 25      | For Rev          | bull dozer    | 361      | 0 - 100     | 500 mV                |
| 50            | 50      |         | For Rev          | "             | 362      | 0 - 100     |                       |
| 50            | 50      | 50      | For Rev          | "             | 363      | 0 - 100     |                       |
| 50            | 50      | 50      | For Rev          | "             | 364      | 0 - 50      | 250 mV                |
| 100           | 100     |         | For Rev          | "             | 365      | 0 - 50      | 100 mV                |
| 25            | 25      | 25      | For Rev          | bull dozer    | 366      | 0 - 100     | 500 mV                |
| 50            | 50      |         | For Rev          | "             | 367      | 0 - 50      | 250 mV                |
| 85            | 50      | 50      | For Rev          | "             | 368      | 0 - 50      | 150 mV                |
| 100           | 100     |         | For Rev          | "             | 369      | 0 - 50      | 100 mV                |
|               |         |         | For Rev          |               |          | ~           |                       |
|               |         |         | For Rev          |               |          | ~           |                       |
|               |         |         | For Rev          |               |          | ~           |                       |
|               |         |         | For Rev          |               |          | ~           |                       |
|               |         |         | For Rev          |               |          | ~           |                       |
|               |         |         | For Rev          |               |          | ~           |                       |
|               |         |         | For Rev          |               |          | ~           |                       |

\* Autosequence 3R\_SASW saves F\_2/1, C\_2/1, F\_4/3, C\_4/3, Lin\_1, Lin\_2, Lin\_4

\* Autosequence 3R\_SEWPSIN saves F\_2/1, Var\_2, F\_4/3, Var\_4, Lin\_1, Lin\_2, Lin\_4

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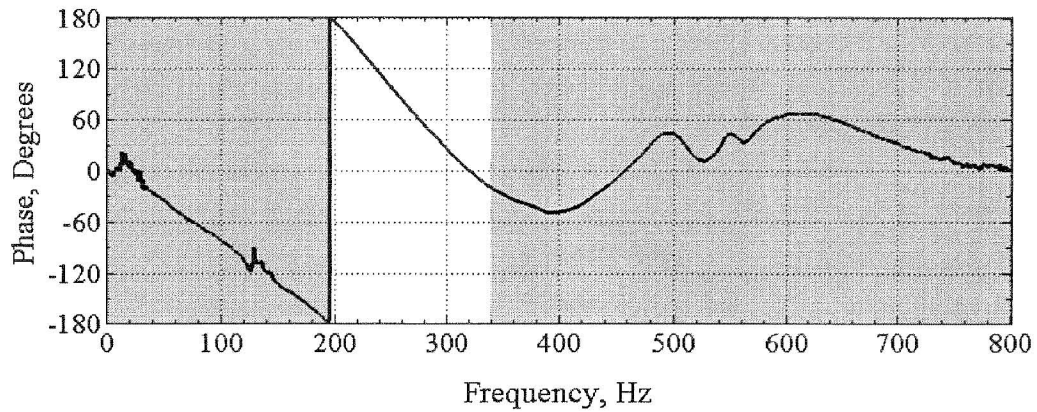


Figure Q.1 Phase Plots Measured by SASW Testing with 1-ft Receiver Spacing (3D1\_F\_21.DAT)

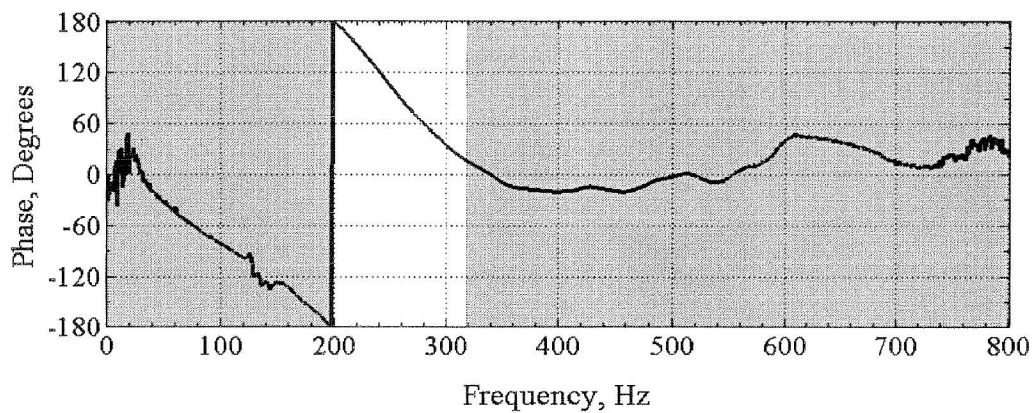


Figure Q.2 Phase Plots Measured by SASW Testing with 1-ft Receiver Spacing (3D2\_F\_21.DAT)

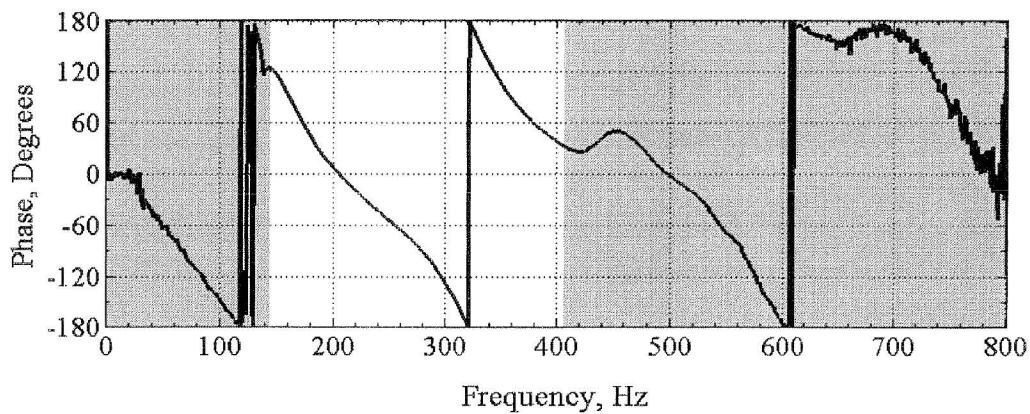


Figure Q.3 Phase Plots Measured by SASW Testing with 2-ft Receiver Spacing (3D1\_F\_43.DAT)

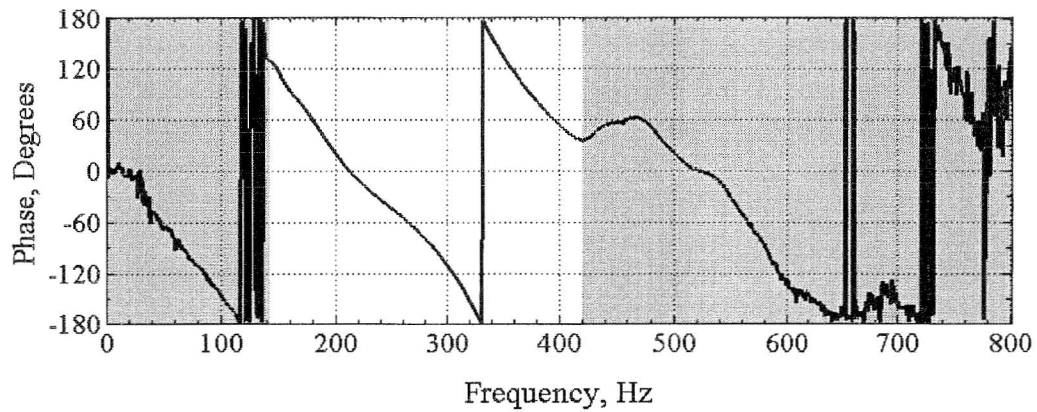


Figure Q.4 Phase Plots Measured by SASW Testing with 2-ft Receiver Spacing (3D2\_F\_43.DAT)

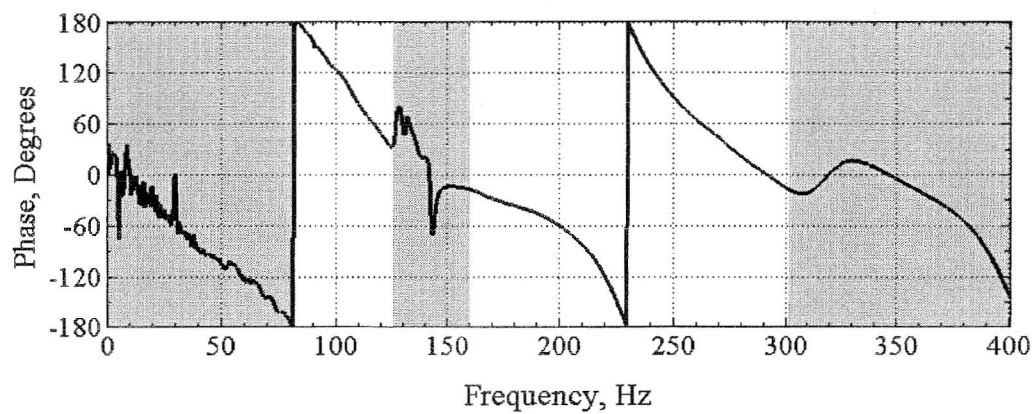


Figure Q.5 Phase Plots Measured by SASW Testing with 3-ft Receiver Spacing (3D3\_F\_21.DAT)

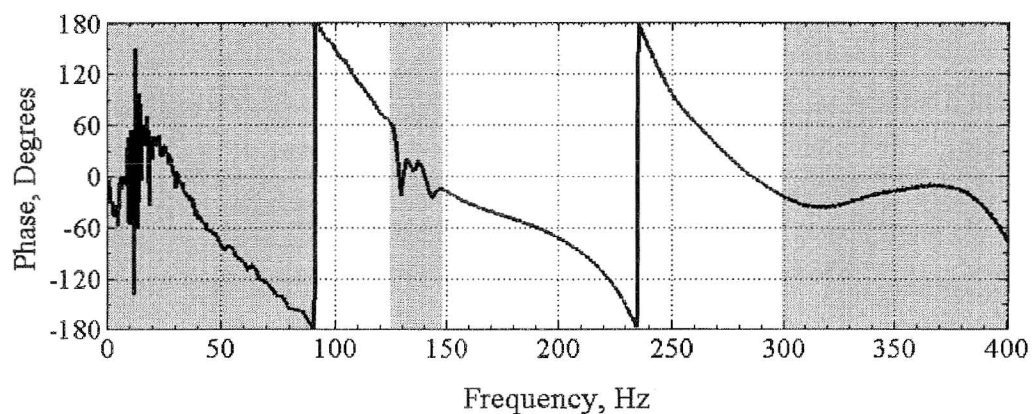


Figure Q.6 Phase Plots Measured by SASW Testing with 3-ft Receiver Spacing (3D4\_F\_21.DAT)

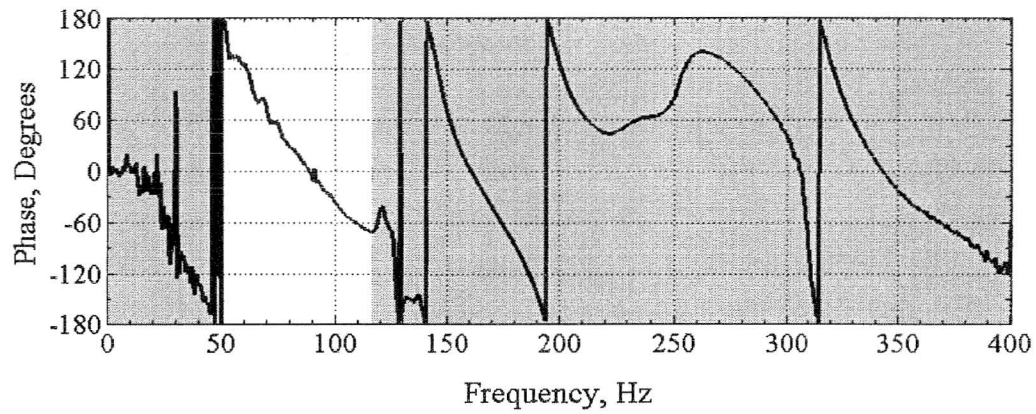


Figure Q.7 Phase Plots Measured by SASW Testing with 6-ft Receiver Spacing (3D3\_F\_43.DAT)

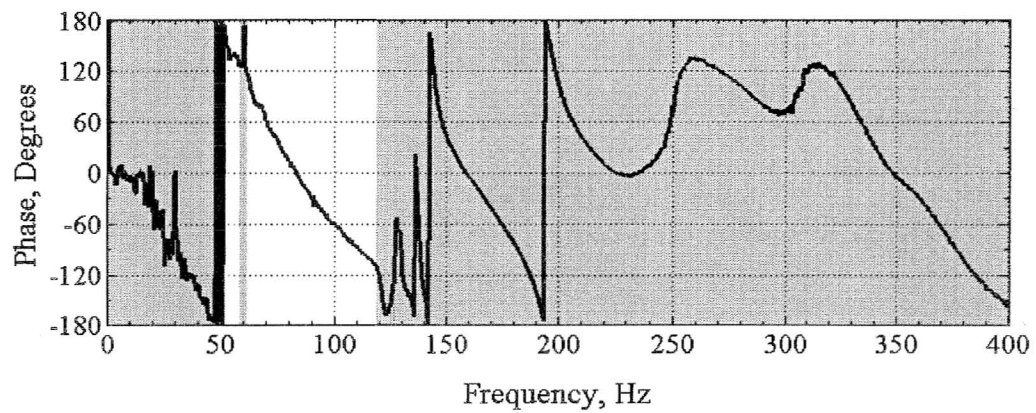


Figure Q.8 Phase Plots Measured by SASW Testing with 6-ft Receiver Spacing (3D4\_F\_43.DAT)

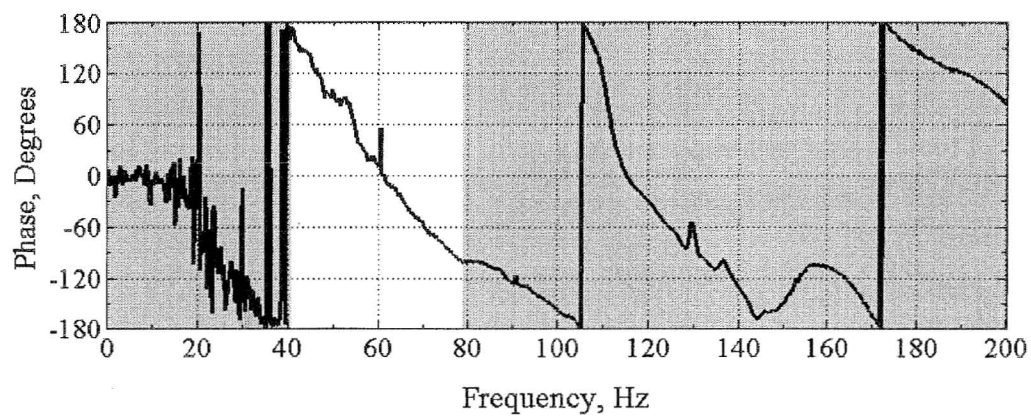


Figure Q.9 Phase Plots Measured by SASW Testing with 9-ft Receiver Spacing (3D5\_F\_21.DAT)



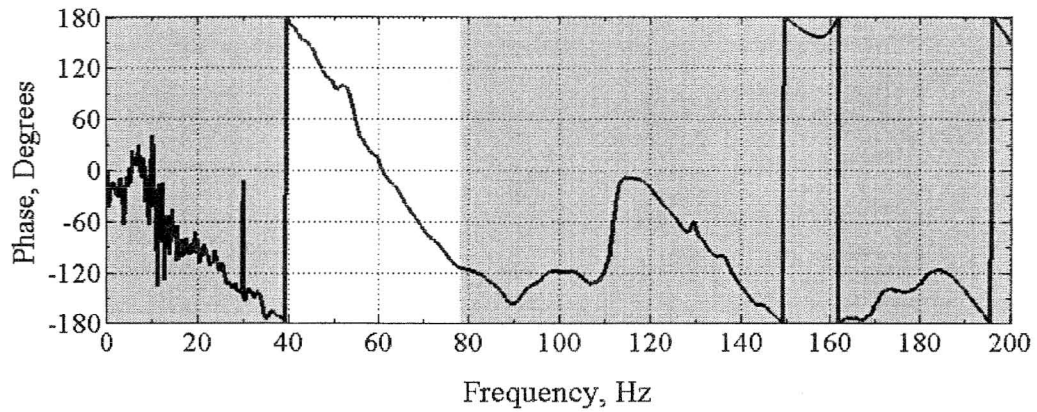


Figure Q.10 Phase Plots Measured by SASW Testing with 9-ft Receiver Spacing (3D6\_F\_21.DAT)

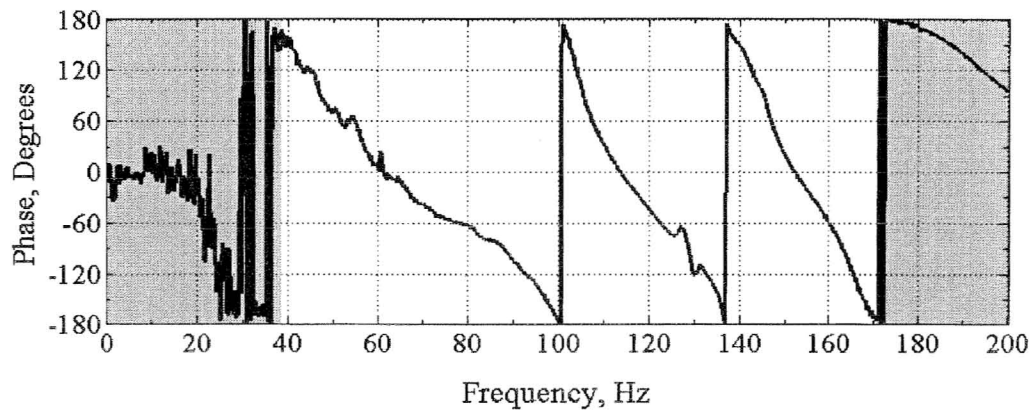


Figure Q.11 Phase Plots Measured by SASW Testing with 9-ft Receiver Spacing (3D7\_F\_21.DAT)

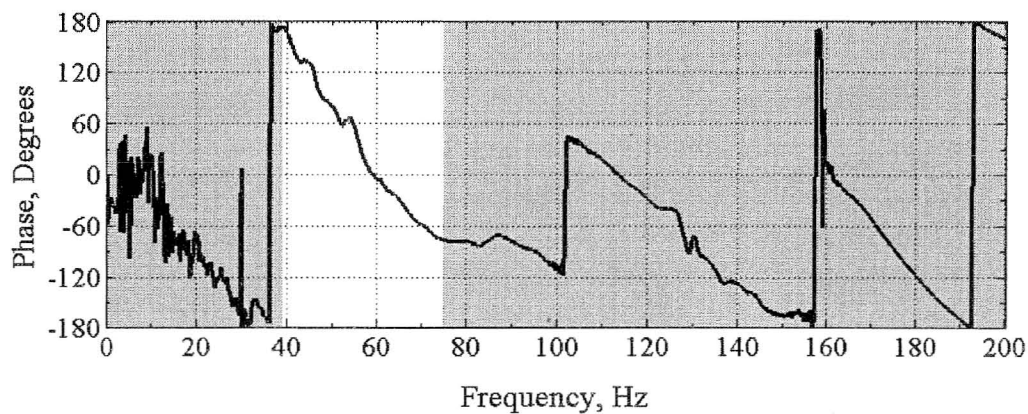


Figure Q.12 Phase Plots Measured by SASW Testing with 9-ft Receiver Spacing (3D8\_F\_21.DAT)



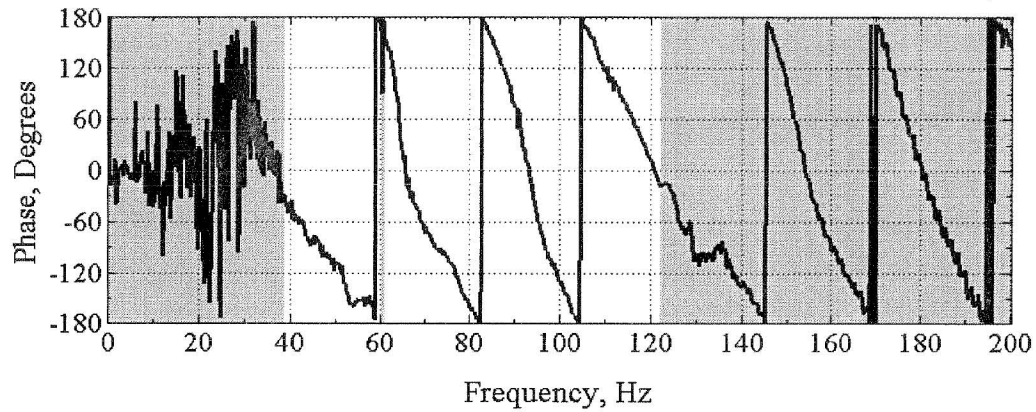


Figure Q.13 Phase Plots Measured by SASW Testing with 18-ft Receiver Spacing (3D5\_F\_43.DAT)

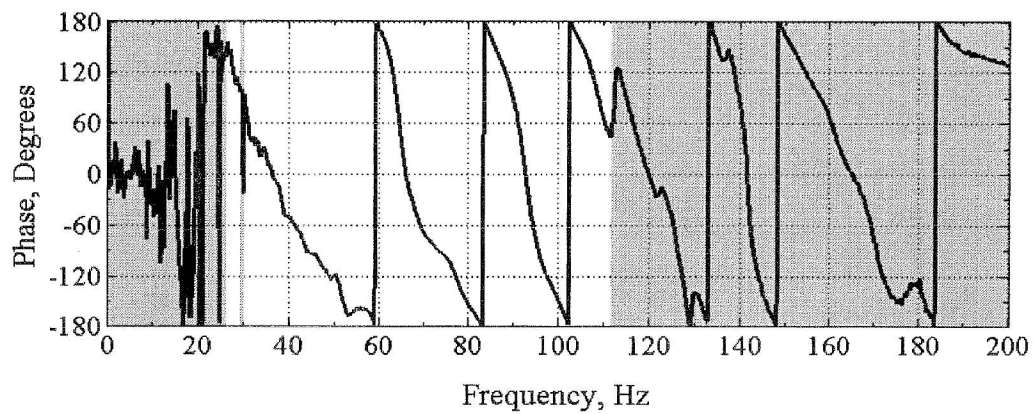


Figure Q.14 Phase Plots Measured by SASW Testing with 18-ft Receiver Spacing (3D6\_F\_43.DAT)

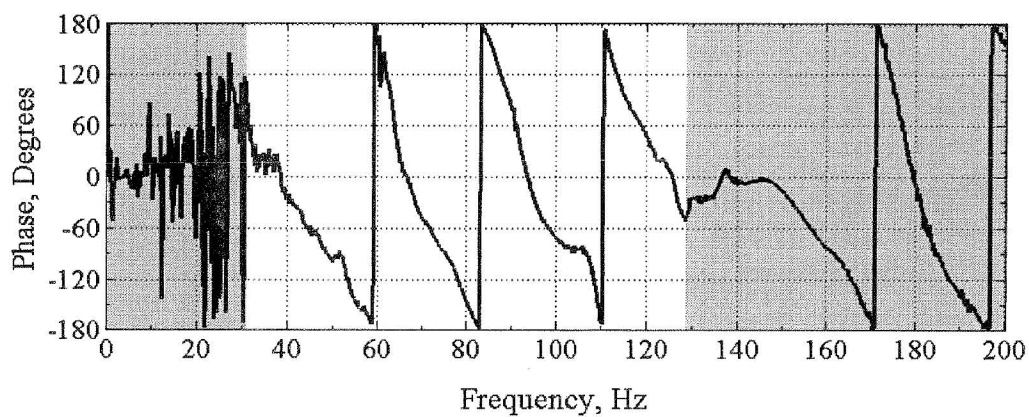


Figure Q.15 Phase Plots Measured by SASW Testing with 18-ft Receiver Spacing (3D7\_F\_43.DAT)

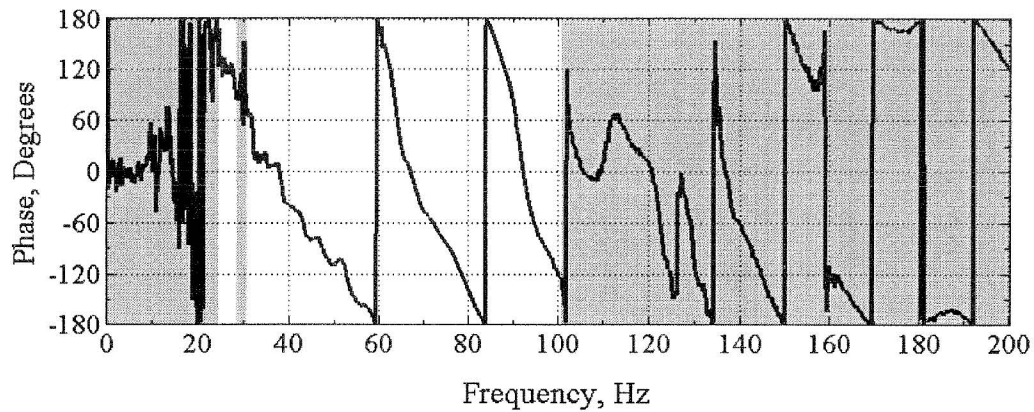


Figure Q.16 Phase Plots Measured by SASW Testing with 18-ft Receiver Spacing (3D8\_F\_43.DAT)

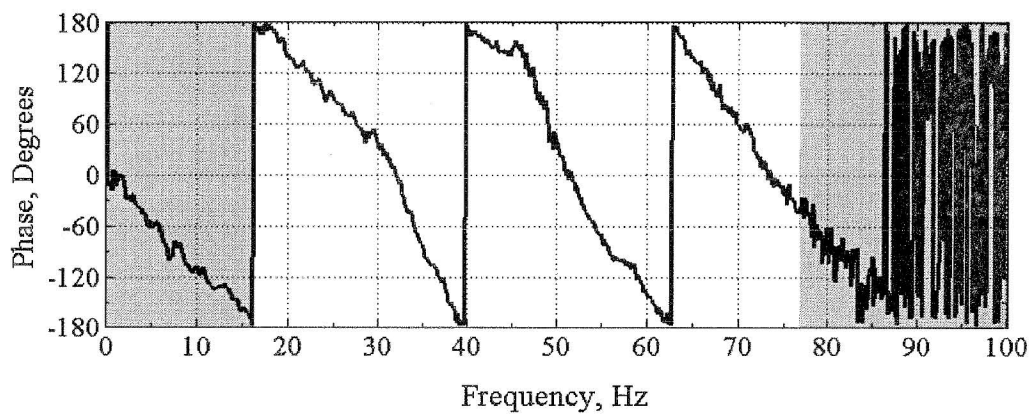


Figure Q.17 Phase Plots Measured by SASW Testing with 25-ft Receiver Spacing (3G1\_F\_21.DAT)

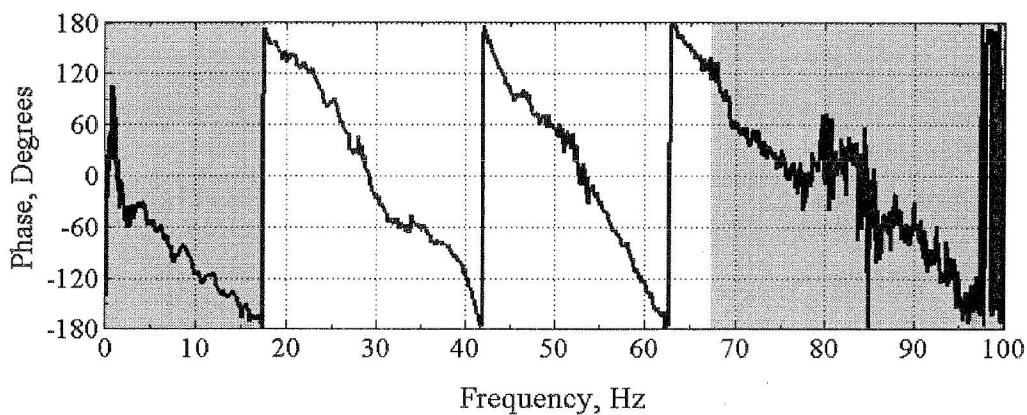


Figure Q.18 Phase Plots Measured by SASW Testing with 25-ft Receiver Spacing (3G1\_F\_43.DAT)

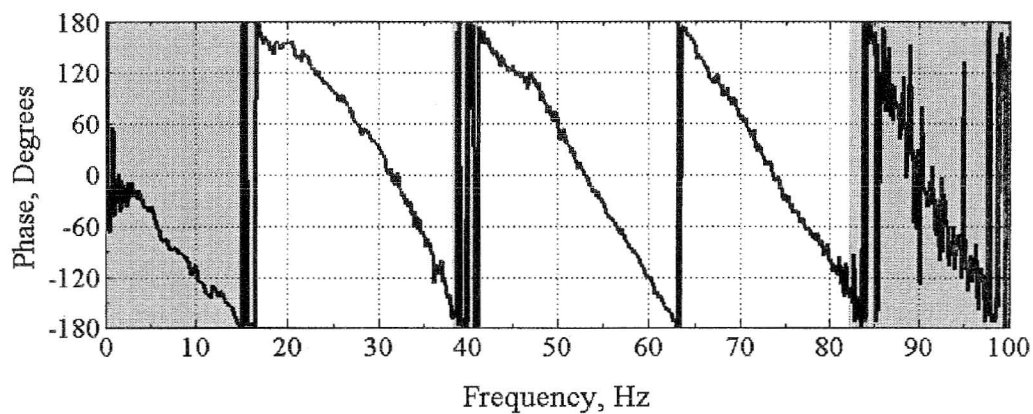


Figure Q.19 Phase Plots Measured by SASW Testing with 25-ft Receiver Spacing (3G6\_F\_21.DAT)

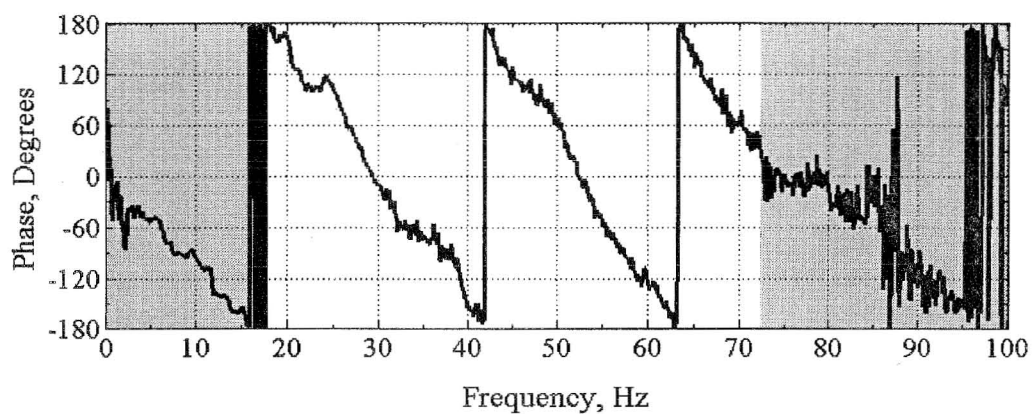


Figure Q.20 Phase Plots Measured by SASW Testing with 25-ft Receiver Spacing (3G6\_F\_43.DAT)

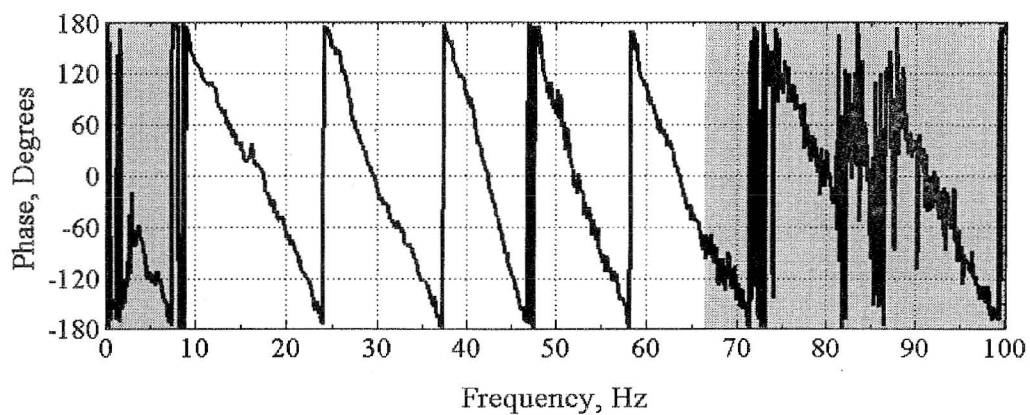


Figure Q.21 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G2\_F\_21.DAT)

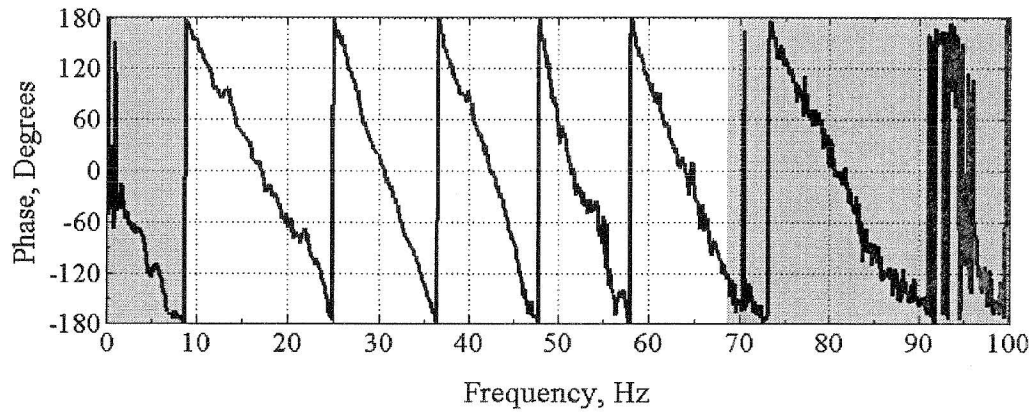


Figure Q.22 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G3\_F\_21.DAT)

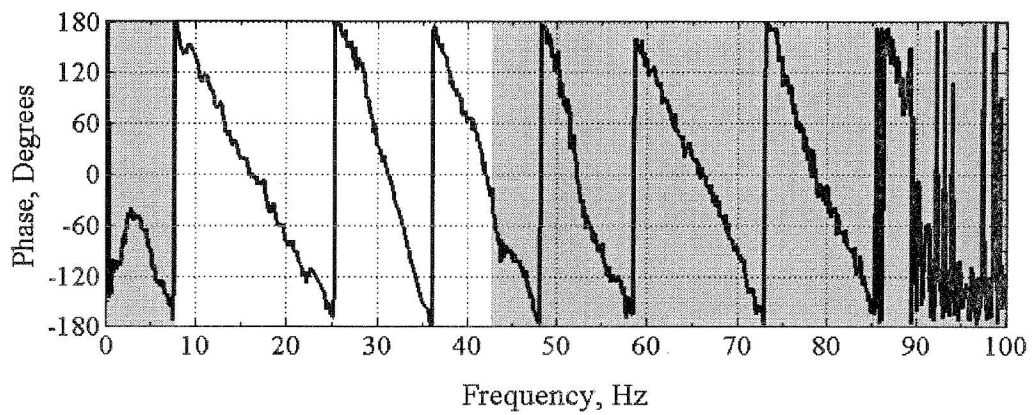


Figure Q.23 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G3\_F\_43.DAT)

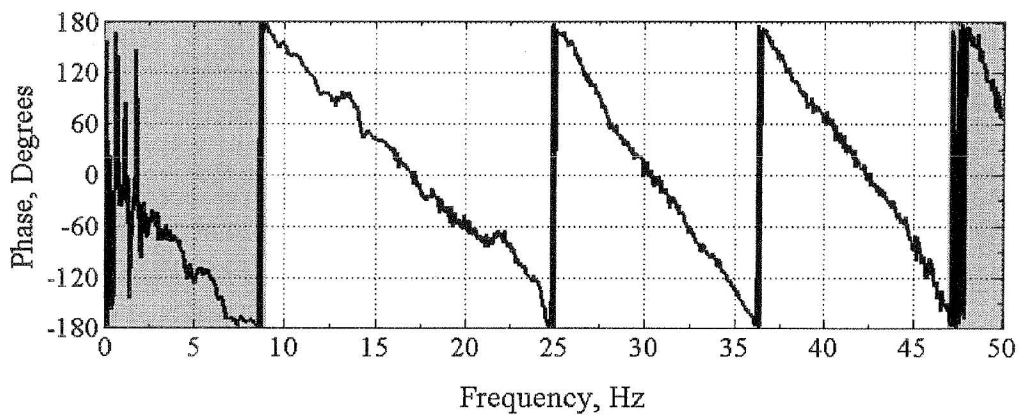


Figure Q.24 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G4\_F\_21.DAT)

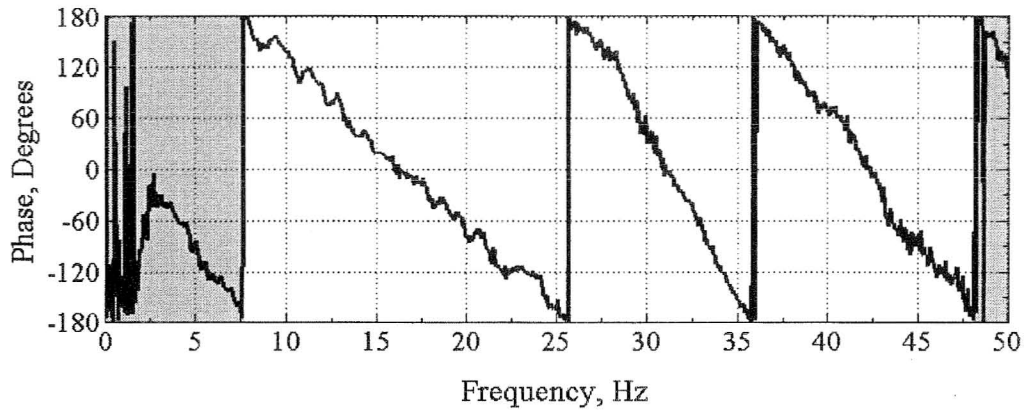


Figure Q.25 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G4\_F\_43.DAT)

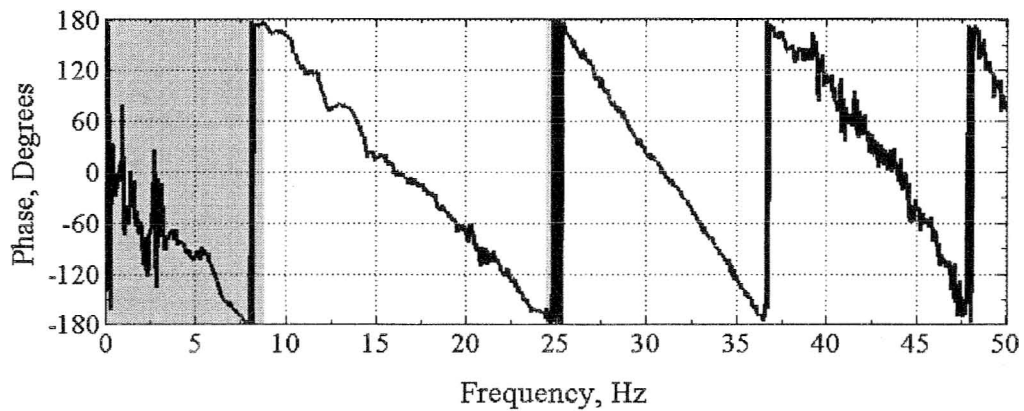


Figure Q.26 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G7\_F\_21.DAT)

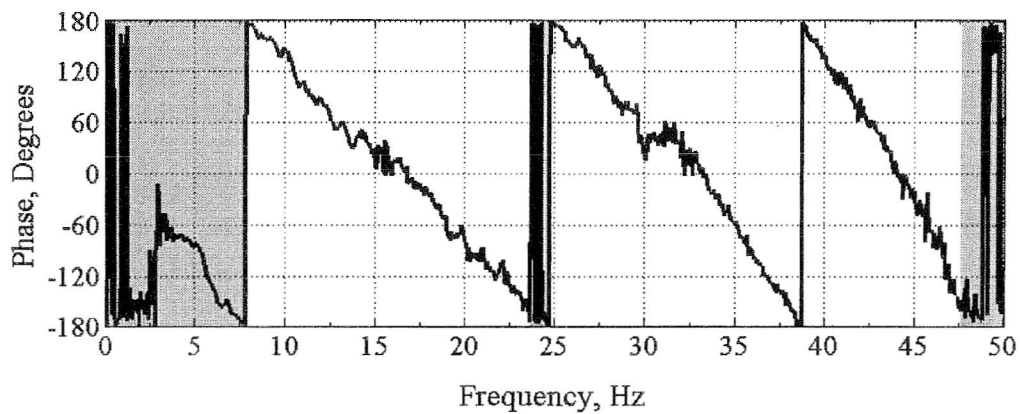


Figure Q.27 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G8\_F\_21.DAT)

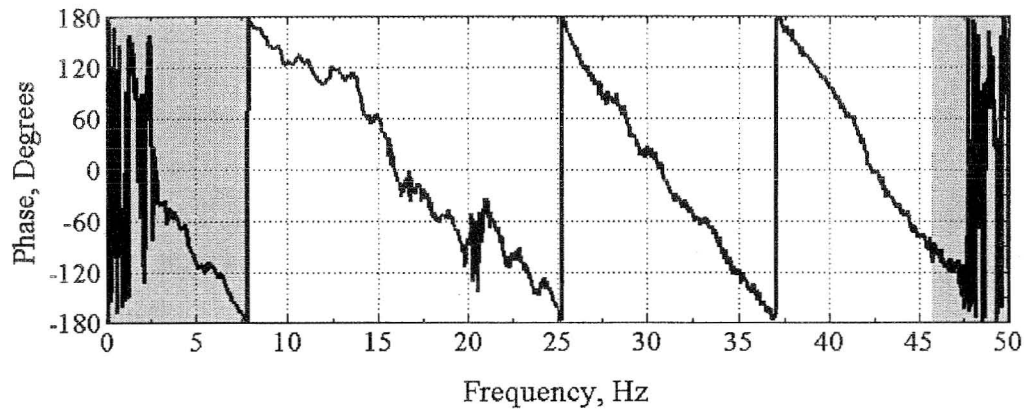


Figure Q.28 Phase Plots Measured by SASW Testing with 50-ft Receiver Spacing (3G8\_F\_43.DAT)

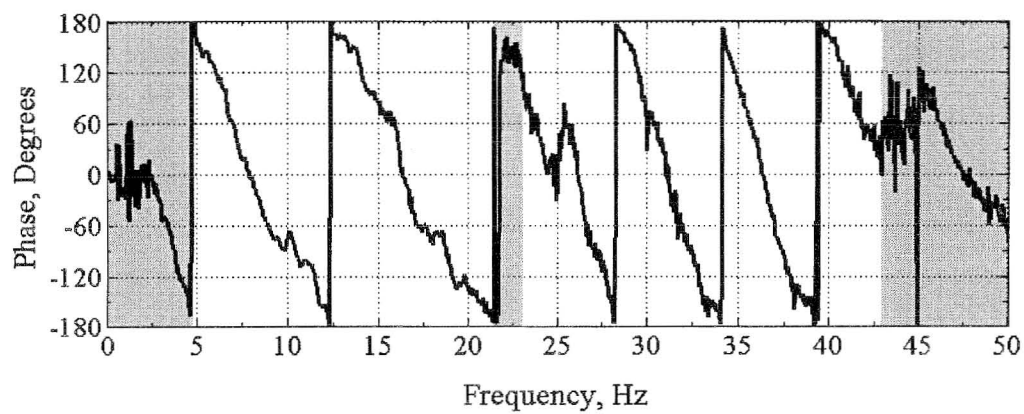


Figure Q.29 Phase Plots Measured by SASW Testing with 100-ft Receiver Spacing (3G5\_F\_21.DAT)

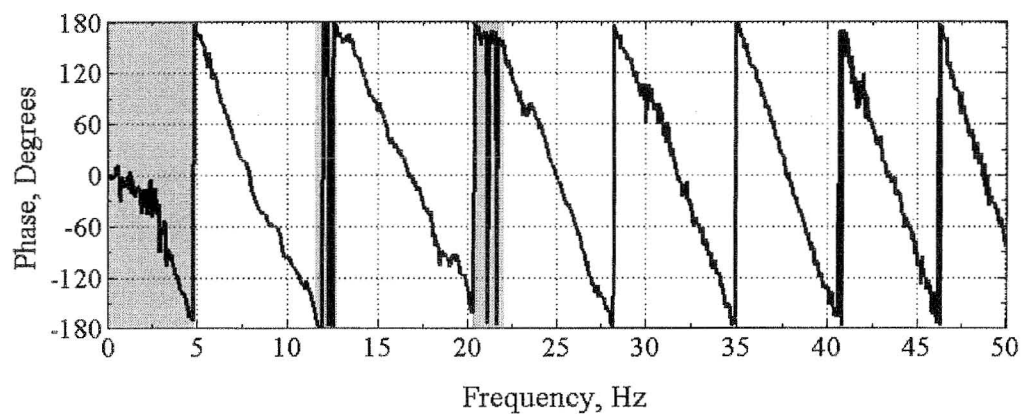


Figure Q.30 Phase Plots Measured by SASW Testing with 100-ft Receiver Spacing (3G9\_F\_21.DAT)



Table Q.1 Tables of Masking Parameters Used on Data Collected during Third Site Visit at Site D

| Receiver Spacing (ft) | Masking Interval | Masking Start Frequency, Hz | Masking Stop Frequency, Hz | Number of Jumps | Filename     |
|-----------------------|------------------|-----------------------------|----------------------------|-----------------|--------------|
| 1                     | 1                | 0                           | 196                        | 1               | 3D1_F_21.DAT |
|                       | 2                | 339                         | 800                        | -               |              |
| 1                     | 1                | 0                           | 199                        | 1               | 3D2_F_21.DAT |
|                       | 2                | 318                         | 800                        | -               |              |
| 2                     | 1                | 0                           | 144                        | 1               | 3D1_F_43.DAT |
|                       | 2                | 407                         | 800                        | -               |              |
| 2                     | 1                | 0                           | 142                        | 1               | 3D2_F_43.DAT |
|                       | 2                | 419                         | 800                        | -               |              |
| 3                     | 1                | 0                           | 82                         | 1               | 3D3_F_21.DAT |
|                       | 2                | 125.5                       | 160.5                      | 1               |              |
|                       | 3                | 301.5                       | 400                        | -               |              |
| 3                     | 1                | 0                           | 91.5                       | 1               | 3D4_F_21.DAT |
|                       | 2                | 124.5                       | 148                        | 1               |              |
|                       | 3                | 299                         | 400                        | -               |              |
| 6                     | 1                | 0                           | 51.5                       | 1               | 3D3_F_43.DAT |
|                       | 2                | 116.5                       | 400                        | -               |              |
| 6                     | 1                | 0                           | 52                         | 1               | 3D4_F_43.DAT |
|                       | 2                | 58                          | 61.5                       | 1               |              |
|                       | 3                | 118.5                       | 400                        | -               |              |
| 9                     | 1                | 0                           | 40.75                      | 1               | 3D5_F_21.DAT |
|                       | 2                | 79                          | 200                        | -               |              |
| 9                     | 1                | 0                           | 39.5                       | 1               | 3D6_F_21.DAT |
|                       | 2                | 78.25                       | 200                        | -               |              |
| 9                     | 1                | 0                           | 38.5                       | 1               | 3D7_F_21.DAT |
|                       | 2                | 170.25                      | 200                        | -               |              |
| 9                     | 1                | 0                           | 39                         | 1               | 3D8_F_21.DAT |
|                       | 2                | 74.75                       | 200                        | -               |              |
| 18                    | 1                | 0                           | 38.75                      | 1               | 3D5_F_43.DAT |
|                       | 2                | 60.25                       | 61                         | 2               |              |
|                       | 3                | 122                         | 200                        | -               |              |
| 18                    | 1                | 0                           | 26.5                       | 1               | 3D6_F_43.DAT |
|                       | 2                | 29.5                        | 30.25                      | 1               |              |
|                       | 3                | 111.5                       | 200                        | -               |              |

Performed by jiabei  
Jiabei Yuan

Checked by Yin-Cheng Lin  
Yin-Cheng Lin



Table Q.2 Tables of Masking Parameters Used on Data Collected during Third Site Visit at Site D (Continued)

| Receiver Spacing (ft) | Masking Interval | Masking Start Frequency, Hz | Masking Stop Frequency, Hz | Number of Jumps | Filename     |
|-----------------------|------------------|-----------------------------|----------------------------|-----------------|--------------|
| 18                    | 1                | 0                           | 31.25                      | 1               | 3D7_F_43.DAT |
|                       | 2                | 128.5                       | 200                        | -               |              |
| 18                    | 1                | 0                           | 24.75                      | 1               | 3D8_F_43.DAT |
|                       | 2                | 28.5                        | 30.75                      | 1               |              |
|                       | 3                | 100.75                      | 200                        | -               |              |
| 25                    | 1                | 0                           | 16.25                      | 1               | 3G1_F_21.DAT |
|                       | 2                | 76.62                       | 100                        | -               |              |
| 25                    | 1                | 0                           | 17.62                      | 1               | 3G1_F_43.DAT |
|                       | 2                | 67.25                       | 100                        | -               |              |
| 25                    | 1                | 0                           | 16.62                      | 1               | 3G6_F_21.DAT |
|                       | 2                | 38.25                       | 41.25                      | 2               |              |
|                       | 3                | 82                          | 100                        | -               |              |
| 25                    | 1                | 0                           | 17.88                      | 1               | 3G6_F_43.DAT |
|                       | 2                | 72.25                       | 100                        | -               |              |
| 50                    | 1                | 0                           | 9                          | 1               | 3G2_F_21.DAT |
|                       | 2                | 66.38                       | 100                        | -               |              |
| 50                    | 1                | 0                           | 8.88                       | 1               | 3G3_F_21.DAT |
|                       | 2                | 68.62                       | 100                        | -               |              |
| 50                    | 1                | 0                           | 7.75                       | 1               | 3G3_F_43.DAT |
|                       | 2                | 42.62                       | 100                        | -               |              |
| 50                    | 1                | 0                           | 9                          | 1               | 3G4_F_21.DAT |
|                       | 2                | 46.75                       | 50                         | -               |              |
| 50                    | 1                | 0                           | 7.69                       | 1               | 3G4_F_43.DAT |
|                       | 2                | 48                          | 50                         | -               |              |
| 50                    | 1                | 0                           | 8.81                       | 1               | 3G7_F_21.DAT |
|                       | 2                | 24.44                       | 25.5                       | 2               |              |
|                       | 3                | 49.94                       | 50                         | -               |              |
| 50                    | 1                | 0                           | 7.88                       | 1               | 3G8_F_21.DAT |
|                       | 2                | 23.63                       | 24.75                      | 2               |              |
|                       | 3                | 47.5                        | 50                         | -               |              |

Performed by Jiabei Yuan  
Jiabei Yuan

Checked by Yin-Cheng Lin  
Yin-Cheng Lin

Table Q.3 Tables of Masking Parameters Used on Data Collected during Third Site Visit at Site D (Continued)

| Receiver Spacing (ft) | Masking Interval | Masking Start Frequency, Hz | Masking Stop Frequency, Hz | Number of Jumps | Filename     |
|-----------------------|------------------|-----------------------------|----------------------------|-----------------|--------------|
| 50                    | 1                | 0                           | 7.88                       | 1               | 3G8_F_43.DAT |
|                       | 2                | 45.63                       | 50                         | -               |              |
| 100                   | 1                | 0                           | 4.75                       | 1               | 3G5_F_21.DAT |
|                       | 2                | 21.38                       | 23.06                      | 3               |              |
|                       | 3                | 42.81                       | 50                         | -               |              |
| 100                   | 1                | 0                           | 4.88                       | 1               | 3G9_F_21.DAT |
|                       | 2                | 11.56                       | 12.69                      | 2               |              |
|                       | 3                | 20.25                       | 22                         | 3               |              |
|                       | 4                | 49.88                       | 50                         | -               |              |

Performed by Jiabei Checked by Yin-Cheng Lin  
Jiabei Yuan Yin-Cheng Lin

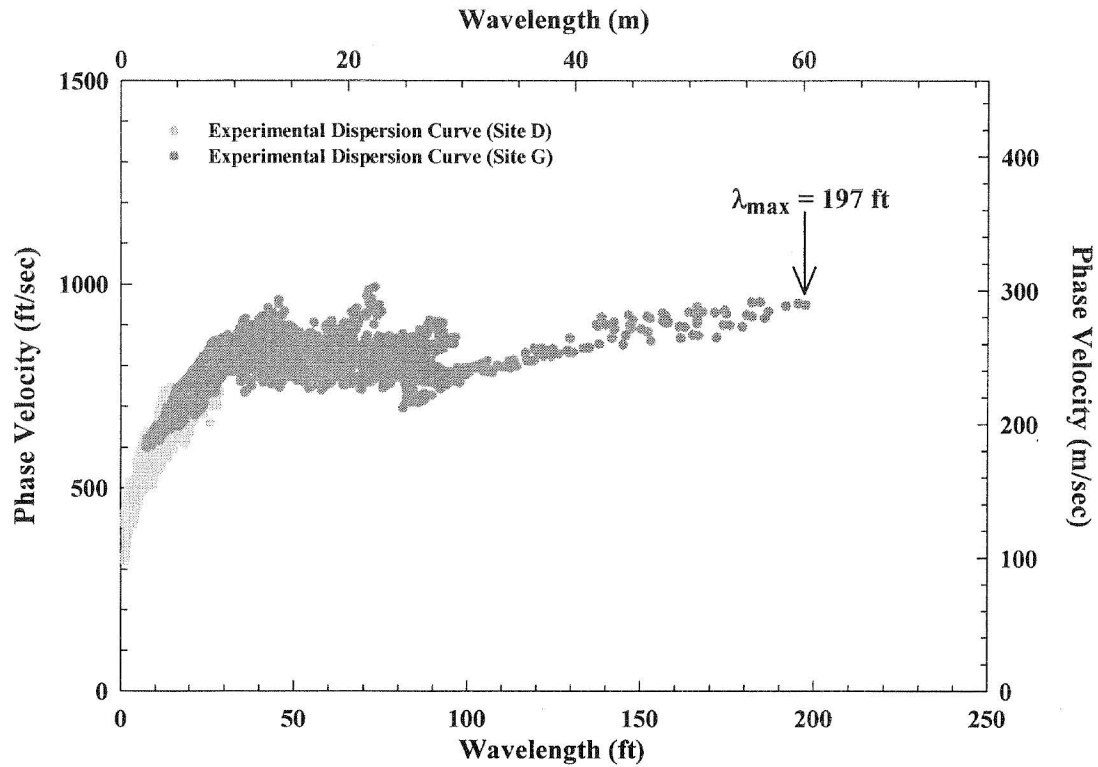


Figure Q.31 Experimental Dispersion Curve Measured during Third Site Visit at Site D at Vogtle, GA; Linear Wavelength Axis

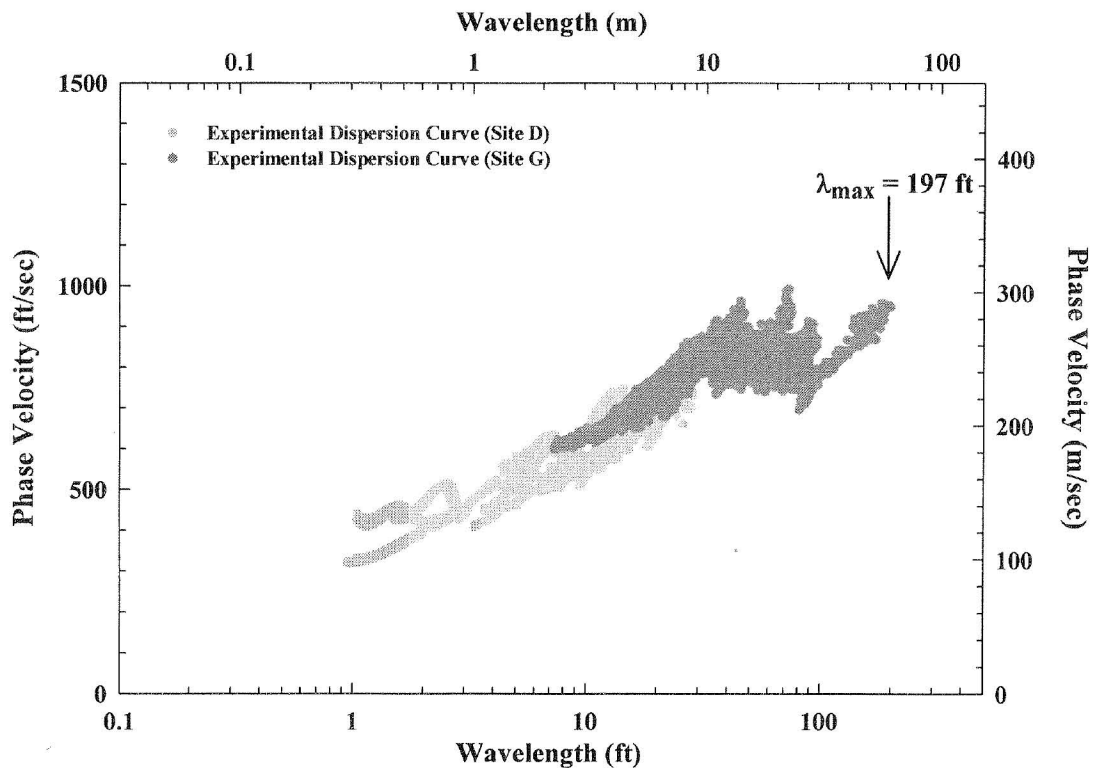


Figure Q.32 Experimental Dispersion Curve Measured during Third Site Visit at Site D at Vogtle, GA; Logarithmic Wavelength Axis