

ORIGINAL

BSU Borehole Engineering Seismology Preliminary Observations

Date: 12 June 96

Type of Phones Geostuff / 070

1. Name of well SPT-2 CapSTN

18.52
.30

2. Location of well

X= 9917.752 m

5.490

Y= 10054.85938 m

Z= 820.85313 m (Casing Elevation, CE.) ^{u87001}

SUB CE

3. Depth to top of water table (measured from CE) 18.32 ft

4.41m
+1.12m

4. Height above ground level to CE 0.792m

5.53 H₂O

5. Reference Phone offset from borehole +1.95m

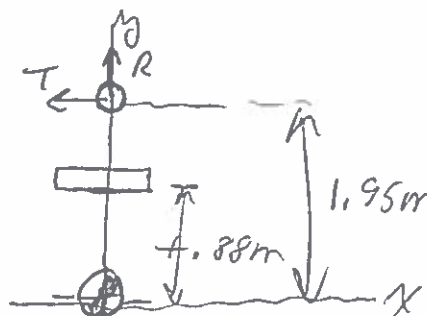
6. Reference Phone depth below ground level 0.1m

18.5
1.12 T/D

7. Source Offset from borehole 0.88m

19.62

8. Sketch of setup



9. Break out box wiring

Downhole	Reference
B D F	B D F
A C E	A C E

10. Blue box channel settings

Channel	Component
1	Vertical
2	Longitudinal (radial)
3	Transverse

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m above
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset

Asimuth
 Elev. 10 m below
 X= 0
 Y= +1.95 m

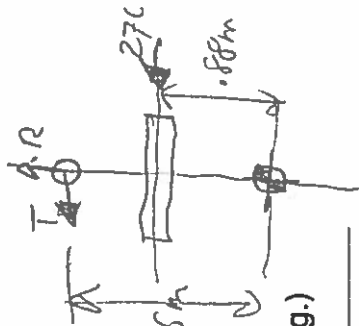
Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V 0
 R 0
 T 270

Azi.(deg.)
 Vert.(deg.)
0
90
90

Date: 12 June 96 Location: SPT - 2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500

[N= 9917.752 Z= 10054.85938 m Z= 820.85313 m]



Shot		Borehole Geophone			Source			Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
1	SPT00004	18.50		0.88m	0°	0	0	4.88m	90
2		18.50							90
3		18.25							90
4		18.25							90
5		18.00							90
6		18.00							90
7		17.75							90
8		17.75							90
9		17.50							90
10		17.50							90

10:19

(1)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1792 mabL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 1 m 66L
 X= 0
 Y= +1.95

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1600 Low Cut 4 Sample Int. .0002 Number of Samples 2500

[K= 9917.752 ~~4~~ = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone		Source				Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
11		17.25		.88	0°				90
12		17.25							90
13		17.00							90
14		17.00							90
15		16.75							90
16		16.75							90
17		16.50							90
18		16.50							90
19		16.25							90
20		16.25							90

10:26

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m AGL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10 m BGL
 X = 0
 Y = +1.95 m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K= 9917.752 Hz = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
21		16.00		.88	0°				90
22		16.00							90
23		15.75							90
24		15.75							90
25		15.50							90
26		15.50							90
27		15.25							90
28		15.25							90
29		15.00							90
30		15.00							90

10,34

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m A 6 L
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10 m 6 6 L
 X= 0
 Y= 11.95 m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V 0
 R 0
 T 270
 Azi.(deg.)
 Vert.(deg.)
0
90
90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 7 Sample Int. 0.0002 Number of Samples 2500
[K= 9917.752 Hz = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
31		14.75		1.88	0				270	90
32		14.75							90	90
33		14.50							270	90
34		14.50							90	90
35		14.25							270	90
36		14.25							90	90
37		14.00							270	90
38		14.00							90	90
39		13.75							270	90
40		13.75							90	90

10:42

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1792m 466
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m 1366
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi. (deg.) Vert. (deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K= 9917352 # = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
41		13.50		.88	0°				90
42		13.50							90
43		13.25							90
44		13.25							90
45		13.00							90
46		13.00							90
47		12.75							90
48		12.75							90
49		12.50							90
50		12.50		0					90

10:48

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m AGL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1 m RGL
 X = 0
 Y = 1.95 m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Capstan
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500

[Ac: 9917.752 ~~Hz~~ = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
51		12.25		.88	0°				270	90
52		12.25							90	90
53		12.00							270	90
54		12.00							90	90
55		11.75							270	90
56		11.75							90	90
57		11.50							270	90
58		11.50							90	90
59		11.25							270	90
60		11.25							90	90

10:53

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AGC
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1 m BGL
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Capshn
 High Cut 1000 Low Cut 4 Sample Int. .0002 Number of Samples 2500

[K= 9917.752 ~~Hz~~ = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone		Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
61		11.00		.88	0°				270	90
62		11.00							90	90
63		10.75							270	90
64		10.75							90	90
65		10.50							270	90
66		10.50							90	90
67		10.25							270	90
68		10.25							90	90
69		10.00							270	90
70		10.00							90	90

10:59

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1m RG
 X= 0
 Y= 1.95m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V 0
 R 0
 T 270
 Azi.(deg.)
 Vert.(deg.)
0
90
90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1600 Low Cut 7 Sample Int. 0.0002 Number of Samples 2500
[K: 9917.752 # = 10054.85938m Z = 820.85313m]

Shot		Borehole Geophone			Source				Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
71		9.75		.88	0°				270	90
72		9.75							90	90
73		9.50							270	90
74		9.50							90	90
75		9.25							270	90
76		9.25							90	90
77		9.00							270	90
78		9.00							90	90
79		8.75							270	90
80		8.75							90	90

11:05

Proper charge
 Bat. Charge

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1792m ABCL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1m 66L
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Capsh
 High Cut 1000 Low Cut 4 Sample Int. 0.002 Number of Samples 2500

[N= 9947.752 Z= 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
81		8.50		.88	0°				270	90
82		8.50							90	90
83		8.25							270	90
84		8.25							90	90
85		8.00							270	90
86		8.00							90	90
87		7.75							270	90
88		7.75							90	90
89		7.50							270	90
90		7.50							90	90

11:17

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1 m BGL
 X = 0
 Y = 1.95m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V 0
 R 0
 T 270
 Azi. (deg.)
 V 0
 R 0
 T 270
 Vert. (deg.)
 V 0
 R 90
 T 90

Date: 12 June 96 Location: SPT-2 Capstan
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500

[X = 9917.752 Y = 10054.859 Z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
91		7.25		.88	0°				270	90
92		7.25							90	90
93		7.00							270	90
94		7.00							90	90
95		6.75							270	90
96		6.75							90	90
97		6.50							270	90
98		6.50							90	90
99		6.25							270	90
100		6.25							90	90

GAH Rec
 11:23

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 970
 Azimuth of X-Axis 0°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1m 866
 X= 0
 Y= +1.95m

Channel Configuration:
 Borehole Phone
 V=Channel 4
 R=Channel 5
 T=Channel 6

Reference Polarization:
 V 0
 R 0
 T 270

Azi.(deg.)
0
90
90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. .0002 Number of Samples 2500
[K= 9917.752 Hz = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
101		6.00		.88	0°				270	90
102		6.00							90	90
103		5.75							270	90
104		5.75							90	90
105		5.50							270	90
106		5.50							90	90
107		5.25							270	90
108		5.25							90	90
109		5.00							270	90
110		5.00							90	90

11:30

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1792m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1m BGL
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 7 Sample Int. 0.002 Number of Samples 2500

[K= 9917.752 Hz = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
111		4.75		<u>.88</u>	<u>0°</u>				<u>270</u>	<u>90</u>
112		4.75							<u>90</u>	<u>90</u>
113		4.50							<u>270</u>	<u>90</u>
114		4.50							<u>90</u>	<u>90</u>
115		4.25							<u>270</u>	<u>90</u>
116		4.25							<u>90</u>	<u>90</u>
117		4.00							<u>270</u>	<u>90</u>
118		4.00							<u>90</u>	<u>90</u>
119		3.75							<u>270</u>	<u>90</u>
120		3.75							<u>90</u>	<u>90</u>

11:38

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m 46L
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0.1m 86L
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K= 9917.752 Hz = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone			Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
121		3.56		1.88	0°				270	90	
122		3.50							90	90	
123		3.25							270	90	
124		3.25							90	90	
125		3.00							270	90	
126		3.00							90	90	
127		2.75							270	90	
128		2.75							90	90	
129		2.50							270	90	
130		2.50							90	90	

11:43

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m BGL
 X= 0
 Y= +1.95

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Capin
 High Cut 1000 Low Cut 7 Sample Int. .0002 Number of Samples 2500

AC: 9917.752 Hz = 10054.85938 m Z = 820.85313 m

Shot		Borehole Geophone		Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
131		2.25		.86	0°				90
132		2.25							90
133		2.00							90
134		2.00							90
135		1.75							90
136		1.75							90
137		1.50							90
138		1.50							90
139		1.25							90
140		1.25							90

11:48

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m BGL
 X= 0
 Y= +1.95m

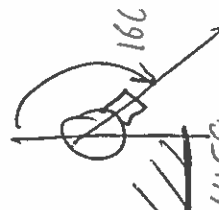
Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Capshn
 High Cut 1000 Low Cut 4 Sample Int. 0002 Number of Samples 2500
[K= 9917.752 # = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone		Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
141		1.00		.88	0°				90
142		1.00							90
143		0.75							90
144		0.75							90
145		18.50			End SH				180°
146		18.25							180
147		18.00							180
148		17.75							180
149		17.50							180

11:54-



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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 MAGL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m BGL
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.002 Number of Samples 2500

[AC 9917.752 4 = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
150		17.25		.88	0°				0	180
151		17.00							0	180
152		16.75							0	180
153		16.50							0	180
154		16.25							0	180
155		16.00							0	180
156		15.75							0	180
157		15.50							0	180
158		15.25							0	180
159		15.00							0	180

12:14

161

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1792 m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10 m BGL
 X = 0
 Y = 11.95 m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V 0 Azimuth 0 Vert. (deg.) 0
 R 0 Azimuth 0 Vert. (deg.) 90
 T 270 Azimuth 0 Vert. (deg.) 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K = 9917.752 Hz = 10054.85938 m z = 820.85313 m]

Shot		Borehole Geophone			Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
160		14.75		.88	0				0	180
161		14.50							0	180
162		14.25							0	180
163		14.00							0	180
164		13.75							0	180
165		13.50							0	180
166		13.25							0	180
167		13.00							0	180
168		12.75							0	180
169		12.50							0	180

12:22

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10 m AGL
 X= 0
 Y= 41.95 m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V=Channel 4
 R=Channel 5
 T=Channel 6
 Azi. (deg.)
 V 0
 R 0
 T 270
 Vert. (deg.)
 V 0
 R 90
 T 90

Date: 12 June 96 Location: SPT-2 Capstan
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K= 9947.752 Hz = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone			Source				Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
170		12.25		.88	0°				0	180
171		12.00							0	180
172		11.75							0	180
173		11.50							0	180
174		11.25							0	180
175		11.00							0	180
176		10.75							0	180
177		10.50							0	180
178		10.25							0	180
179		10.00							0	180

12:27

(12)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1792 m AGC
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10 m BGL
 X= 0
 Y= +1.95m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V=Channel 4
 R=Channel 5
 T=Channel 6

Azi.(deg.)
 V 0
 R 0
 T 270

Vert.(deg.)
 V 0
 R 90
 T 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K= 9917.752 # = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone			Source				Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
180		9.75		.88	0°				0	180
181		9.50							0	180
182		9.25							0	180
183		9.00							0	180
184		8.75							0	180
185		8.50							0	180
186		8.25							0	180
187		8.00							0	180
188		7.75							0	180
189		7.50							0	180

12:34

(19)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AGL
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m BGL
 X= 0
 Y= +1.95m

Channel Configuration: Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500

[K= 9917.752 # = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone		Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
190		7.25		.88	0°				0	180
191		7.00							0	180
192		6.75							0	180
193		6.50							0	180
194		6.25							0	180
195		6.00							0	180
196		5.75							0	180
197		5.50							0	180
198		5.25							0	180
199		5.00							0	180

12:41

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: -792 m 186L
 Azimuth of X-Axis 90°
 Azimuth of Y-Axis 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m 186L
 X= 0
 Y= 1.95m

Channel Borehole Phone Reference Phone
 Configuration: V=Channel 1 V=Channel 4
 R=Channel 2 R=Channel 5
 T=Channel 3 T=Channel 6

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Caprin
 High Cut 1000 Low Cut 4 Sample Int. 0.002 Number of Samples 2500

[N= 9917.752 M= 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone		Source			Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y
200		4.75		1.88	0°			
201		4.50						
202		4.25						
203		4.00						
204		3.75						
205		3.50						
206		3.25						
207		3.00						
208		2.75						
209		2.50						

12:45

(21)

Coordinate System Origin at Borehole
Casing Elevation: 1792 m AGL
Azimuth of X-Axis 90°
Azimuth of Y-Axis 0°

Reference Phone: _____

Offset _____

Azimuth _____

Elev. -10m BGL

X = 0

Y = 41.95m

Channel Configuration:	Borehole Phone	Reference Phone
V=Channel 1	V=Channel 4	V=Channel 4
R=Channel 2	R=Channel 5	R=Channel 5
T=Channel 3	T=Channel 6	T=Channel 6

Reference Polarization:	Azi.(deg.)	Vert.(deg.)
V	0	0
R	0	90
T	270	90

Date: 12 June 96 Location: SPT - 2 Cnstrn _____
 High Cut 1000 Low Cut 4 Sample Int. .0002 Number of Samples 2500
 [$N = 9917.752$ $\bar{N} = 10054.85938$ m $Z = 820.85313$ m]

[illegible]

12:51

5204

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792 m AGL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: AST 7884

Offset
 Azimuth: 16 m AGL
 Elev.: 0
 X= 0
 Y= +1.95 m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V=Channel 4
 R=Channel 5
 T=Channel 6

Date: 12 June 96 Location: SPT-2 Capon

High Cut 1000 Low Cut 4 Sample Int. .0002 Number of Samples 2500

[K= 9917.752 Hz = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone			Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
1	REC10001	18.5		0.88	0°				0	180	
2		18.0							0	180	
3		17.5							0	180	
4		17.0							0	180	
5		16.5							0	180	
6		16.0							0	180	
7		15.5							0	180	
8		15.0							0	180	
9		14.5							0	180	
10		14.0							0	180	

AST
 Report
 of VSP
 M 1/2 m
 interval

(23)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m 862
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m 862
 X= 0
 Y= 1.95m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 V 0
 R 0
 T 270
 Azi.(deg.)
 Vert.(deg.)
0
90
90

Date: 12 June 96 Location: SPT-2 Captn
 High Cut 1000 Low Cut 4 Sample Int. 0.0002 Number of Samples 2500
[K= 9917.752 # = 10054.85938 m Z= 820.85313 m]

Shot			Borehole Geophone		Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
11		13.5		.88	20°				0	180	
12		13.0							0	180	
13		12.5							0	180	
14		12.0							0	180	
15		11.5							0	180	
16		11.0							0	180	
17		10.5							0	180	
18		10.0							0	180	
19		9.5							0	180	
20		9.0							0	180	

(24)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AGL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m AGL
 X= 0
 Y= 1.95m

Channel Configuration: Borehole Phone
 V=Channel 1 V=Channel 4
 R=Channel 2 R=Channel 5
 T=Channel 3 T=Channel 6

Reference Polarization: Azi.(deg.) Vert.(deg.)
 V 0 0
 R 0 90
 T 270 90

Date: 12 June 96 Location: SPT-2 Capstan
 High Cut 1000 Low Cut 4 Sample Int. 0.002 Number of Samples 2500
[K= 9917.752 Hz = 10054.85938 m Z= 820.85313 m]

Shot		Borehole Geophone		Source			Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Vertical
21		8.5		1.88m	0°				180
22		8.0							180
23		7.5							180
24		7.0							180
25		6.5							180
26		6.0							180
27		5.5							180
28		5.0							180
29		4.5							180
30		4.0							180

Top/Bottom

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 792m AGL
 Azimuth of X-Axis: 90°
 Azimuth of Y-Axis: 0°

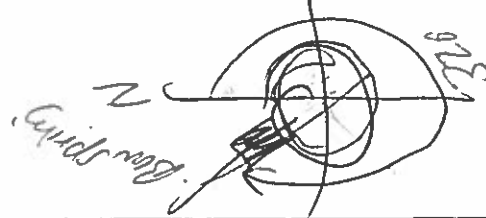
Reference Phone: Offset _____
 Azimuth _____
 Elev. 10m AGL
 X= 0
 Y= 41.85m

Channel Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Reference Polarization:
 Azl.(deg.)
 V 0
 R 0
 T 270
 Vert.(deg.)
0
90
90

Date: 12 June 96 Location: SPT-2 Capstan
 High Cut 1000 Low Cut 4 Sample Int. .0002 Number of Samples 2500
[K= 9917.752 Hz = 10054.85938 m Z = 820.85313 m]

Shot		Borehole Geophone		Source				Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
31		3.5		1.88m	0°				0	180
32		3.0							0	180
33		2.5							0	180
34		2.0							0	180
35		1.5							0	180
36		1.0							0	180
37		0.5							0	180



Down Hole Geophone Field Check List

Project: CAMPSTN

BLUE VAN

Date: 12 June 96

Odometer Start: 4849.5

Finish: 4854.6

OFFICE

Item	Out	In	Comment
BHG-2 Borehole Geophone	✓	✓	
BHGC-1 Geophone Controller (Blue)	✓	✓	
Cable: Spool to BHGC-1	✓	✓	
Cable: BHGC-1 to Bison	✓	✓	
Ban./Alligator Power Cables BHGC-1	✓	✓	
Break out Box			Leave behind
Oyo 3-C Reference Phone (Blue)	✓	✓	
Dummy tool	✓	✓	
Pulley/Winch Assem.	✓	✓	
Bison Seismograph	✓	✓	
Vertical Hammer Source	✓	✓	
Black Tape	✓	✓	
WD-40	✓	✓	
Observer's Sheets/Note Book	✓	✓	
Rope	✓	✓	
Rock Hammer	✓	✓	
Tape measure (50 m)	✓	✓	
Gloves			
Compass and Maps	✓	✓	
Trigger Switch Toggle Box			Leave behind
Gas Card & Keys	✓	✓	
Water Table Logging Probe	✓	✓	

Lincoln Street and Garage

Item	Out	In	Comment
Bison Cable Box (yellow) Power Cable Trigger Cables Black Tape	✓	✓	
Bison Tool Box (grey) Paper for bison Miscl. Electronics/Safety	✓	✓	
Tool Box			
Trigger Extension Cord	✓	✓	
Tripod Head	✓	✓	
Tripod Legs (3)	✓	✓	
Batteries (12V car) Need 2	✓	✓	Need water
Jumper Cable for 24V operation	✓	✓	
Railroad Tie Horizontal Hammers	✓	✓	
Sand Bags (2)	✓	✓	about 25lb each
Shovel	✓	✓	
Pick	✓	✓	
Nails to hold off hammer heads	✓	✓	