

ORIGINAL

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 8.64 m above G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Channel

V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone: Offset: 2.40 m

Azimuth 180

Elev. .10m m below G.L.

X = 0 m

Y = -2.40 m

Ref. Polarization:

V 0

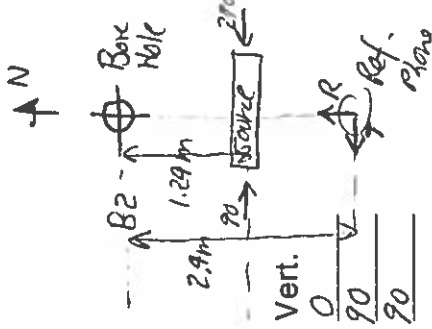
R 0

T 270

Date: 10 Oct 97 Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500



Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
1	WL820001	19m		1.24	180		0	-1.24m	270	135
2		19m							90	135
3		18.75							270	135
4		18.75							90	135
5		18.50							270	135
6		18.50							90	135
7		18.25							270	135
8		18.25							90	135
9		18.00							270	135
10	WL820010	18.00						0	90	135

redamp

water Table (9.48fe) sub CE = 2.89 m sub CE = [+847.35m elev]

T/D @ 19.39m

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.40 m

Casing Elevation: 8.64 m above G.L.

Azimuth 180

Azimuth x-axis: 90

Elev. 0.10 m below G.L.

Azimuth y-axis: 0

X = 0 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Y = -2.40 m

Channel Configuration:

Borehole Phone

Ref. Polarization:

V=Channel 1

V 0

R=Channel 2

R 0

T=Channel 3

T 270

Date: 10 Oct 97

Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
11	WLB20011	17.75					0	-1.24	270	135
12		17.75							90	135
13		17.50							270	135
14		17.50							90	135
15		17.25							270	135
16		17.25							90	135
17		17.00							270	135
18		17.00							90	135
19		16.75							270	135
20	WLB20020	16.75							90	135

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 240 m

Casing Elevation: 8 * 64 m above G.L.

Azimuth 180

Azimuth x-axis: 90 m below G.L.

Elev. 10 m

Azimuth y-axis: 0 m

X = 0 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Y = -240 m

Channel Configuration:

Reference Phone

Ref. Polarization:

Borehole Phone

V=Channel 1

V

R=Channel 2

R=Channel 5

R

T=Channel 3

T=Channel 6

T

Vert.

0

90

90

Date: 10 Oct 97

Location: URISP well B2

Number Samples 2500

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Shot		Borehole Phone			Source		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	Source Polarization
21	WL820021	16.50					
22		16.50					
23		16.25					
24		16.25					
25		16.00					
26		16.00					
27		15.75					
28		15.75					
29		15.50					
30	WL820030	15.50					

12:52

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.90 m

Casing Elevation: 8 . 64 m above G.L.

Azimuth 160

Azimuth x-axis: 90

Elev. 0.10 m below G.L.

Azimuth y-axis: 0

X = 0 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Y = -2.40 m

Channel Configuration:

Reference Phone

Borehole Phone

V=Channel 1

R=Channel 2

R=Channel 5

T=Channel 3

T=Channel 6

Ref. Polarization:

V

R

T

Az

0

0

270

Vert.

0

90

90

Date: 10 Oct 97

Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
31	WLB20031	15.25					0	-1.24	270	135
32		15.25							90	135
33		15.00							270	135
34		15.00							90	135
35		14.75							270	135
36		14.75							90	135
37		14.50							270	135
38		14.50							90	135
39		14.25							270	135
40	WLB20040	14.25							90	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 8 64 m above G.L.
 Azimuth x-axis: 90
 Azimuth y-axis: 0
 Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)
 Channel Configuration: Borehole Phone V=Channel 1 Reference Phone V=Channel 4
 R=Channel 2 R=Channel 5
 T=Channel 3 T=Channel 6
 Date: 10 Oct 97 Location: URISP well B2
 High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec Number Samples 2500

Reference Phone: Offset: 240 m
 Azimuth 180
 Elev. 0.10m m below G.L.
 X = 0 m
 Y = -240 m
 Ref. Polarization: Az V 0
 R 0
 T 270
 Vert. 0
90
90

Shot		Borehole Phone				Source			
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Source Polarization
41	WL B20041	14.00					0	-1.24	270
42		14.00							90
43		13.75							270
44		13.75							90
45		13.50							270
46		13.50							90
47		13.25							270
48		13.25							90
49		13.00							270
50	WL B20050	13.00							90

1:08

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone:

Offset: 2.40 m

Casing Elevation: 8.64 m above G.L.

Azimuth 180

Azimuth x-axis: 90°

Elev. 0.10 m below G.L.

Azimuth y-axis: 0°

X = 0 m

Well Coord: X = 1000.3.09(m) Y = 1000.1.73(m) Z = 850.24(m)

Y = -2.40 m

Channel

Reference Phone

Ref. Polarization: Az

Configuration:

Borehole Phone

V=Channel 4

V 0

R=Channel 2

R=Channel 5

R 0

T=Channel 3

T=Channel 6

T 270

Vert.

0

90

90

Date: 10 Oct 97

Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
51	WV20051	12.75					0	-1.24	270	135
52		12.75							90	135
53		12.50							270	135
54		12.50							90	135
55		12.25							270	135
56		12.25							90	135
57		12.00							270	135
58		12.00							90	135
59		11.75							270	135
60	WV20060	11.75							90	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone:

Offset: 2.40 m

Casing Elevation: 8 64 m above G.L.

Azimuth 180°

Elev. .10 m below G.L.

X = 0 m

Y = -2.40 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Channel

Reference Phone

Ref. Polarization:

Az

V=Channel 1

V=Channel 4

V

0

R=Channel 2

R=Channel 5

R

90

T=Channel 3

T=Channel 6

T

90

Date: 10 Oct 97

Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
61	WL820061	11.50					0	-1.24m	270	135
62		11.50							90	135
63		11.25							270	135
64		11.25							90	135
65		11.00							270	135
66		11.00							90	135
67		10.75							270	135
68		10.75							90	135
69		10.50							270	135
70	WL820070	10.50							90	135

1.21

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.40 m

Casing Elevation: 8 64 m above G.L.

Azimuth 180°

Azimuth x-axis: 90° m below G.L.

Elev. 0.10 m

X = 0 m

Y = -2.40 m

Ref. Polarization: Az 0

V 0

R 90

T 90

Vert. 0

90

90

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Channel Configuration: Borehole Phone V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone V=Channel 4

R=Channel 5

T=Channel 6

Date: 10 Oct 97

Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
71	WL820071	10.25					0	-1.24m	270	135
72		16.25					1	1	90	135
73		10.00							270	135
74		10.00							90	135
75		9.75							270	135
76		9.75							90	135
77		9.50							270	135
78		9.50							90	135
79		9.25						1	270	135
80	WL820080	9.25					1	1	90	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 8 64 m above G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Channel Configuration: Borehole Phone

V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone

V=Channel 4

R=Channel 5

T=Channel 6

Ref. Polarization:

V

R

T

Vert.

0

90

90

Reference Phone: Offset: 2.40 m

Azimuth 180°

Elev. 0.10 m below G.L.

X = 0 m

Y = -2.40 m

Date: 10 Oct 97

High-Cut 1000

Location: URISP Well B2

Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
81	WL820081	9.00					0	-1.24m	270	135
82		9.00							90	135
83		8.75							270	135
84		8.75							90	135
85		8.50							270	135
86		8.50							90	135
87		8.25							270	135
88		8.25							90	135
89		8.00							270	135
90	WL820090	8.00							90	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 240 m

Casing Elevation: 8 64 m above G.L.

Azimuth 180°

Azimuth x-axis: 90°

Elev. 0.10 m below G.L.

Azimuth y-axis: 0°

X = 0 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Y = -2.40 m

Channel

Reference Phone

Ref. Polarization: Az

Configuration:

V=Channel 1

V 0

R=Channel 2

R=Channel 5

R 0

T=Channel 3

T=Channel 6

T 270

Vert. 0

90

90

Date: 10 Oct 97

Location: URISP well B2

Number Samples 2500

High-Cut 1000

Low-Cut 4 Sample Int. .0002 sec

Shot		Borehole Phone				Source				Source Polarization			
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical			
91	WL820091	7.75					0	-1.24 m	270	135			
92		7.75							90	135			
93		7.50							270	135			
94		7.50							90	135			
95		7.25							270	135			
96		7.25							90	135			
97		7.00							270	135			
98		7.00							90	135			
99		6.75							270	135			
100	WL820000	6.75					0		90	135			

1:42

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.40 m

Casing Elevation: 0.69 m above G.L.

Azimuth 180°

Azimuth x-axis: 90°

Elev. 0.10 m below G.L.

Azimuth y-axis: 0°

X = 0 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Y = -2.40 m

Channel

Ref. Polarization: Az

Configuration:

V

Borehole Phone

R

V=Channel 1

T

R=Channel 2

Az

T=Channel 3

270

Date: 10 Oct 97

Number Samples 2500

High-Cut 1000

Sample Int. .0002 sec

Location: URISP well B2

Low-Cut 4

1:49

re-
clamp

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
101	WL820101	6.50					0	-1.24m	270	135
102		6.50							90	135
103		6.25							270	135
104		6.25							90	135
105		6.00							270	135
106		6.00							90	135
107		5.75							270	135
108		5.75							90	135
109		5.50							270	135
110	WL820110	5.50							90	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.40 m

Casing Elevation: 8, 64 m above G.L.

Azimuth 180°

Azimuth x-axis: 90°

Elev. 10 m below G.L.

Azimuth y-axis: 0°

X = 0 m

Well Coord: X = 10003.09 (m) Y = 10001.73 (m) Z = 850.24 (m)

Y = -2.40 m

Channel Configuration:

Ref. Polarization:

Borehole Phone

Reference Phone

V

Az

V=Channel 1

V=Channel 4

R

0

R=Channel 2

R=Channel 5

T

90

T=Channel 3

T=Channel 6

T

90

Date: 10 Oct 97

Location: URISP well B2

Number Samples 2500

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
111	WL820111	5.25					0	-1.24m	270	135
112		5.25							90	135
113		5.00							270	135
114		5.00							90	135
115		4.75							270	135
116		4.75							90	135
117		4.50							270	135
118		4.50							90	135
119		4.25							270	135
120	WL820120	4.25							90	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.40 m

Casing Elevation: 8 64 m above G.L.

Azimuth 180°

Elev. 0.10 m below G.L.

Azimuth x-axis: 90°

X = 0 m

Azimuth y-axis: 0°

Y = -2.40 m

Well Coord: X = 10003.09 (m) Y = 10001.73 (m) Z = 850.24 (m)

Channel Configuration: Borehole Phone

Reference Phone

V=Channel 1

V=Channel 4

R=Channel 2

R=Channel 5

T=Channel 3

T=Channel 6

Vert.

0

90

270

Ref. Polarization:

V

Az

0

0

270

Date: 10 Oct 97

Location: URISP Well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
<u>121</u>	<u>WL820121</u>	<u>4.00</u>					<u>0</u>	<u>-1.24</u> m	<u>270</u>	<u>135</u>
<u>122</u>		<u>4.00</u>					<u>1</u>		<u>90</u>	<u>135</u>
<u>123</u>		<u>3.75</u>							<u>270</u>	<u>135</u>
<u>124</u>		<u>3.75</u>							<u>90</u>	<u>135</u>
<u>125</u>		<u>3.50</u>							<u>270</u>	<u>135</u>
<u>126</u>		<u>3.50</u>							<u>90</u>	<u>135</u>
<u>127</u>		<u>3.25</u>							<u>270</u>	<u>135</u>
<u>128</u>		<u>3.25</u>							<u>90</u>	<u>135</u>
<u>129</u>		<u>3.00</u>							<u>270</u>	<u>135</u>
<u>130</u>	<u>WL820130</u>	<u>3.00</u>						<u>↘</u>	<u>90</u>	<u>135</u>

2:02

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone:

Offset: 2.40 m

Casing Elevation: 0.64 m above G.L.

Azimuth 180°

Elev. .10 m below G.L.

X = 0 m

Y = -2.40 m

Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)

Channel Configuration:

Reference Phone

Ref. Polarization:

Vert.

Borehole Phone

V=Channel 4

V

R=Channel 2

R=Channel 5

R

T=Channel 3

T=Channel 6

T

Date: 10 Oct 97

Location: URISP well B2

High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec

Number Samples 2500

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
131	WL820131	2.75					0	-1.24m	270	135 135
132		2.75					1		90	135
133		2.50							270	135
134		2.50							90	135
135		2.25							270	135
136		2.25							90	135
137		2.00							270	135
138		2.00							90	135
139		1.75							270	135
140	WL820140	1.75					0		90	135

2:09

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Coordinate System Origin at Borehole
 Casing Elevation: 864 m above G.L.
 Azimuth x-axis: 90°
 Azimuth y-axis: 0°
 Well Coord: X = 10003.09(m) Y = 10001.73(m) Z = 850.24(m)
 Channel
 Configuration:
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3
 Reference Phone
 V=Channel 4
 R=Channel 5
 T=Channel 6
 Reference Phone:
 V 0
 R 0
 T 270
 Ref. Polarization:
 Az
 Offset: 2.40 m
 Azimuth 180°
 Elev. 0.10 m below G.L.
 X = 0 m
 Y = -2.40 m
 Vert. 0
90
90

Date: 10 Oct 97 Location: URISP well B2
 High-Cut 1000 Low-Cut 4 Sample Int. .0002 sec
 Number Samples 2500

[illegible]

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VSP Check List

Project: URISP(At site
11:30 - 15:00)Date: 10 October 97Odometer Start: 12701.0 Finish: 12719.9 (VAN)Time Out: 11:00Time In: 15:30

Item	Out	In	Comment
BHG-2 Borehole Geophone	✓	✓	
BHGC-1 Control Box (Blue)	✓	✓	
Cable: Spool to BHGC-1	✓	✓	
Cable: BHGC-1 to Bison	✓	✓	
Ban/Alligator Power Cables BHGC-1	✓	✓	
Break out box 24Voh Battery	✓	✓	
OYO 3-c Reference Phone (Blue)	✓	✓	
Dummy tool	✓	✓	
Snatch Block and Come-a-long	✓	✓	
Bison Seismograph	✓	✓	
Vertical Hammer Source 135° source	✓	✓	
Black Tape	✓	✓	
WD-40	✓	✓	
Observer's Sheets/Note Book	✓	✓	
Rope	✓	✓	
Rock Hammer	✓	✓	
Tape measure (50m)	✓	✓	
Gloves	✓	✓	
Compass and Maps	✓	✓	
Trigger Switch Toggle Box			
Gas Card & Keys	✓	✓	
Water Table Logging Probe	✓	✓	in van

Tripod _____ ✓ ✓

VSP Preliminary Data Sheet

Date: 10 October 97 Type of Phones gnd

1. Well Name B2 (URNP)

2. Location of Well

X= 10003.09(m) Y= 10001.73(m) Z= 850.24(m)

Casing Elevation: 850.24(m) above

3. Depth to top of water table (measured from CE) 9.48ft

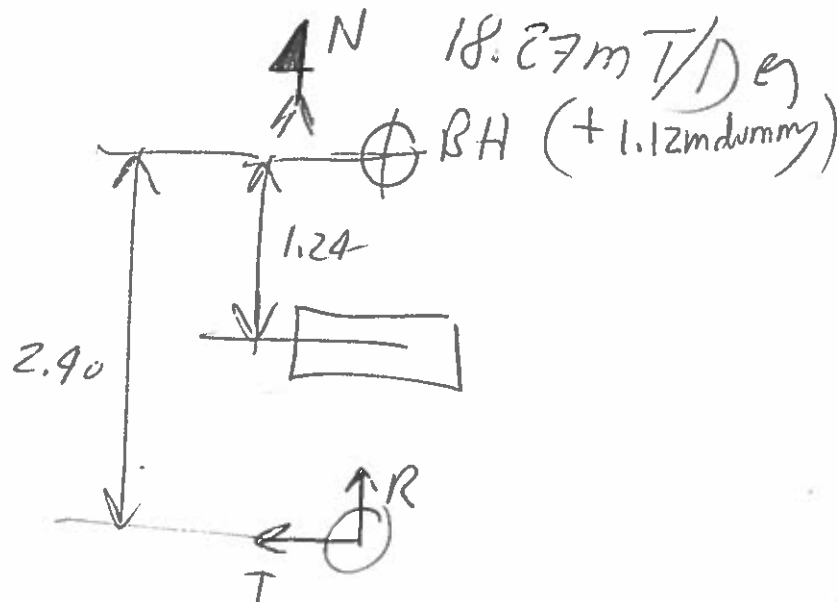
4. Casing Elevation, distance above ground level= + 0.64m

5. Reference phone offset from borehole= 2.40m south

6. Reference phone depth below ground level= 0.11

7. Source Offset from borehole= 1.24m south

8. Sketch of setup:



9. Blue Box switch settings:

Channel	Component
_____	Vertical
_____	Longitudinal (radial)
_____	Transverse