

ORIGINALS

8:30 Temp 70°F

VSP Preliminary Data Sheet

Date: 15 July 97 Type of Phones Oyo

1. Well Name 60' North well

2. Location of Well

X=_____ Y=_____ Z=_____

Casing Elevation: Unknown - Top stickup = CE

3. Depth to top of water table (measured from CE) (0.28 + 1.12)m

Inside Borehole
Sented at Bottom
NOT H₂O TABLE

4. Casing Elevation, distance above ground level= 1.025m

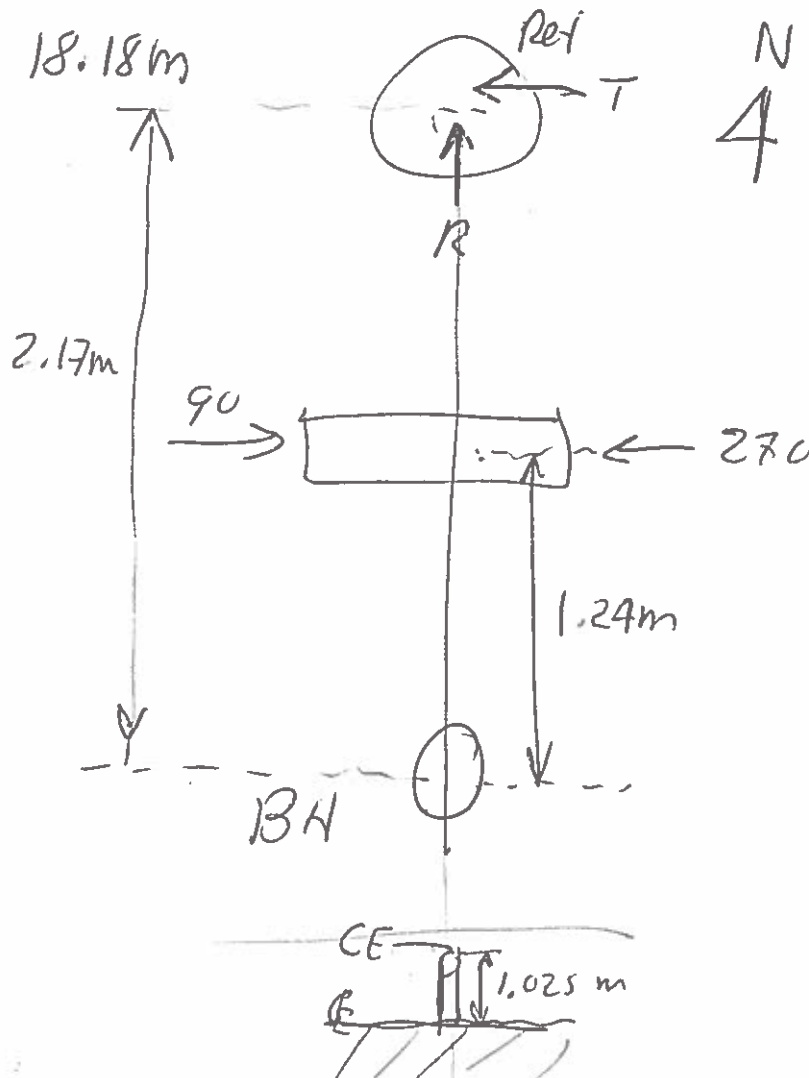
0.28 + 1.12

5. Reference phone offset from borehole= 2.17m North

6. Reference phone depth below ground level= 0.15m

7. Source Offset from borehole= 1.24m North

8. Sketch of setup: T/O = 18.18m



9. Blue Box switch settings:

Channel	Component
_____	Vertical
_____	Longitudinal (radial)
_____	Transverse

VSP Check List

Project: Geologan 97

Date: 11 JULY 97

19 JUL 97

Odometer Start: 11390.2 Finish: _____
Time Out: 8:46 Time In: _____

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	✓		
OYO 3-c Reference Phone (Blue)	✓		
Dummy tool	✓		
Snatch Block and Come-a-long	✓		
Bison Seismograph	✓		
Vertical Hammer Source			
Black Tape	✓		
WD-40	✓		
Observer's Sheets/Note Book	✓		
Rope	✓		
Rock Hammer			
Tape measure (50m)	✓		
Gloves			
Compass and Maps			
Trigger Switch Toggle Box <i>yellow</i>	✓		
Gas Card & Keys	✓		
Water Table Logging Probe			

*AC power supply, Bison
PM Tool/box*

✓
✓ Rec 1 — 19:55 Start Download
Rec 117 — 16:00

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.17 m

Casing Elevation: 10025 m above G.L.

Offset: 2.17 m
Azimuth 0°
Elev. 0.15 m below G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

X = 0 m

Y = 2.17 m

Z = 0 m

Well Coord: X = 0

Y = 0

Borehole Phone

Reference Phone

V=Channel 1

V=Channel 4

R=Channel 2

R=Channel 5

T=Channel 3

T=Channel 6

Date: 15 JULY 97 Location: Logan, Utah (Research Park site, North well)

High-Cut 1000 Hz Low-Cut 4 Hz Sample Int. 25 ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
1	LOGN0001	19.25		1.24m	0°		0	1.24	90	135
2	LOGN0002	19.25							270	135
3		19.00							90	135
4		19.00							270	135
5		18.75							90	135
6		18.75							270	135
7		18.50							90	135
8		18.50							270	135
9		18.25							90	135
10	LOGN0010	18.25							270	135

T. Michaels

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Azimuth x-axis: 90

Azimuth y-axis: 0

Well Coord: X= 0 Y= 0 Z= 0

Channel 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

Az

Vert.

Reference Phone: Offset: 2.17 m

Azimuth 0

Elev. .15 m below G.L.

X= 0 m

Y= +2.17 m

Date: 15 July 97

Location: Logan, Utah

High-Cut 1000

Low-Cut 4

Sample Int. .25ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
11	LogN0011	18.00		1.24m	0°		0	+1.24	90	135
12		18.00							270	135
13		17.75							90	135
14		17.75							270	135
15		17.50							90	135
16		17.50							270	135
17		17.25							90	135
18		17.25							270	135
19		17.00							90	135
20	LogN0020	17.00					0		270	135

9:56

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.17 m

Casing Elevation: 1.625 m above G.L.

Azimuth x-axis: 90°
 Azimuth y-axis: 0°
 Well Coord: X= 0 Y= 0 Z= 0
 Borehole Phone
 V=Channel 1
 R=Channel 2
 T=Channel 3

Ref. Polarization: Az 0 Vert. 0
 V 0 R 90
 T 270 90

Date: 15 JULY 1997

Location: Logan, UT North well
 Low-Cut 442 Sample Int. 25ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
21	LOGN0021	16.75		1.24m	0°		0	1.24	90	135
22		16.75							270	135
23		16.50							90	135
24		16.50							270	135
25		16.25							90	135
26		16.25							270	135
27		16.00							90	135
28		16.00							270	135
29		15.75							90	135
30	LOGN0030	15.75							270	135

10:10

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.17 m

Casing Elevation: 1.025 m above G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X= 0 Y= 0 Z= 0

Channel 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 0

R 0

T 270

Vert.

0

90

90

Date: 15 July 97

Location: LOCAN, UT Northwell

High-Cut 1000

Low-Cut 4

Sample Int. 2.5ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
31	LOGN10031	15.50		1.24	0°		0	+1.24	90	135
32		15.50							270	135
33		15.25							90	135
34		15.25							270	135
35		15.00							90	135
36		15.00							270	135
37		14.75							90	135
38		14.75							270	135
39		14.50							90	135
40	LOGN10040	14.50							270	135

10:24

10:36

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X= 0 Y= 0 Z= 0

Channel Configuration: Borehole Phone

V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone: Offsets: 2.17 m

Azimuth 0°

Elev. 0.15 m below G.L.

X= 0 m

Y= 2.17 m

Ref. Polarization: Az

V 0

R 0

T 270

Vert. 0

90

90

Date: 15 July 97

High-Cut 1000

Location: Low-Cut 4

Sample Int. 25 ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
41	LOGN0041	14.25		1.24	0°		0	71.24	90	135
42		14.25							270	135
43		14.00							90	135
44		14.00							270	135
45		13.75							90	135
46		13.75							270	135
47		13.50							90	135
48		13.50							270	135
49		13.25							90	135
50	LOGN0050	13.25							270	135

10:36

14.0

Two

hang

Reclar

over shot

release

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X= 0 Y= 0 Z= 0

Channel Borehole Phone

Configuration: V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone

V=Channel 4

R=Channel 5

T=Channel 6

Ref. Polarization: Az 0 V 0 R 0 T 270

Vert. 0

Reference Phone: Offset: 2.17 m

Azimuth 0

Elev. 0.15 m below G.L.

X= 0 m

Y= 2.17 m

Date: 15 July 97

Location: Lofan, VT

High-Cut 1000 Hz Low-Cut 4 Hz Sample Int. 0.25ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
61	LogN0061	11.75		1.24m	0°		0	+1.24	90	135
62		11.75							270	135
63		11.50							90	135
64		11.50							270	135
65		11.25							90	135
66		11.25							270	135
67		11.00							90	135
68		11.00							270	135
69		10.75							90	135
70	LogN0070	10.75							270	135

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Reference Phone: 2.17 m

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X = 0 Y = 0 Z = 0

Channel

Configuration: V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone

V=Channel 4

R=Channel 5

T=Channel 6

Az

Vert. 0

90

50

Ref. Polarization: V 0

R 0

T 270

Number Samples 2000

Date: 15 July 97

Location: Loban, OH Northwell

High-Cut 1000 Hz

Low-Cut 9 Hz

Sample Int. 2.5 ms

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
71	LOGN0071	10.50		1.24m	0°		0	+1.24	90	135
72		10.50							270	135
73		10.25							90	135
74		10.25							270	135
75		10.00							90	135
76		10.00							270	135
77		9.75							90	135
78		9.75							270	135
79		9.50							90	135
80	LOGN0080	9.50							270	135

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.17 m

Casing Elevation: 1.025 m above G.L.

Azimuth x-axis: 90°

Azimuth 0°
Elev. 0.15 m below G.L.

Azimuth y-axis: 0°

X = 0 m

Well Coord: X = 0 Y = 0 Z = 0

Y = 22.17 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

90

Date: 15 July 97

Location: Logan, Utah North well

High-Cut 1000 Hz

Low-Cut 4 Sample Int. 0.25 ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
81	Logan081	9.25		1.24m	0°		0	41.24	90	135
82		9.25							270	135
83		9.00							90	135
84		9.00							270	135
85		8.75							90	135
86		8.75							270	135
87		8.50							90	135
88		8.50							270	135
89		8.25							90	135
90	Logan090	8.25							270	135

11:34
150°
Shadow

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone:

Offset: 2.17 m

Casing Elevation: 1.025 m above G.L.

Azimuth 0°

Elev. 0.15 m below G.L.

X= 0 m

Y= 2.17 m

Z= 0

Vert. 0

Channel Configuration:

Borehole Phone

Ref. Polarization:

Az 0

V=Channel 1

V=Channel 4

V

R=Channel 2

R=Channel 5

R

T=Channel 3

T=Channel 6

T

Date: 15 July 97

Location: Lozen, UT North well

Number Samples 2000

Sample Int. 0.25ms

High-Cut 1000

Low-Cut 4

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
91	LobN0091	8.00		1.24m	0°		0	+1.24	90	135
92		8.00							270	135
93		7.75							90	135
94		7.75							270	135
95		7.50							90	135
96		7.50							270	135
97		7.25							90	135
98		7.25							270	135
99		7.00							90	135
100	LobN0100	7.00					0		270	135

11:45

11:52

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Reference Phone: 2.17 m

Azimuth 0

Elev. 0.15 m below G.L.

Azimuth x-axis: 0°

X = 0 m

Well Coord: X = 0

Y = +2.17 m

Channel Configuration:

Borehole Phone

Ref. Polarization:

Vert.

V=Channel 1

V=Channel 4

V

R=Channel 2

R=Channel 5

R

T=Channel 3

T=Channel 6

T

Date: 15 July 97

Location: Logan, UT North Well

High-Cut 1000 Hz

Low-Cut 5 Hz

Sample Int. 0.25 ms

Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
101	L06N0101	6.75		1.24m	0°		0	+1.24	90	135
102		6.75							270	135
103		6.50							90	135
104		6.50							270	135
105		6.25							90	135
106		6.25							270	135
107		6.00							90	135
108		6.00							270	135
109		5.75							90	135
110	L06N0110	5.75							270	135

11:52

12:01

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Reference Phone: 2.17 m

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Reference Phone: 2.17 m

Reference Phone: 2.17 m

Date: 15 July 97

Location: Logan, UT North well

Low-Cut: 4 Hz

Sample Int.: 0.25 ms

Number Samples: 2000

High-Cut: 1000 Hz

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
111	Logan0111	5.50		1.24m	0°		0	1.24	90	135
112		5.50							270	135
113		5.25							90	135
114		5.25							270	135
115		5.00							90	135
116		5.00							270	135
117		4.75							90	135
118		4.75							270	135
119		4.50							90	135
120	Logan0120	4.50							270	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 1.025 m above G.L.

Reference Phone: Offset: 2.17 m

Azimuth 0

Elev. 0.15 m below G.L.

X= 0 m

Y= +2.17 m

Ref. Polarization: Az 0

V 0

R 0

T 270

Vert. 0

20

90

90

Borehole Phone

V=Channel 1

R=Channel 5

T=Channel 6

Reference Phone

V=Channel 9

R=Channel 5

T=Channel 6

Z= C

Date: 15 JUL 97

Location: Logan, UT North Well

Sample Int. 0.25 ms

Number Samples 2000

High-Cut 1000 Hz

Low-Cut 4 Hz

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
121	LogNo121	4.25		1.24 m	0°		0	+1.24	90	135
122		4.25							270	135
123		4.00							90	135
124		4.00							270	135
125		3.75							90	135
126		3.75							270	135
127		3.50							90	135
128		3.50							270	135
129		3.25							90	135
130	LogNo130	3.25						0	270	135

12:20

12:25

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BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: 2.17 m

Casing Elevation: 1.025 m above G.L.

Azimuth x-axis: 90°

Azimuth y-axis: 0°

Well Coord: X= 0 Y= 0 Z= 0

Channel Borehole Phone

V=Channel 1 Reference Phone

R=Channel 2 V=Channel 4

T=Channel 3 R=Channel 5

Location: Logan, OH Northwell

Sample Int. 0.25m

Low-Cut 4 Number Samples 2000

Date: 15 July 97

High-Cut 1000 Hz

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
131	Logan130	3.00		1.24 m	0°		0	41.24	90	135
132		3.00							270	135
133		2.75							90	135
134		2.75							270	135
135		2.50							90	135
136		2.50							270	135
137		2.25							90	135
138		2.25							270	135
139		2.00							90	135
140	Logan140	2.00							270	135

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Reference Phone: Offset: 2.17 m

Casing Elevation: 1.025 m above G.L.

Offset: 2.17 m

Well Coord: X = 0 Y = 0 Z = 0

Reference Phone: Azimuth 0

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

Elev. 0.15 m below G.L.

Ref. Polarization: Az 0 V 0 R 90 T 90

X = 0 Y = 2.17 m

Date: 15 July 97 Location: 1030m, LH North Well

Number Samples 2000

High-Cut 1000 Hz Low-Cut 4 Hz Sample Int. 0.25 ms

Source Polarization

Shot	File	Depth	Borehole Phone	Source	Elev.	Offset	Azimuth	Elev.	X	Y	Source Polarization
141	Logno141	1.75				1.24m	0°		0	1.24	90
142		1.75									270
143		1.50									90
144		1.50									270
145		1.25									90
146		1.25									270
147		19.00									180
148		19.00									0
149		18.00									180

12:14

Top Ten
Breaks
water

220°

Spring

12:48

150 Logno150 18.00

0 13:00

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