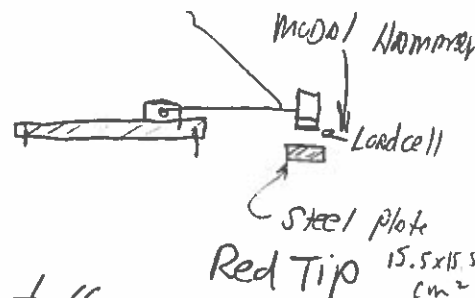


VSP Preliminary Data Sheet



Date: 17 April 2001 Type of Phones OYO / Geostuff

1. Well Name X5 URISP Geometrics (output μ Volts)

2. Location of Well

X= 9963.10 Y= 10023.25 Z= 849.93

Casing Elevation: 849.93

3. Depth to top of water table (measured from CE) 8.75 ft = 2.667 meters

4. Casing Elevation, distance above ground level= +7.67 m

$\Delta = 847.263 \text{ m elev.}$

5. Reference phone offset from borehole= 0.82 m

6. Reference phone depth below ground level= 0

7. Source Offset from borehole= 0.82 m

8. Sketch of setup:

PCB Electronics INC, Depew, NY
Model 086 DSG
Red Tip

Load Cell

0.96 mV/lb

0.22 mV/N

260°
Bursprig
on exit

2.5 cm thick

Steel 15.5 cm
15.5 cm

Down-hole
14 Hz OYO

$5.6497 \text{E-}8 \text{ m/s} / \mu\text{volt}$

Transduction
const

Ref. Phone

28 Hz OYO SMC 28-720

$4.0978 \text{E-}8 \text{ m/s} / \mu\text{volt}$

Also used
in walk-a-way

9. Blue Box switch settings:

Channel	Component
<u>1</u>	Vertical
<u>2</u>	Longitudinal (radial)
<u>3</u>	Transverse

Project: MOOBL Hammer **VSP Check List**

Date: 17 April 2001

Odometer Start: _____ Finish: _____
Time Out: _____ 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	✓		
OYO 3-c Reference Phone (Blue)	✓		
Dummy tool	✓		
Snatch Block and Come-a-long	✓		
Bison Seismograph <i>Geometrics ST</i>	✓		
90° Hammer Source + Sand Bags Vertical Hammer Source + Sand Bags 135° Hammer Source			
Tripod and Tripod Head			
WD-40 and Black Tape	✓		
Observer's Sheets/Note Book	✓		
Rope	✓		
Claw Hammer and Large Nails	✓		
Tape measure (50m)	✓		
Gloves	✓		
Compass and Maps	✓		
24Volt Clamp Battery <i>312V</i>			
Gas Card & Keys	✓		
Water Table Logging Probe	✓		

Cardboard Box Seismic ✓

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
Casing Elevation: 767 m above G.L.

Azimuth x-axis: 90

Azimuth y-axis: 0

Well Coord: X = 9963.10 Y = 10023.25 Z = 849.93

Channel Borehole Phone

V=Channel 24

R=Channel 23

T=Channel 22

Reference Phone:

Offset: 0.82 m

Azimuth 0

Elev. + 0.071 m below G.L.

X = 0 m

Y = +1.82 m

Ref. Polarization: Az 0

V 0

R 0

T 270

LONG cell ch = 18

Date: 17 Apr 2001

Location: WESP X5

High-Cut 2000 Low-Cut 0 Sample Int. 0.0025 Number Samples 2000

Number Samples 2000

Shot	Borehole Phone		Source		Source Polarization	
	File	Depth	Elev.	Offset	Azimuth	Vertical
1	21.0				0	180
2	20.75					
1	20.25				0	180
2	20.5					
3	20.25					
4	20.0					
5	19.75					
6	19.5					
7	19.25					

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$\frac{V}{S} = +847.263m$ (depth: 2.667m sub CE)

Red Tip metal Hammer
15.5 x 15.5 x 2.5 cm
steel plate



BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 767 m above G.L.
 Azimuth x-axis: 90
 Azimuth y-axis: 0
 Well Coord: X = 9963.10 Y = 10023.25 Z = 849.93
 Channel Borehole Phone Reference Phone
 V=Channel 24 V=Channel 21 Az 0
 R=Channel 23 R=Channel 20 R 0
 T=Channel 22 T=Channel 19 T 270
 Configuration: 18 = (axial cpl)

Date: 17 Apr 2001 Location: X5
 High-Cut 1000 Low-Cut 0 Sample Int. 0.0025 Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	8	19.0					0	-1.82	0	180
	9	18.75								
	10	18.5								
	11	18.25								
	12	18.0								
	13	17.75								
	14	17.5								
	15	17.25								
	16	17.0								
	17	16.75								

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 767 m above G.L.
 Azimuth x-axis: 90
 Azimuth y-axis: 0
 Well Coord: X = 9963.10 Y = 10023.25 Z = 899.93
 Channel Borehole Phone Reference Phone
 V=Channel 24 V=Channel 21
 R=Channel 23 R=Channel 20
 T=Channel 22 T=Channel 19
 Configuration: 18 = (good cel) 18 = (good cel)
 Ref. Polarization: Az 0 Vert. 0
 V 0 R 0
 T 270 90 90

Date: 17 Apr 2001 Location: X5
 High-Cut 1000 Low-Cut 0 Sample Int. 00025 Number Samples 2000

Shot		Borehole Phone		Source			Source Polarization			
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	18	16.5					0	-0.82	0	180
	19	16.25					1	1	1	
	20	16.0					1	1	1	
	21	15.75					1	1	1	
	22	15.5					1	1	1	
	23	15.25					1	1	1	
	24	15.0					1	1	1	
	25	14.75					1	1	1	
	26	14.5					1	1	1	
	27	14.25					1	1	1	

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1767 m above G.L.
 Azimuth x-axis: 90
 Azimuth y-axis: 0
 Well Coord: X = 9963.10 Y = 10023.25 Z = 899.93
 Channel Borehole Phone Reference Phone
 V = Channel 24 V = Channel 21
 R = Channel 23 R = Channel 20
 T = Channel 22 T = Channel 19
 Configuration: Azimuth Polarization: Az
 V = 0 R = 0 Vert. 0
 X = 0 Y = +182 T = 270

Date: 17 April 2001 Location: X5
 High-Cut 1000 Low-Cut 0 Sample Int. 0.0025 Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	28	14.0					0	-182	0	180
	29	13.75								
	30	13.50								
	31	13.25								
	32	13.0								
	33	12.75								
	34	12.5								
	35	12.25								
	36	12.0								
	37	11.75								

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 767 m above G.L.
 Azimuth x-axis: 90
 Azimuth y-axis: 0
 Well Coord: X = 9963.16 Y = 10023.25 Z = 899.93
 Channel Borehole Phone Reference Phone
 V = Channel 24 V = Channel 21
 R = Channel 23 R = Channel 20
 T = Channel 22 T = Channel 19
 Date: 17 Apr 2001 Location: XS
 High-Cut 1000 Low-Cut 0 Sample Int. .00025 Number Samples 2000
 Reference Phone: Offset: _____ m
 Azimuth _____
 Elev. 1071 m below G.L.
 X = 0 m
 Y = 4.82 m
 Ref. Polarization: Az _____ Vert. _____
 V 2 R 0 T 290
 Ch 18: (cond-cell)

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	38	11.50					0	-182	0	180
	39	11.25								
	40	11.0								
	41	10.75								
	42	10.5								
	43	10.25								
	44	10.0								
	45	9.75								
	46	9.50								
	47	9.25								

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
Casing Elevation: 767 m above G.L.

Azimuth x-axis: 90

Azimuth y-axis: 0

Well Coord: X = 9963.10 Y = 10023.25 Z = 844.53

Channel Borehole Phone

V=Channel 24

R=Channel 23

T=Channel 22

Reference Phone: Offset: _____ m

Azimuth

Elev. 1,071 m below ~~Surface~~

X = 0 m

Y = 4.82 m

Ref. Polarization: Az

V 0

R 90

T 90

ch8 = load cell

Date: 17 Apr 2001 Location: X5

High-Cut 1000 Low-Cut 0 Sample Int. .00025 Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	48	9.0					0	-1.82	0	180
	49	8.75					1			
	50	8.5								
	51	8.25								
	52	8.0								
	53	7.75								
	54	7.50								
	55	7.25								
	56	7.0								
	57	6.75					9			

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 767 m above G.L.
 Azimuth x-axis: 90
 Azimuth y-axis: 0
 Well Coord: X = 9963.10 Y = 10023.25 Z = 849.93
 Channel Borehole Phone Reference Phone
 V=Channel 24 V=Channel 21 Az 0
 R=Channel 23 R=Channel 20 R 0
 T=Channel 22 T=Channel 19 T 270
 Configuration: 18-cord-cell
 Date: 17 April 2001 Location: X 5
 High-Cut 1000 Low-Cut 0 Sample Int. .00025 Number Samples 2000

Reference Phone: Offset: _____ m
 Azimuth _____
 Elev. 1.071 m ~~below G.L.~~
 X = 0 m
 Y = 1.82 m

Vert. 0
90
90

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	58	6.5					0	~.82	0	180
	59	6.25								
	60	6.0								
	61	5.75								
	62	5.5								
	63	5.25								
	64	5.0								
	65	4.75								
	66	4.50								
	67	4.25								

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
Casing Elevation: 767 m above G.L.

Azimuth x-axis: 90

Azimuth y-axis: 0

Well Coord: X = 9963.16 Y = 10023.25 Z = 849.53

Channel Borehole Phone

Configuration: V=Channel 24

R=Channel 23

T=Channel 22

Reference Phone: Offset: m

Azimuth

Elev. 7.071 m below G.L.

X = 0 m

Y = 7.82 m

Ref. Polarization: Az 0 Vert. 0

V 0

R 0

T 270

185 (ord-cell)

Date: 17 April 2001 Location: X 5

High-Cut 1000 Low-Cut 0 Sample Int. 1.00025 Number Samples 2000

Shot		Borehole Phone			Source			Source Polarization		
Rec.	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
	68	4.0					0	-1.82	0	180
	69	3.75								
	70	3.50								
	71	3.25								
	72	3.0								
	73	2.75								
	74	2.50								
	75	2.25								
	76	2.0								
	77	1.75								

96.5%
+1.1% →

2600
Rain Spins on exit

Offset: _____ m
Azimuth _____
Elev. 7.071 m below G.L.

Elev. 7,071 m below G.L.
$$X = \frac{0}{m}$$
$$Y = 1.82$$

Reference Phone

V=Channel 2/

R=Channel 20

ord-cell T 270

High-Cut 1660 Low-Cut 0 Sample Int. : 00025 Number Samples 2000

[illegible]

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chapters stand up

Red Tip

SURFACE WAVE DATA COLLECTION
OBSERVER'S LOG

URISP

Date: 17 April 2001 Location: X5 well Filters: Low-Cut 0 High-Cut 1000
Sample Interval: 0.0025 Number of Samples: 2000 K-gain: 0dB Number Channels: 3
Station Spacing: 0.25 Station 1: x= y= Station 2: x= y=

Geophones: AZ60 TH 76° Damping: 0.1 Transduction Constant: 0.01
Receiver: 041704

Rec. No.	File Name	Shot Loc.	Receiver Channel Location	No. Stacks	Comments
1	1001.dat	0.25	Directory 041704		Blue Phone Moving
2		0.5			R = away
3		0.75			Geostuff at 4m sub CE
4		1.0			X5 well
5		1.25			
6		1.5			
7		1.75			
8		2.0			
9		2.25			
10		2.50			
11		2.75			
12		3.0			

Red Phone at 4.0m X5 well 041704 0:00

See Topcon → White Tape Line measure SURFACE WALK-A-WAY Blue Phone, 0.0, 3-cup moves Geostuff Reference at 4m sub CE, X5

SURFACE WAVE DATA COLLECTION OBSERVER'S LOG

Date: 17 Apr 2001 Location: X5 well Filters: Low-Cut 0 High-Cut 1000
 Sample Interval: .0025 Number of Samples: 2000 K-gain: 0dB Number Channels: 3
 Station Spacing: .25 Station : x= y= Station : x= y= 76902 mth
 Geophones: Damping: Transduction Constant:

Rec. No.	File Name	Shot Loc.	Receiver Channel Location			No. Stacks	Comments
13		3.25					
14		3.5					
15		3.75					
16		4.0					
17		4.25					
18		4.5					
19		4.75					
20		5.0					
21		5.25					
22		5.5					
23		5.75					
24		6.0					

White Tape Measure Line

SURFACE WAVE DATA COLLECTION OBSERVER'S LOG

Date: 17 April 2001 Location: X5 Filters: Low-Cut 0 High-Cut 1000
 Sample Interval: .00025 Number of Samples: 2000 K-gain: _____ Number Channels: 3
 Station Spacing: .25 Station _____ : x= _____ y= _____ Station _____ : x= _____ y= _____
 Geophones: _____ Damping: _____ Transduction Constant: 76000

Rec. No.	File Name	Shot Loc.	Receiver Channel Location				No. Stacks	Comments
25	6.25	6.25						
26	6.5	6.5						
27	6.75	6.75						
28	7.0	7.0						
29		7.25						
30		7.5						
31		7.75						
32		8.0						
33		8.25						
34		8.5						
35		8.75						
36		9.0						

White Line

SURFACE WAVE DATA COLLECTION OBSERVER'S LOG

Date: 17 April 2001 Location: XS Filters: Low-Cut 0 High-Cut 1000
Sample Interval: .0005 Number of Samples: 2000 K-gain: 0.01 Number Channels: 3
Station Spacing: _____ Station _____ y= _____ x= _____ y= _____
Geophones: _____ Damping: _____ Transduction Constant: 78002

[illegible]

white line

SURFACE WAVE DATA COLLECTION OBSERVER'S LOG

Date: 17 April 2001 Location: X5 Filters: Low-Cut 5 High-Cut 1000
 Sample Interval: .0025 Number of Samples: 2000 K-gain: 0dB Number Channels: 3
 Station Spacing: 1.0 Station : x= y= Station : x= y=
 Geophones: AZ1MUTAH Damping: 140 Transduction Constant: 041705

Rec. No.	File Name	Shot Loc.	Receiver Channel Location			No. Stacks	Comments
1		1.0	ch	ch	ch		Directly 5
2		2.0					1m square
3		3.0					28N2 010 - walk away Phone
4		4.0					
5		5.0					
6		6.0					
7		7.0					
8		8.0					
9		9.0					
10		10.0					
			END	Directory	041705		

Surface Walk-A-Way #2
 (Yellow Tape measure Line)

Date: 17 April 2001 Location: XS Filters: Low-Cut 0 High-Cut 1000 Hz
 Sample Interval: 1000 s Number of Samples: 2000 K-gain: _____ Number Channels: 3
 Station Spacing: 1000 m Station _____ x = _____ y = _____

Geophones: _____ Damping: _____ Transduction Constant: _____

Geophones: NZ north 48° Damping: "Intermediate" Transduction Constant: Directly 041706

[illegible]

Surface w/k-a-way
Between [white & yellow lines]

(1/4/11)

See Topcon Survey

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TOPCON DATA SHEET

Date: 17 April 2001 Project: URISP X5 well

Units: meters / feet

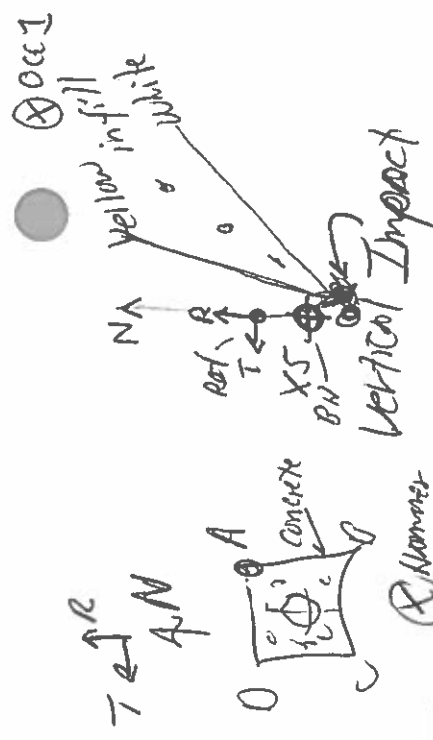
MEDAL Hammer Source

Station	N 1000	E 1000	Z 1000	V:	HR:	Inst. H	Rod H	Comments
Core	only	occupied	point					
A	994.006	989.488	999.811			165cm	1.80	Dcc I
CE	994.010	989.24	1000.43					
Hammer	993.175	989.333	999.667					
Ref	994.886	989.169	999.734					
.25	993.261	989.530	999.700					
.50	993.336	989.732	999.723					
.75	993.422	989.986	999.760					
1.0 m	993.538	990.240	999.766					
2.0 m	993.90	991.185	999.816					
3.0 m	994.210	992.106	999.875					
4.0 m	994.557	993.039	999.897					
5.0 m	994.889	993.981	999.821					
6.0 m	995.205	994.937	999.870					
7.0 m	995.524	995.877	999.867					

Tie Point X5-CE [X = 9963.10, Y = 10023.25, Z = 849.93] URISP (core)

17 April Temporary Coord [X = 994.010, Y = 989.24, Z = 1000.43] meters ALSO shot in C1 and C5 wells

B.143



TOPCON DATA SHEET

Date: 17 April 2001 Project: URISP X-5 well

Units: meters / feet

Station	N	E	Z	V:	HR:	Inst. H	Rod H	Comments
8.0m	995.872	996.803	999.901			165cm	1.80	(In OCC 1 still)
9.0m	996.223	997.747	999.897					
10.0m	996.580	998.672	999.914					
1.0	994.139	989.621	999.747					
2.0	995.121	989.781	999.805					
3.0	996.114	989.957	999.815					
4.0	997.095	990.169	999.824					
5.0	998.023	990.358	999.786					
6.0	999.067	990.546	999.753					
7.0	1000.041	990.722	999.783					
8.0	1001.021	990.931	999.822					
9.0	1002.027	991.101	999.887					
10.0	1002.989	991.316	999.933					
IP1	1000.918	996.038	1000.006					
IP2	997.564	993.703	999.843					

A/White
Yellow
#12

Date: 17 April 2001 Project: U2ispd-5

[illegible]