

818.76 = 6

BSU GEOPHYSICS VSP OBSERVER'S LOG

Phone

Coordinate System Origin at Borehole

Casing Elevation: 7.55 m

Azimuth of X-Axis: 90°

Azimuth of Y-Axis: 0°

Borehole: X = 9620.07 Y = 10187.92 Z = 818.61 m

Channel

Configuration:

Borehole Phone

V=Channel 1

R=Channel 2

T=Channel 3

Reference Phone

V=Channel 4 (C, V)

R=Channel 5 (E, F)

T=Channel 6 (A, B)

Reference Phone

V=Channel 7 (C, V)

R=Channel 8 (E, F)

T=Channel 9 (A, B)

Reference Phone: Offset 5 m

Reference Phone: Azimuth

Reference Phone: Elev. 0

Reference Phone: X = 0

Reference Phone: Y = -650

Vert. (deg.)

Azi. (deg.)

Polarization

V

R

T

Date: 11 Nov 74

Location: RSMW-14. Cap. Station

High Cut 1K Low Cut 5472 Sample Int. 0.2 m

Number of Samples 2500

Shot		Borehole Geophone			Source				Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
0	N080001	8.5	70.52	7.57			0	-1.30	70	↖
1	R500001	15.0							90	90
2		15.0							270	
3		14.5							90	
4		14.5							270	
5		14.0							90	
6		14.0							270	
7		13.5							90	
8		13.5							270	
9		13.0							90	↘

No source
rate
initial
il. 4.4

File Table 4.071

21

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1.35 above
 Azimuth of X-Axis 90
 Azimuth of Y-Axis 0

Reference Phone: 2686-2644
 Offset
 Azimuth
 Elev. 0
 X = 0
 Y = -15

Channel Configuration:

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

Reference Phone
 V=Channel 1
 R=Channel 5
 T=Channel 6

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

Date: 11 Nov 74 Location: RSSW-14 Cap Station
 High Cut 1000 Low Cut 8 Sample Int. 1000 Number of Samples 2500

Shot		Borehole Geophone			Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
10	RSW-14	13.0					0	-1.30	270°	90	
11		12.5							90°		
12		12.5							270°		
13		12.0							90°		
14		12.0							270°		
15		11.5							90°		
16		11.5							270°		
17		11.0							90		
18		11.0							270°		
19		10.5							90°		

12.11

85-1

(2)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 1.55 m above 0
 Azimuth of X-Axis: 90
 Azimuth of Y-Axis: 0

Reference Phone: Offset _____
 Azimuth _____
 Elev. _____
 X = 0
 Y = -1.5 m

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

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

Date: 11 Nov 94 Location: RSMW-14 Capstr
 High Cut 1000 Low Cut 8 Sample Int. .0002 Number of Samples 2500

Shot		Borehole Geophone			Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
20		10.5					0	-1.50	270°	90	
21		10.0					1		90°	1	
22		10.0							270°		
23		9.5							90°		
24		9.5							270		
25		9.0							90°		
26		9.0							270°		
27		8.5							90		
28		8.5							270°	1	
29		8.0						1	90	1	

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 7.35
 Azimuth of X-Axis 90
 Azimuth of Y-Axis 0

Reference Phone: Offset _____
 Azimuth _____
 Elev. _____
 X= 0
 Y= -0.5m

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

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

Date: 11 NOV 74 Location: RS MW - 14 Cap 5th
 High Cut 1000 Low Cut 8 Sample Int. .0002 Number of Samples 2500

Shot		Borehole Geophone			Source					waters			Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical				
30		5.0					0	-1.30	270	90				
31		7.5							90					
32		7.5							270					
33		7.0							90					
34		7.0							270					
35		6.5							90					
36		6.5							270					
37		6.0							90					
38		6.0							270					
39		5.5							90					

12:45

(4)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: +35m
 Azimuth of X-Axis 90
 Azimuth of Y-Axis 0

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0
 X= 0
 Y= -0.5m

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

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

Date: 11 NOV 94 Location: RSING-14
 High Cut 1000 Low Cut 8 Sample Int. .0002 Number of Samples 2500

Shot			Borehole Geophone			Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical		
40		5.5					0	-1.30	270	90		
41		5.0							90			
42		5.0							270			
43		4.5							90			
44		4.5							270			
45		4.0							90			
46		4.0							270			
47		3.5							90			
48		3.5							270			
49		3.0					0	0	270	90		

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole

Casing Elevation: 4.35

Azimuth of X-Axis 90

Azimuth of Y-Axis 0

Reference Phone: Offset

Azimuth

Elev. 4

X= 0

Y= -0.5

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: Azl.(deg.) Vert.(deg.)

V 0 0

R 0 90

T 270 90

Date: 11 Nov 94 Location: RSMW-14

High Cut 1000 Low Cut 8 Sample Int. .0002 Number of Samples 2500

Shot		Borehole Geophone			Source				Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
50		3.0					0	-1.30	270	90	
51		2.5							90		
52		2.5							270		
53		2.0							90		
54		2.0							270		
55		1.5							90		
56		1.5							270		
57		1.0							90		
58		1.0							270		
59											

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 4.35 46
 Azimuth of X-Axis: 90
 Azimuth of Y-Axis: 0

Reference Phone: Offset _____
 Azimuth _____
 Elev. 6
 X = 0
 Y = -0.5m

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

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

Date: 11 Nov 74 Location: RSMW-10
 High Cut 1000 Low Cut 8 Sample Int. .0002 Number of Samples 2500

Vertical Hammer
 Source

P. G. W. F.
 Names

Shot		Borehole Geophone		Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
59		14.5					0	-1.3	0	180
60		14.0								
61		13.5								
62		13.0								
63		12.5								
64		12.0								
65		11.5								
66		11.0								
67		10.5								
68		10.0								

13:42

(7)

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: 7.35
 Azimuth of X-Axis 90
 Azimuth of Y-Axis 0

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0
 X= 0
 Y= -0.5m

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

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

Date: 11 Nov 94 Location: RS MW-14
 High Cut 1000 Low Cut 8 Sample Int. .0002 Number of Samples 2500

Shot		Borehole Geophone		Source					Source Polarization	
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical
69		9.5					0	-1.30	0	150
70		9.0								
71		8.5								
72		8.0								
73		7.5								
74		7.0								
75		6.5								
76		6.0								
77		5.5								
78		5.0								

Veri
 Normy

BSU GEOPHYSICS VSP OBSERVER'S LOG

Coordinate System Origin at Borehole
 Casing Elevation: +35
 Azimuth of X-Axis: 90
 Azimuth of Y-Axis: 0

Reference Phone: Offset _____
 Azimuth _____
 Elev. 0
 X= 0
 Y= 35m

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

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

Date: 11 Nov 88 Location: RS MW-14
 High Cut 1000 Low Cut 8 Sample Int. 0002 Number of Samples 2500

Shot		Borehole Geophone			Source				Source Polarization		
Rec	File	Depth	Elev.	Offset	Azimuth	Elev.	X	Y	Azimuth	Vertical	
77		4.5					0	-1.30	0	180	
80		4.0									
81		3.5									
82		3.0									
83		2.5									
84		2.0									
85		1.5									
86		1.0									
EQ Data											

14:11
 9

DOWN HOLE GEOPHONE FIELD CHECKLIST

DATE: 11 NOV 94
ODOMETER START: 0

FINISH: 12 m!

New odometer

ITEMS AT GEOSCIENCES

ITEM	OUT	IN	COMMENT
SWC TOOL	✓	✓	
REF PHONE AND CABLES	✓	✓	
BISON	✓	✓	Used 1 Roll Paper
TAPE MEASURE (50M)	✓	✓	
PULLEY AND WINCH ASSEM.	✓	✓	
DUMMY SWC TOOL	✓	✓	
SLEDGE HAMMER	✓	✓	
COMPASS	✓	✓	
ROCK HAMMER	✓	✓	
ROPE	✓	✓	
WD-40	✓	✓	
OBSERVER SHEETS/ MAPS	✓	✓	
GAS CARD/ KEYS	✓	✓	
GLOVES	✓	✓	

ITEMS AT LINCOLN STREET

ITEM	OUT	IN	COMMENT
BISON CABLE BOX	✓	✓	
BISON TOOL BOX	✓	✓	
TOOL BOX	✓	✓	
TRIGGER CORD	✓	✓	
TRIPOD HEAD	✓	✓	
BATTERIES (2)	✓✓	✓✓	

LOCATED IN GARAGE

TRIPOD LEGS	✓✓✓	✓	
RAIL ROAD TIE	✓	✓	
SHOVEL	✓	✓	
PICK	✓	✓	
2 FT IRON ROD	✓✓✓	✓	

Sand Bags
Rock Box

✓✓✓
✓✓

USPCI

LOG

BORING NO. RS-MW-14

A subsidiary of
Union Pacific Corporation

Page 1 of 0

WELL NO. RS-MW-14

CLIENT: UP RAILROAD				JOB NO.: 96222		
PROJECT: BOISE, FRONT STREET				LOCATION: BOISE, IDAHO		
DRILLED BY: LAYNE ENV.		DRILLER: R. JIMENEZ		METHOD: HAMMER		
START DATE: 11-21-91		COMP. DATE: 11-21-91		SURF. EL.: 2686.26 FT.		TD: FT. BGS
LOGGED BY:		MEAS. PT. EL.: FT.		D. T. WATER: FT. BGS		
WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVA DDM	SAMPLE NUMBER	TPH DDM
	0.0 to 8.0	soil/fill FILL.	FL	NO	MW-14A MW-14B	
	8.0 to 12	sand and cobbles (2") COARSE GRAINED SAND, GRAVEL AND COBBLES 1.5" TO 2" IN DIAMETER.	SP			
	12 to 15	sand and cobbles (6") SAND, GRAVEL AND COBBLES UP TO 6" DIA.	SP			
	15 to 40	sand and cobbles SAND AND COBBLES. WATER.	SP			
	40 to 45	sand and cobbles (2") SAND AND COBBLES. AVERAGE SIZE 2" DIA.	SP			
	45 to 50	sand COARSE GRAINED QUARTS SAND.	SP			
	50 to 60	sand and silt SAND AND SILT WITH SOME BROWN CLAY.	SM			
	60 to 63	tan clay BLACK CLAY.	CL			
	63 to 64.5	blue silt BROWN SAND.	SP			
	64.5 to 65	sand				

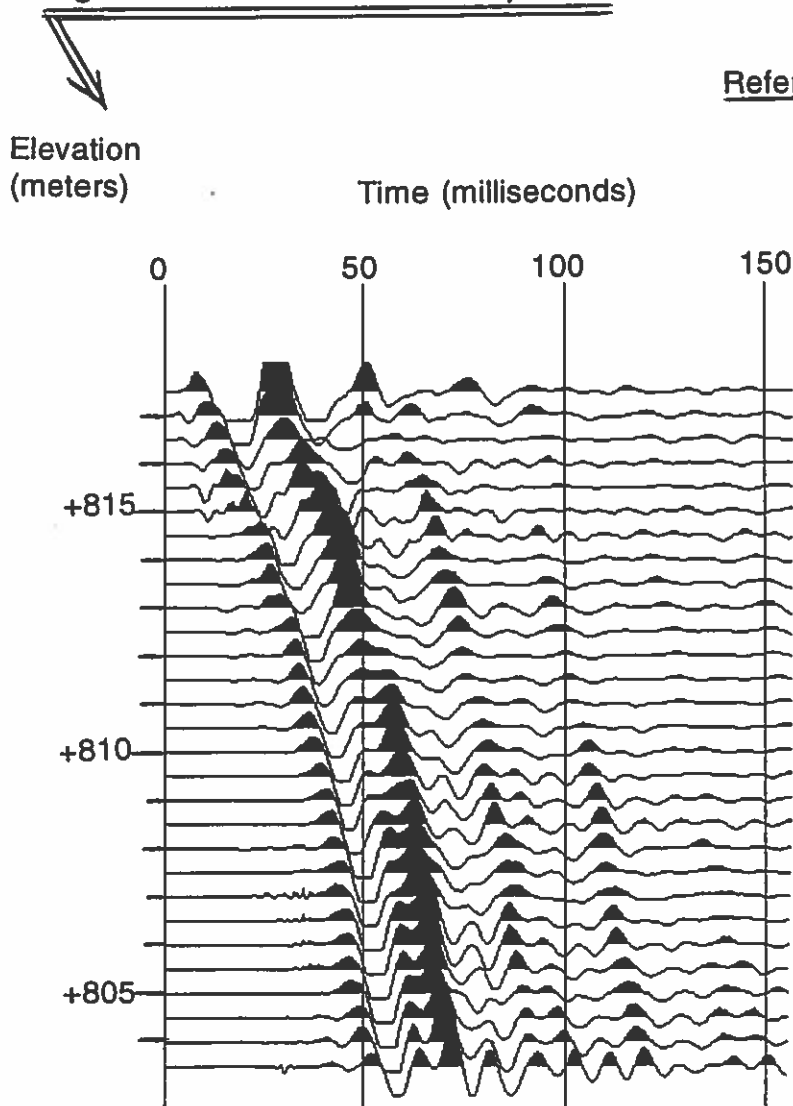
JOB NUMBER: 96222

Shear-Wave Vertical Seismic Profile

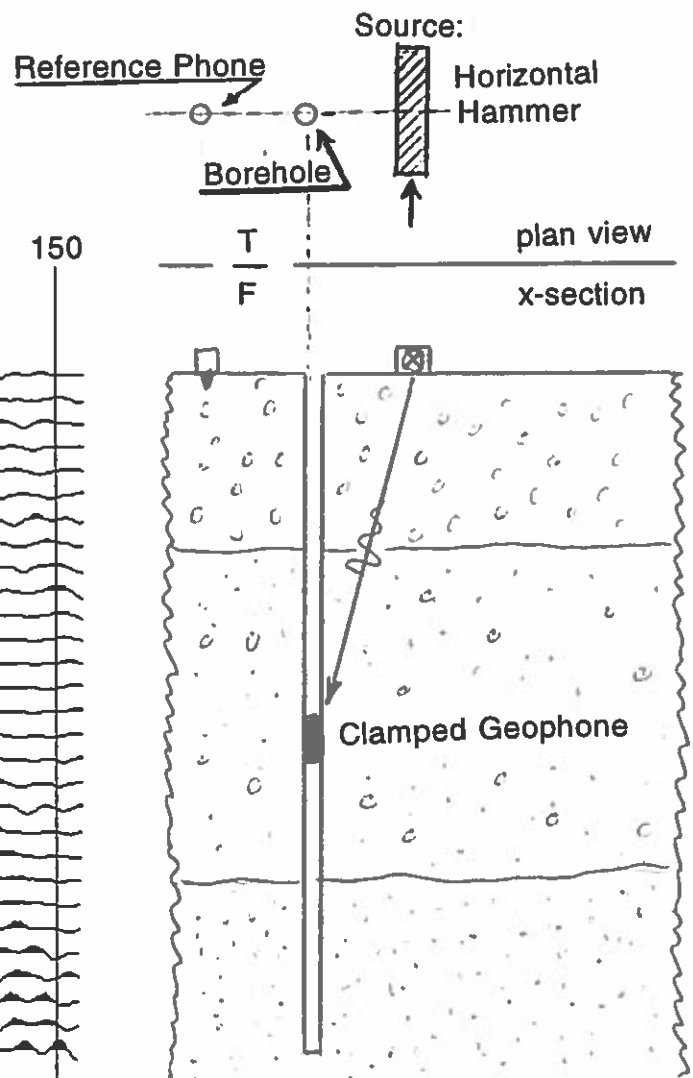
Boise State University
Center For Geophysical Investigation of the Shallow Subsurface
1910 University Drive
Boise, Idaho 83725

Capital Station
Well No. RS-MW-14
Date: 11 Nov 94
Dr. Paul Michaels

Signals From Borehole Geophone



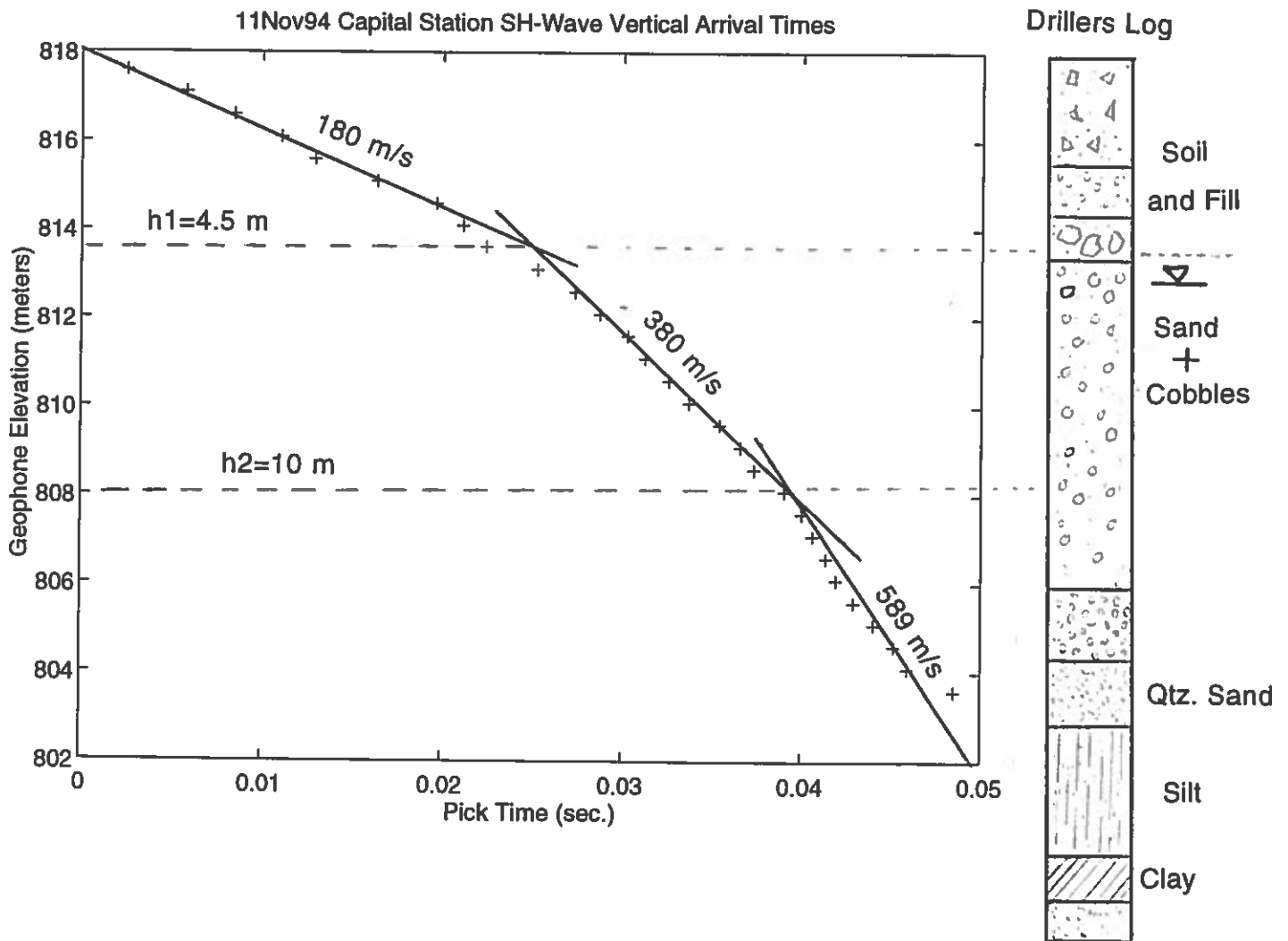
Experiment



SH-Wave Vertical Travel Times

Boise State University
Center For Geophysical Investigation of the Shallow Subsurface
1910 University Drive
Boise, Idaho 83725

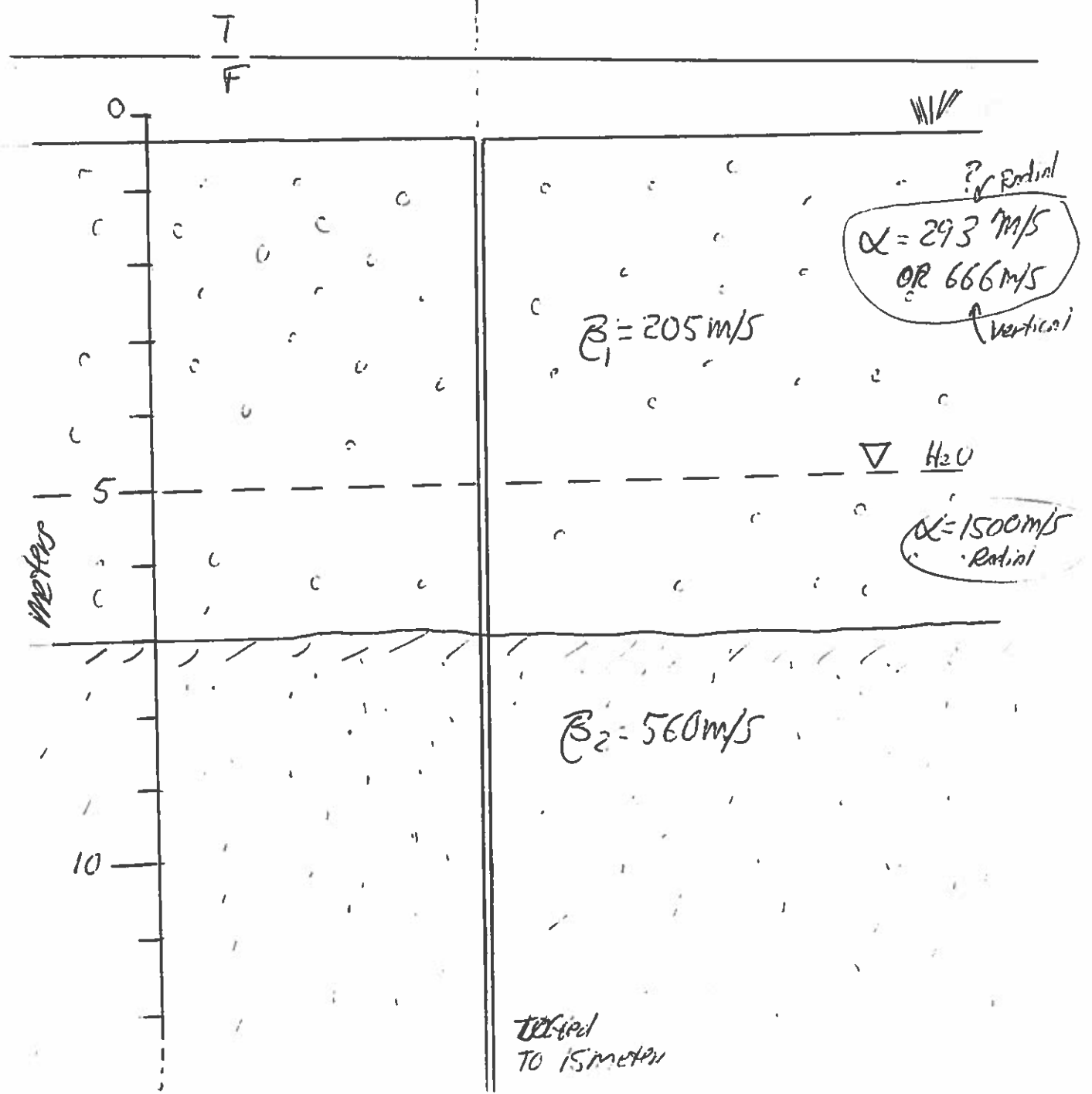
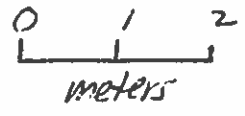
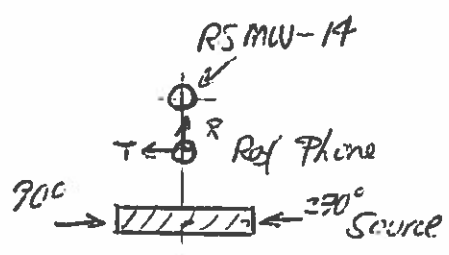
Capital Station
Well No. RS-MW-14
Date: 11 Nov 94
Dr. Paul Michaels



11 NOV 94
 Capital Station
 RS MW-14
 Preliminary
 Analysis



SN-wave Good
 P-wave Poor
 Due to poor coupling
 of OYO Tool in Vertical

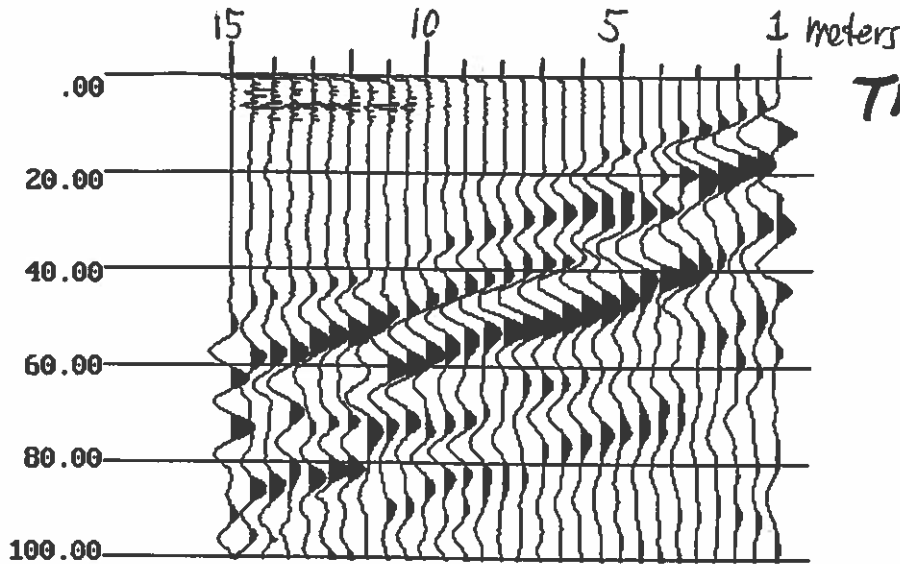


11 NOV 94 Capital Station KJMN-14

3 N-wave source

Raw Data

Transverse T.E. Plot

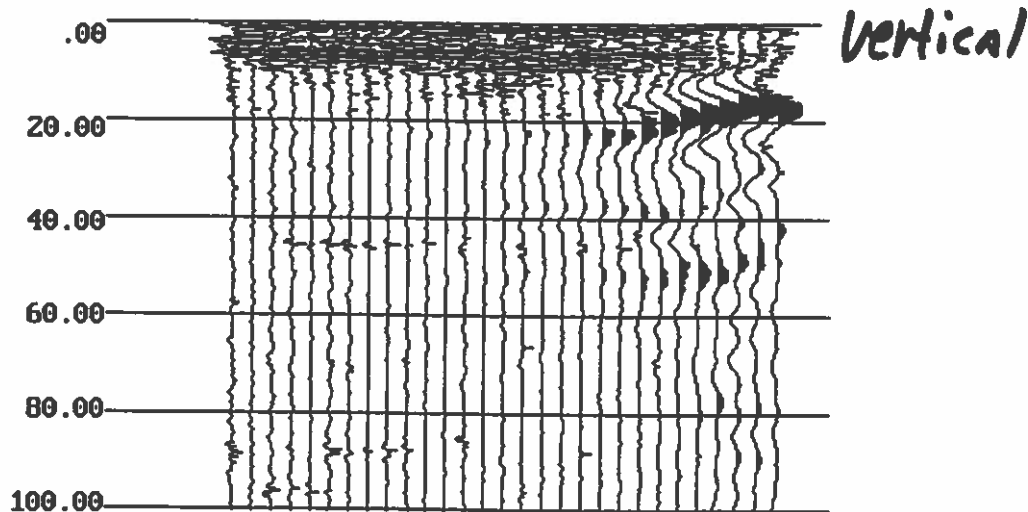
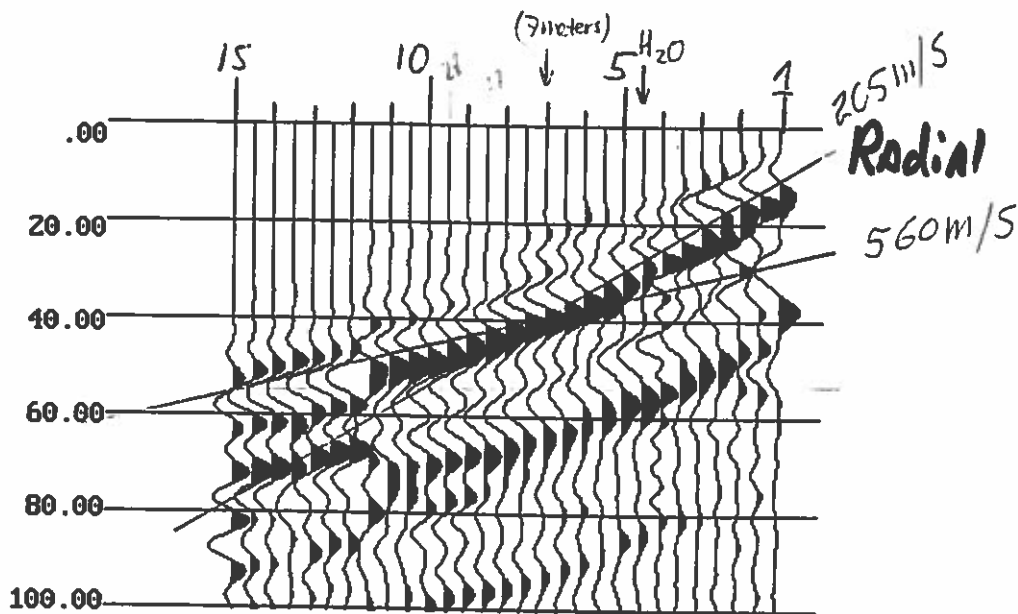


270° Source AZ,

90°

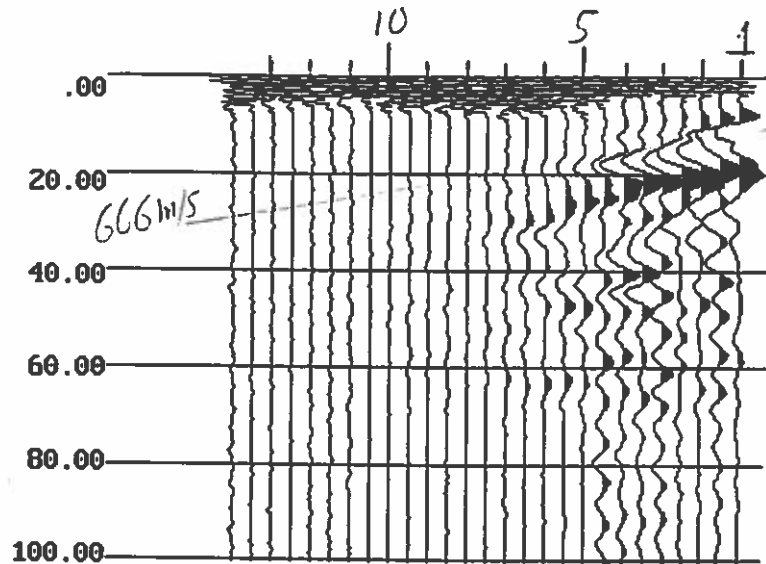
Non-Rotated

DATA



11 NOV 94 Capital Station RSMU-14

Vertical Hammer

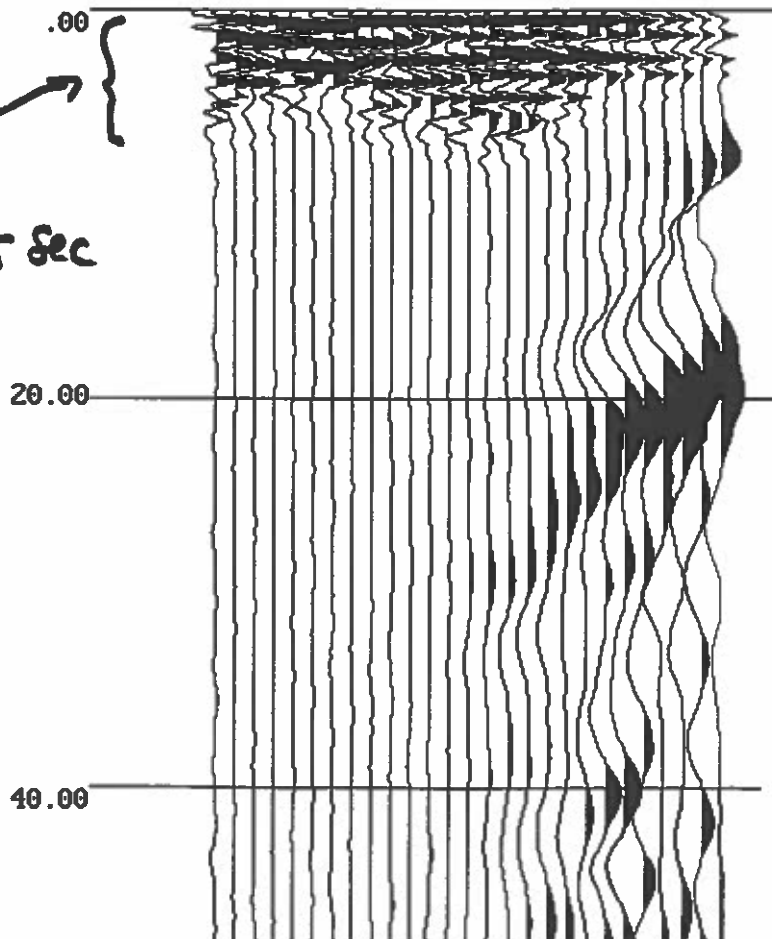


Vertical Comp.

Next,

Mute
Out
Noise

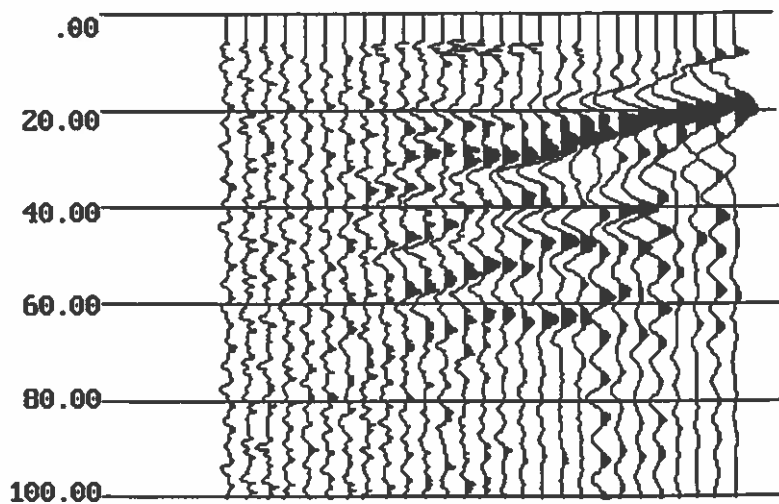
0-.005 Sec



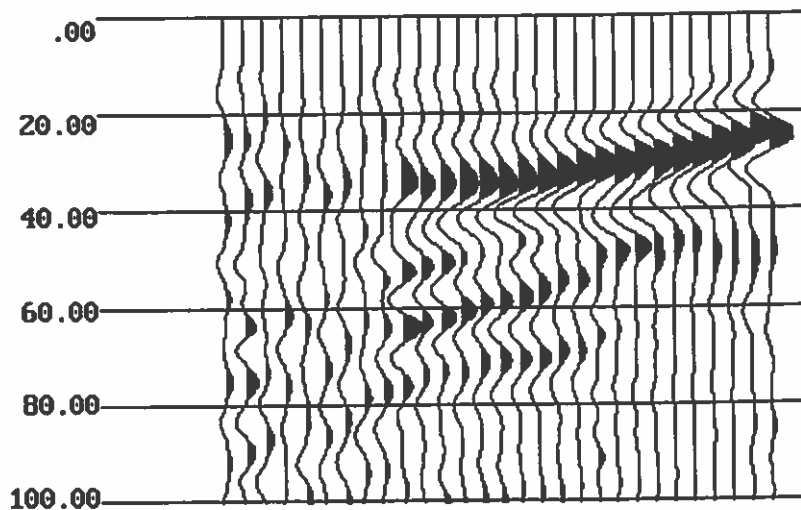
Blow up

11 NOV 94 Capitol Station RSMW-19

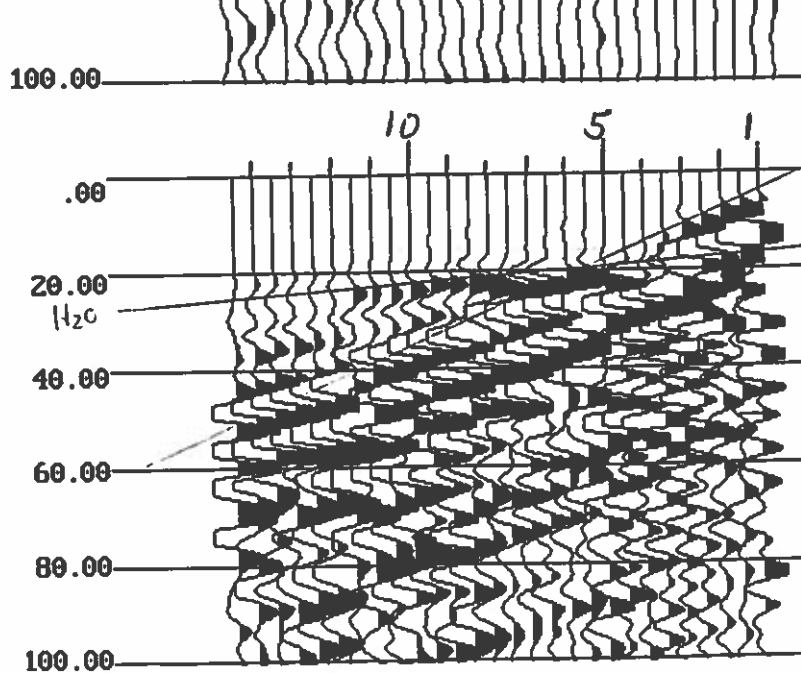
Vertical Hammer



Vert. Component
Noise Muted out



Filtered
0-50 Hz



293 m/s Air
Radial Component
1500 m/s
Vertical Hammer



SIMPLOT 1994 ELEVATION SURVEY

CAPITAL STATION DEVELOPMENT SITE - BOISE, IDAHO

P. WHELAN, P.E. ID 4094 - AUGUST, 1994

*Initial Elevation
8/30/94*

(INITIAL ELEVATION TAKEN FROM REPORTED ADA COUNTY HIGHWAY CHISEL SQUARE POINT AT
NER OF 8TH AND FRONT LESS 0.52' TO MATCH ELEVATION PLANE USED FOR ORIGINAL PROJECT)
(ALL POINTS CLOSED WITH PRECISION OF $\pm 1/2"$)

(C2691.92' = elv at top of casing B2692.22' = elv at top of box)

LL #	FT ASL	WELL #	FT ASL	WELL #	FT ASL	WELL #	FT ASL
13Th/ at St)	2685.26'	MW1-A Top Locked Cap	B2687.18'	BM 11Th/ Front St	2689.60'	BM 8Th/ Front St	2695.39'
1-1 SMW	C2685.89'	MVE A-1	C2691.92' ✓ B2692.22'	MVE B-1	C2690.96' ✓ B2691.25'	MVE C-1	C2689.98' ✓ B2690.50'
1-3	C2689.72'	MSP A-1 ✓	C2691.28' ✓ B2691.88'	MSP B-1	C2690.10' ✓ B2690.60'	MSP C-1	C2690.85' ✓ B2691.20'
-5	C2692.91'	MVE A-2	C2691.15' ✓ B2691.50'	MVE B-2	C2689.55' ✓ B2689.87'	MVE C-2	C2690.28' ✓ B2690.53'
-6	C2692.58'	MSP A-2 ✓	C2690.48' ✓ B2691.08'	MSP B-2	C2689.60' ✓ B2690.16'	MSP C-2	C2690.17' ✓ B2690.47'
-8	C2693.37'	MVE A-3	C2689.25' ✓ B2689.62'	MVE B-3	C2688.89' ✓ B2689.33'	MVE C-3	C2690.90' ✓ B2691.00'
-9	C2696.49'	MSP A-3 ✓	C2689.27' ✓ B2689.62'	MSP B-3	C2689.03' ✓ B2689.23'		
-10	C2694.10' ✓	MVE A-4 ✓	C2689.01' ✓ B2689.23'	MVE B-4	C2687.78' ✓ B2688.07'	GW-1	C2689.24'
-11	C2688.00' ✓	MSP A-4 ✓	C2688.63' ✓ B2688.93'	MSP B-4	C2687.18' ✓ B2687.58'	GW-2	C2688.16'
-12	C2685.44' ✓	MVE A-5	C2688.31' ✓ B2688.58'	MVE B-5	C2686.85' ✓ B2687.17'	GW-3	C2688.63'
13 ✓	C2687.65' ✓	MSP A-5 ✓	C2687.64' ✓ B2687.97'	MSP B-5	C2686.19' ✓ B2686.60'	GW-4	C2687.79'
14 ✓	C2686.26' ✓	MVE A-6	C2687.09' ✓ B2687.37'	MVE B-6	C2686.24' ✓ B2686.58'	GW-5	C2682.40'
15	C2689.59' ✓	MSP A-6	C2687.11' ✓ B2687.50'			GW-6	C2689.15'
16	C2691.61' ✓						
17	C2692.13' ✓						
18	C2692.64' ✓						
19	C2694.86' ✓						
1	C2689.90' ✓						

PH