

Appendix 2:

Seismic Lines

THE SPREAD FILE D:\170412\200.LPK WAS MADE FROM THE FILES
200.BPK

SIPTC V-4.0 For Quality Control of ES-2401, SmartSeis & StrataView files

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For Final Interpretation, add Elev, Y-Loc, etc., and re run in SIPT

TITLE: LINE NUMBER 5-5 FILE200.LPK

DATE: 4-17-2012 TIME: 23:28

Spread A contains 1 Shotpoints and 24 Geophones. Distance units: meters.

SP	Elev	X-Loc	Y-Loc	Depth
A	.0	-2.5	.0	.0

Arrival Times T and Layers L

Geo	Elev	X-Loc	Y-Loc	SP	A
1	.0	-2.5	.0	5.5	1
2	.0	2.5	.0	15.0	1
3	.0	7.5	.0	35.5	1
4	.0	12.5	.0	45.5	1
5	.0	17.5	.0	54.0	1
6	.0	22.5	.0	60.5	1
7	.0	27.5	.0	68.5	2
8	.0	32.5	.0	72.0	2
9	.0	37.5	.0	75.0	2
10	.0	42.5	.0	77.0	2
11	.0	47.5	.0	81.5	2
12	.0	52.5	.0	84.5	2
13	.0	57.5	.0	87.5	2
14	.0	62.5	.0	89.0	2
15	.0	67.5	.0	93.5	2
16	.0	72.5	.0	97.0	2
17	.0	77.5	.0	103.5	2
18	.0	82.5	.0	108.5	2
19	.0	87.5	.0	111.0	2
20	.0	92.5	.0	114.0	2
21	.0	97.5	.0	118.0	2
22	.0	102.5	.0	121.5	2
23	.0	107.5	.0	124.5	2
24	.0	112.5	.0	126.0	2

Depths of layers directly beneath Shotpoints and Geophones for Spread A:

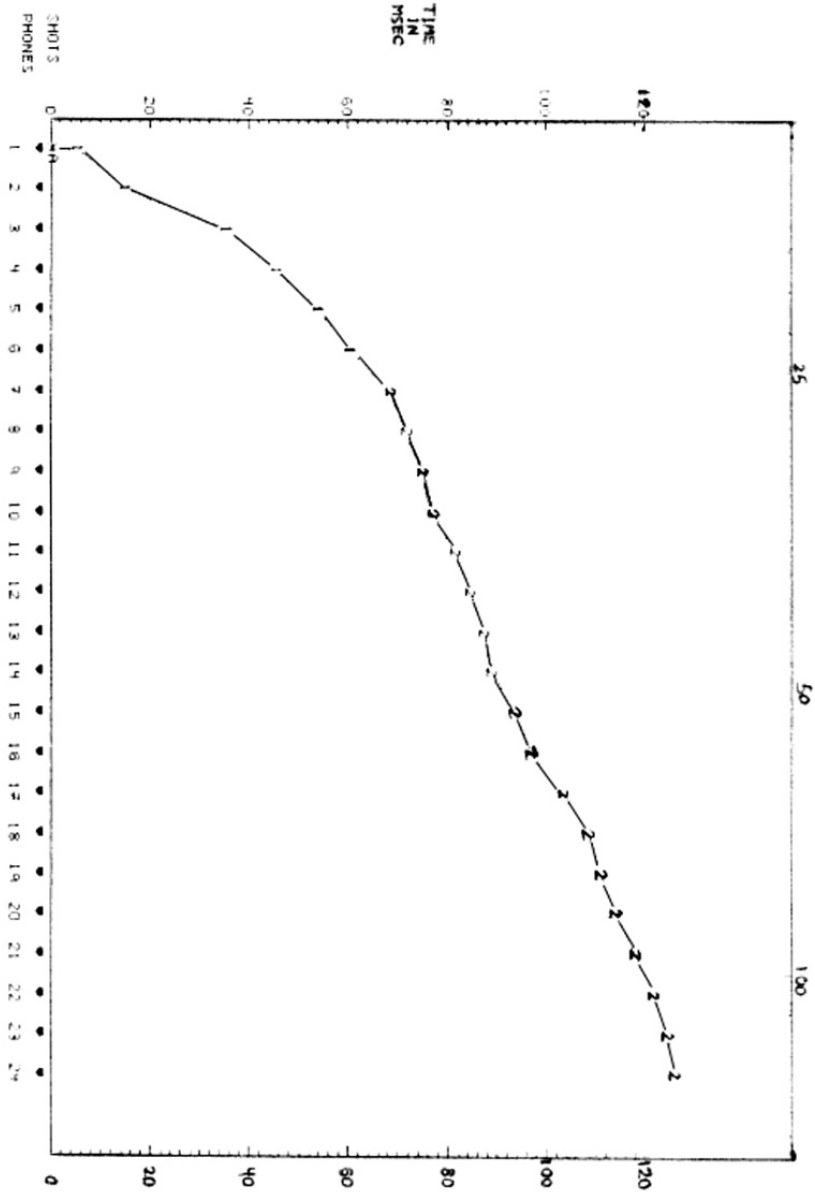
SP	X-Loc	Layer 2
A	-2.5	8.2
Geo		
1	-2.5	8.2
2	2.5	8.3
3	7.5	8.3
4	12.5	8.4
5	17.5	8.4
6	22.5	8.5
7	27.5	8.6
8	32.5	8.5
9	37.5	8.3
10	42.5	8.1
11	47.5	8.0
12	52.5	7.8
13	57.5	7.6
14	62.5	7.4
15	67.5	7.5
16	72.5	8.0
17	77.5	8.4
18	82.5	8.5
19	87.5	8.6
20	92.5	8.5
21	97.5	8.4
22	102.5	8.3
23	107.5	8.0
24	112.5	7.8

**Times arrival of seismic waves beneath the
seismic line 5- 5**

Velocities used:

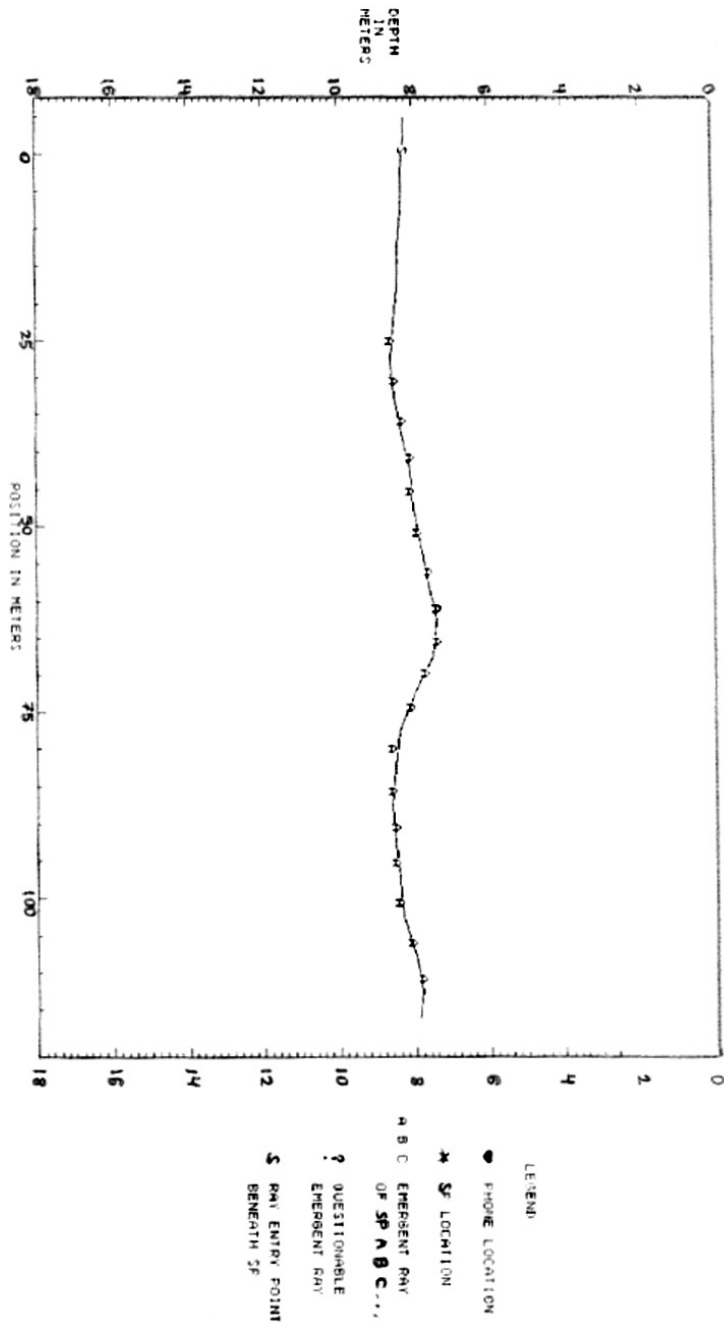
Layer 1	Layer 2
346.	1400. n/s

LINE NUMBER 5-5 FILE200.LPK
TIME - DISTANCE PLOT



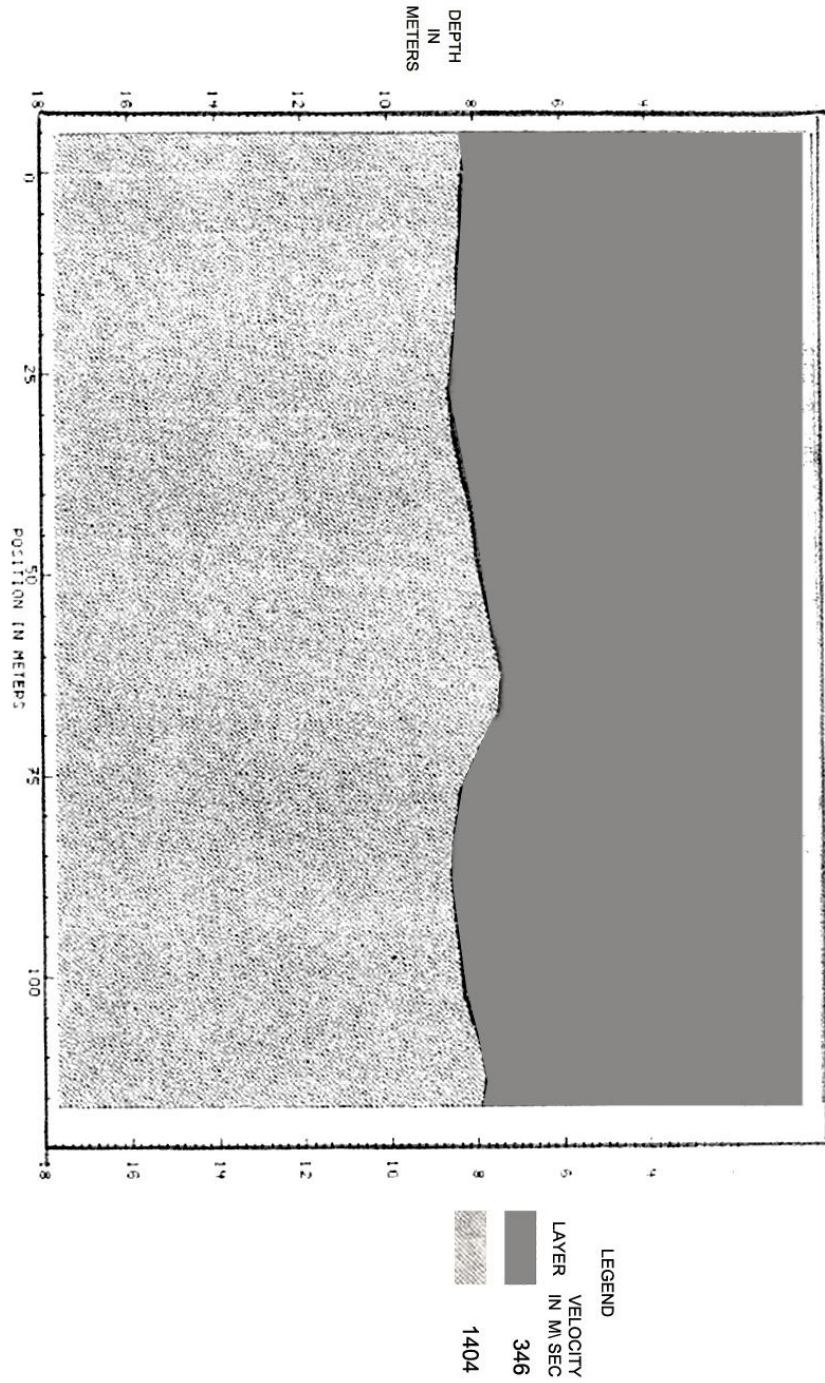
Travel Time Curve for Seismic line 5-5

LINE NUMBER 5-5 FILE200.LPK
 DEPTH PLOT



Refraction waves at the second layer surface beneath the seismic line 5-5

LINE NUMBER 5-5 FILE200.LPK
DEPTH PLOT



Subsurface Geological cross- section beneath seismic line 5-5

THE SPREAD FILE D:\170412\203.LPK WAS MADE FROM THE FILES
203.BPK

SIPQC V-4.0 For Quality Control of ES-2401, SmartSeis & StratView

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For Final Interpretation, add Elev, V-Loc, etc., and re-run on SIPQC

TITLE: LINE NUMBER 6-6 FILE203.LPK

DATE: 4-17-2012 TIME: 23:11

Spread A contains 1 Shotpoints and 24 Geophones. Distance units: meters.

SP	Elev	X-Loc	Y-Loc	Depth
A	.0	-2.5	.0	.0

Arrival Times T and Layers L

Geo	Elev	X-Loc	Y-Loc	SP	A	T	L
1	.0	-2.5	.0	8.5	1		
2	.0	2.5	.0	13.0	1		
3	.0	7.5	.0	18.5	1		
4	.0	12.5	.0	24.0	1		
5	.0	17.5	.0	28.5	1		
6	.0	22.5	.0	35.5	1		
7	.0	27.5	.0	39.0	1		
8	.0	32.5	.0	43.5	1		
9	.0	37.5	.0	50.0	1		
10	.0	42.5	.0	52.0	1		
11	.0	47.5	.0	55.0	1		
12	.0	52.5	.0	58.5	1		
13	.0	57.5	.0	65.0	2		
14	.0	62.5	.0	69.5	2		
15	.0	67.5	.0	71.5	2		
16	.0	72.5	.0	73.5	2		
17	.0	77.5	.0	76.5	2		
18	.0	82.5	.0	78.5	2		
19	.0	87.5	.0	80.0	2		
20	.0	92.5	.0	81.5	2		
21	.0	97.5	.0	84.0	2		
22	.0	102.5	.0	87.5	2		
23	.0	107.5	.0	89.0	2		
24	.0	112.5	.0	90.0	2		

Depths of layers directly beneath Shotpoints and Geophones for Spread A:

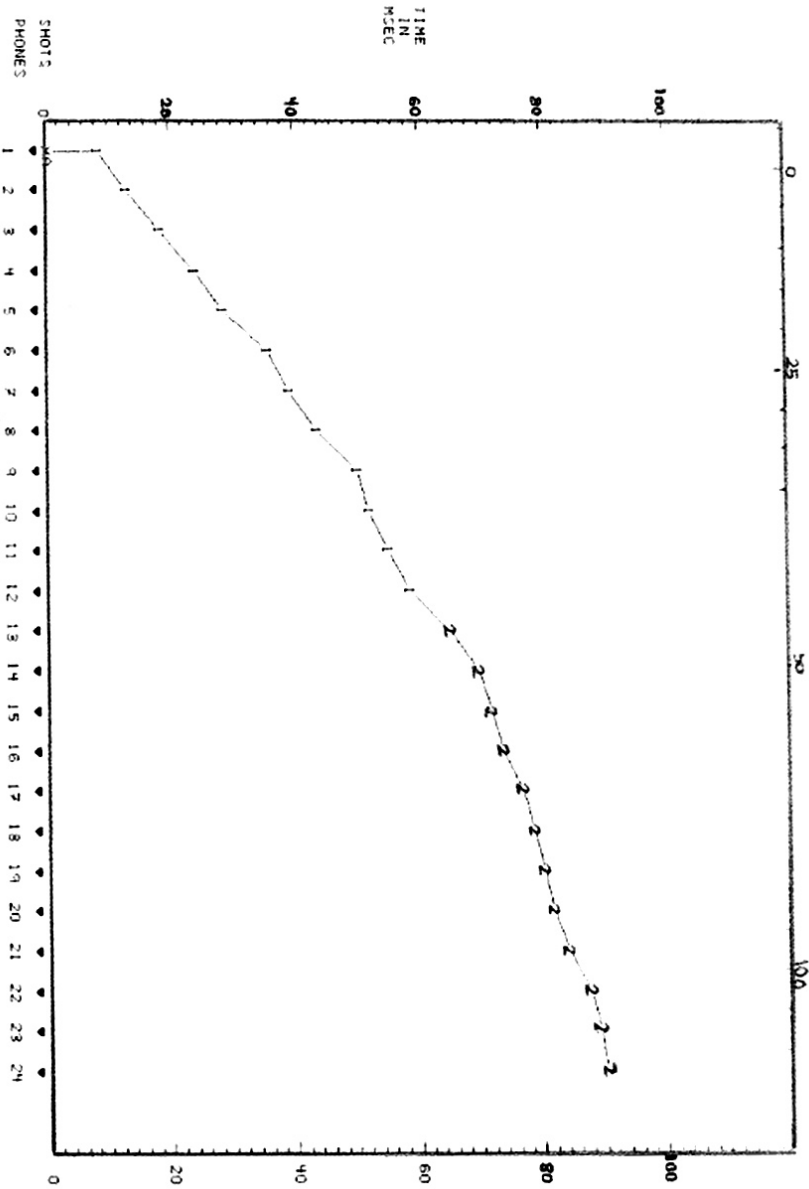
SP	X-Loc	Layer 2
A	-2.5	15.6
Geo		
1	-2.5	15.6
2	2.5	15.5
3	7.5	15.4
4	12.5	15.3
5	17.5	15.2
6	22.5	15.2
7	27.5	15.1
8	32.5	15.0
9	37.5	14.9
10	42.5	14.8
11	47.5	14.7
12	52.5	14.6
13	57.5	15.2
14	62.5	15.0
15	67.5	15.0
16	72.5	16.0
17	77.5	15.9
18	82.5	15.5
19	87.5	15.1
20	92.5	15.4
21	97.5	15.3
22	102.5	15.3
23	107.5	14.9
24	112.5	14.9

**Times arrival of seismic waves beneath the
seismic line 6- 6**

Velocities used:

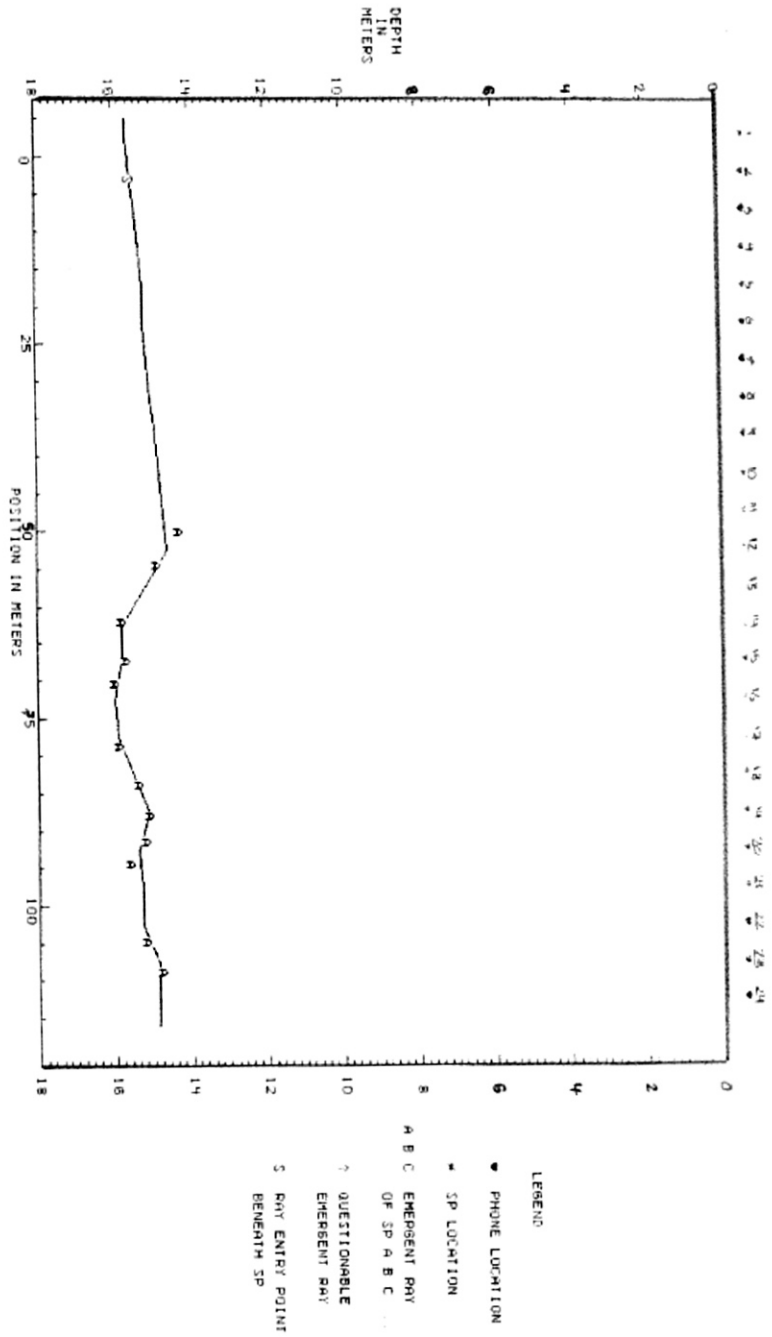
Layer 1	Layer 2
731.	2264. m/s

LINE NUMBER 6-6 FILE203.LPK
TIME - DISTANCE PLOT



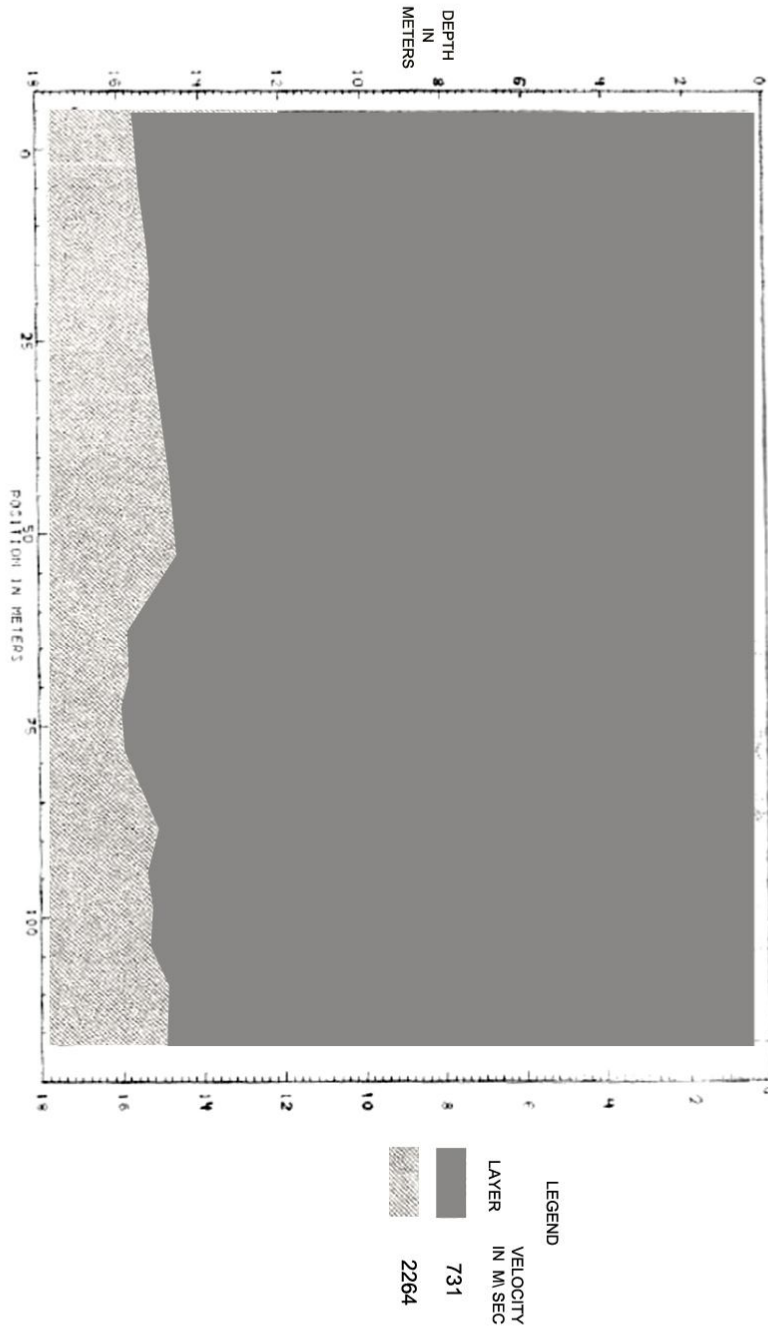
Travel Time Curve for Seismic line 6-6

LINE NUMBER 6-6 FILE203.LPK
DEPTH PLOT



Refraction waves at the second layer surface beneath the seismic line 6-6

LINE NUMBER 6-6 FILE203.LPK
DEPTH PLOT



Subsurface Geological cross- section beneath seismic line 6-6

THE SPREAD FILE D:\170412\208.LPK WAS MADE FROM THE FILES
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For Final Interpretation, add Elev, Y-Loc, etc., and re-run on

TITLE: LINE NUMBER 7-7 FILE208.LPK

DATE: 4-17-2012 TIME: 22:59

Spread A contains 1 Shotpoints and 24 Geophones. Distance units: meters.

SP	Elev	X-Loc	Y-Loc	Depth
A	.0	117.5	.0	.0

Arrival Times T and Layers L

Geo	Elev	X-Loc	Y-Loc	SP	A
1	.0	-2.5	.0	100.0	2
2	.0	2.5	.0	105.0	2
3	.0	7.5	.0	101.5	2
4	.0	12.5	.0	100.5	2
5	.0	17.5	.0	97.5	2
6	.0	22.5	.0	94.5	2
7	.0	27.5	.0	91.5	2
8	.0	32.5	.0	89.5	2
9	.0	37.5	.0	86.5	2
10	.0	42.5	.0	83.5	2
11	.0	47.5	.0	79.5	2
12	.0	52.5	.0	73.0	1
13	.0	57.5	.0	71.5	1
14	.0	62.5	.0	65.5	1
15	.0	67.5	.0	60.0	1
16	.0	72.5	.0	53.0	1
17	.0	77.5	.0	50.5	1
18	.0	82.5	.0	46.0	1
19	.0	87.5	.0	38.5	1
20	.0	92.5	.0	31.5	1
21	.0	97.5	.0	28.0	1
22	.0	102.5	.0	19.5	1
23	.0	107.5	.0	12.0	1
24	.0	112.5	.0	4.5	1

Depths of layers directly beneath Shotpoints and Geophones for Spread A

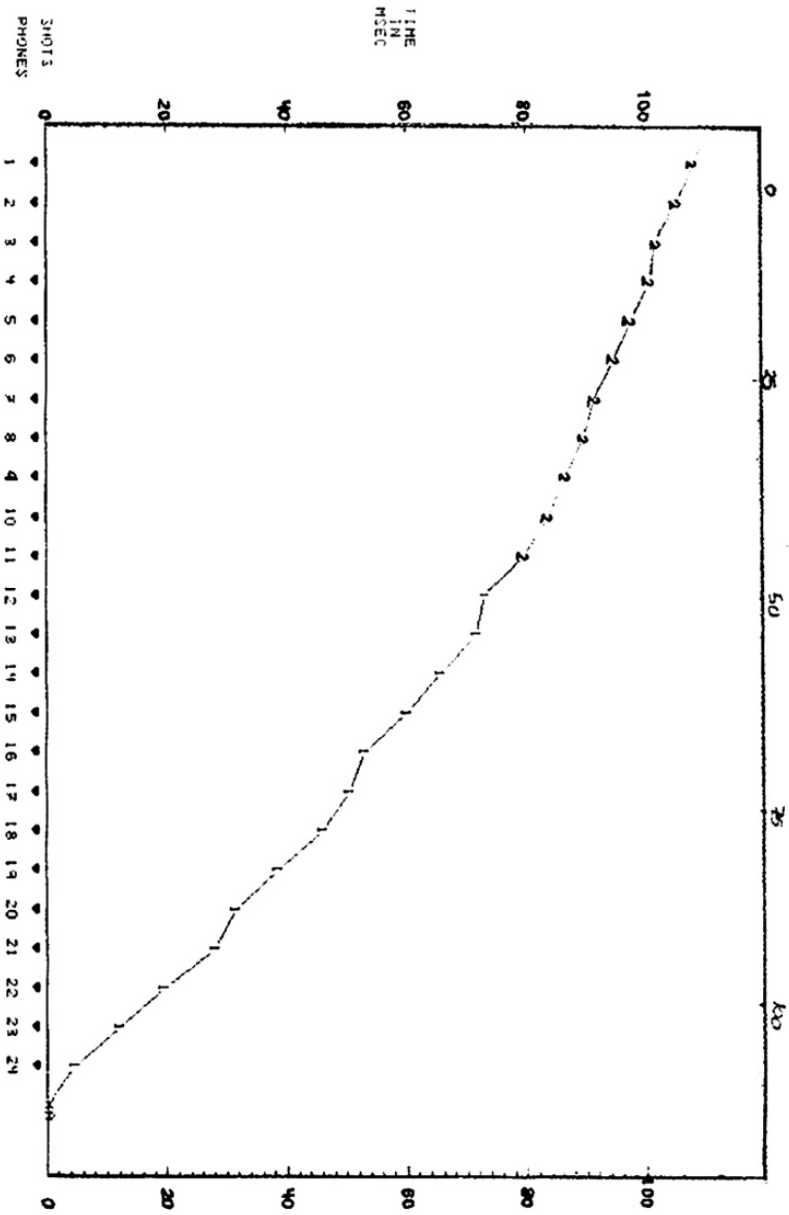
SP	X-Loc	Layer 2
A	117.5	19.8
Geo		
1	-2.5	19.6
2	2.5	19.6
3	7.5	19.6
4	12.5	19.4
5	17.5	19.1
6	22.5	20.1
7	27.5	20.1
8	32.5	19.9
9	37.5	19.8
10	42.5	20.1
11	47.5	20.1
12	52.5	19.6
13	57.5	19.1
14	62.5	19.1
15	67.5	19.2
16	72.5	19.3
17	77.5	19.3
18	82.5	19.4
19	87.5	19.4
20	92.5	19.5
21	97.5	19.6
22	102.5	19.6
23	107.5	19.7
24	112.5	19.8

Velocities used:

Layer 1	Layer 2
831.	1824. n/s

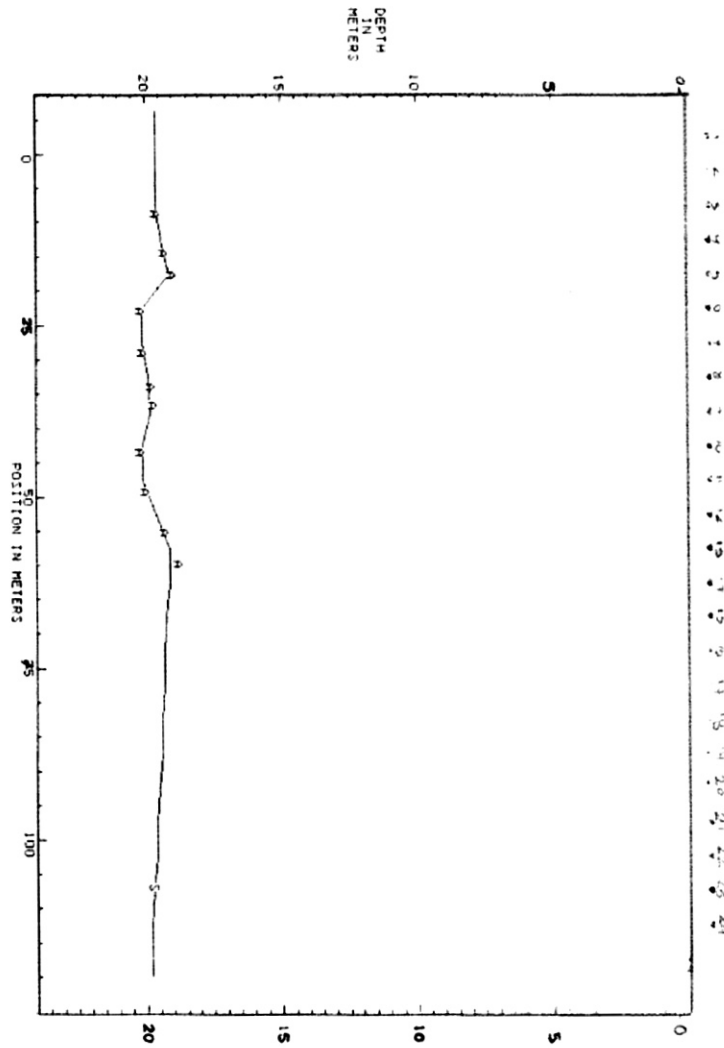
Times arrival of seismic waves beneath the
seismic line 7-7

LINE NUMBER 7-7 FILE200.LPK
TIME - DISTANCE PLOT



Travel Time Curve for Seismic line 7-7

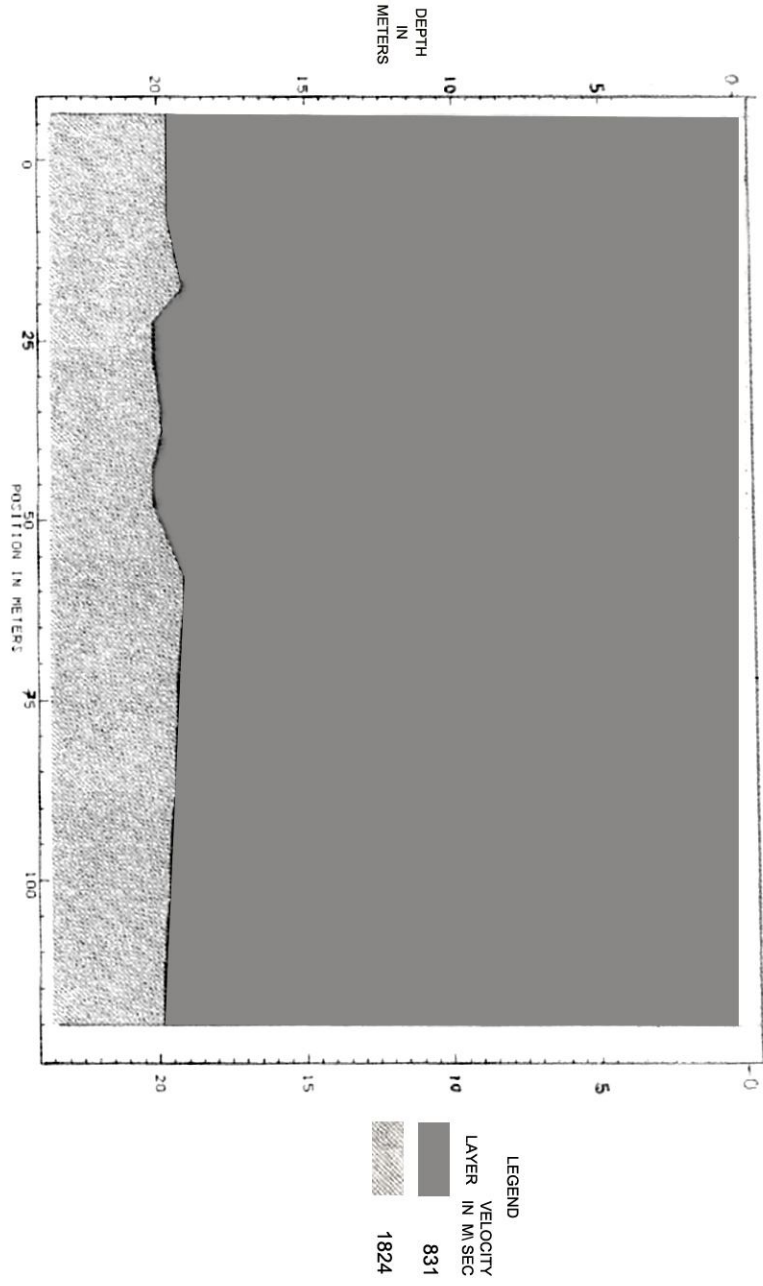
LINE NUMBER 7-7 FILE208.LPK
DEPTH PLOT



- LEGEND
- PHONE LOCATION
 - * SP LOCATION
 - A B C EMERGENT RAY OF SP A B C
 - ? QUESTIONABLE EMERGENT RAY
 - S RAY ENTRY POINT BENEATH SP

Refraction waves at the second layer surface beneath the seismic line 7-7

LINE NUMBER 7-7 FILE208.LPK
DEPTH PLOT



Subsurface Geological cross- section beneath seismic line 7-7

THE SPREAD FILE D:\170412\209.LPK WAS MADE FROM THE FILES
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TITLE: LINE NUMBER 8-8 FILE209.LPK

DATE: 4-17-2012 TIME: 22:17

Spread A contains 1 Shotpoints and 24 Geophones. Distance units: meters.

SP	Elev	X-Loc	V-Loc	Depth
A	.0	-2.5	.0	.0

Arrival Times T and Layers L

Geo	Elev	X-Loc	V-Loc	SP	A
1	.0	-2.5	.0	7.5	1
2	.0	2.5	.0	12.5	1
3	.0	7.5	.0	29.5	1
4	.0	12.5	.0	36.5	1
5	.0	17.5	.0	42.5	1
6	.0	22.5	.0	49.1	1
7	.0	27.5	.0	54.3	1
8	.0	32.5	.0	59.5	2
9	.0	37.5	.0	62.0	2
10	.0	42.5	.0	64.5	2
11	.0	47.5	.0	66.0	2
12	.0	52.5	.0	67.5	2
13	.0	57.5	.0	68.0	2
14	.0	62.5	.0	70.0	2
15	.0	67.5	.0	72.0	2
16	.0	72.5	.0	73.5	2
17	.0	77.5	.0	75.0	2
18	.0	82.5	.0	77.5	2
19	.0	87.5	.0	79.0	2
20	.0	92.5	.0	80.5	2
21	.0	97.5	.0	83.0	2
22	.0	102.5	.0	84.0	2
23	.0	107.5	.0	85.0	2
24	.0	112.5	.0	86.5	2

Depths of layers directly beneath Shotpoints and Geophones for Spread A:

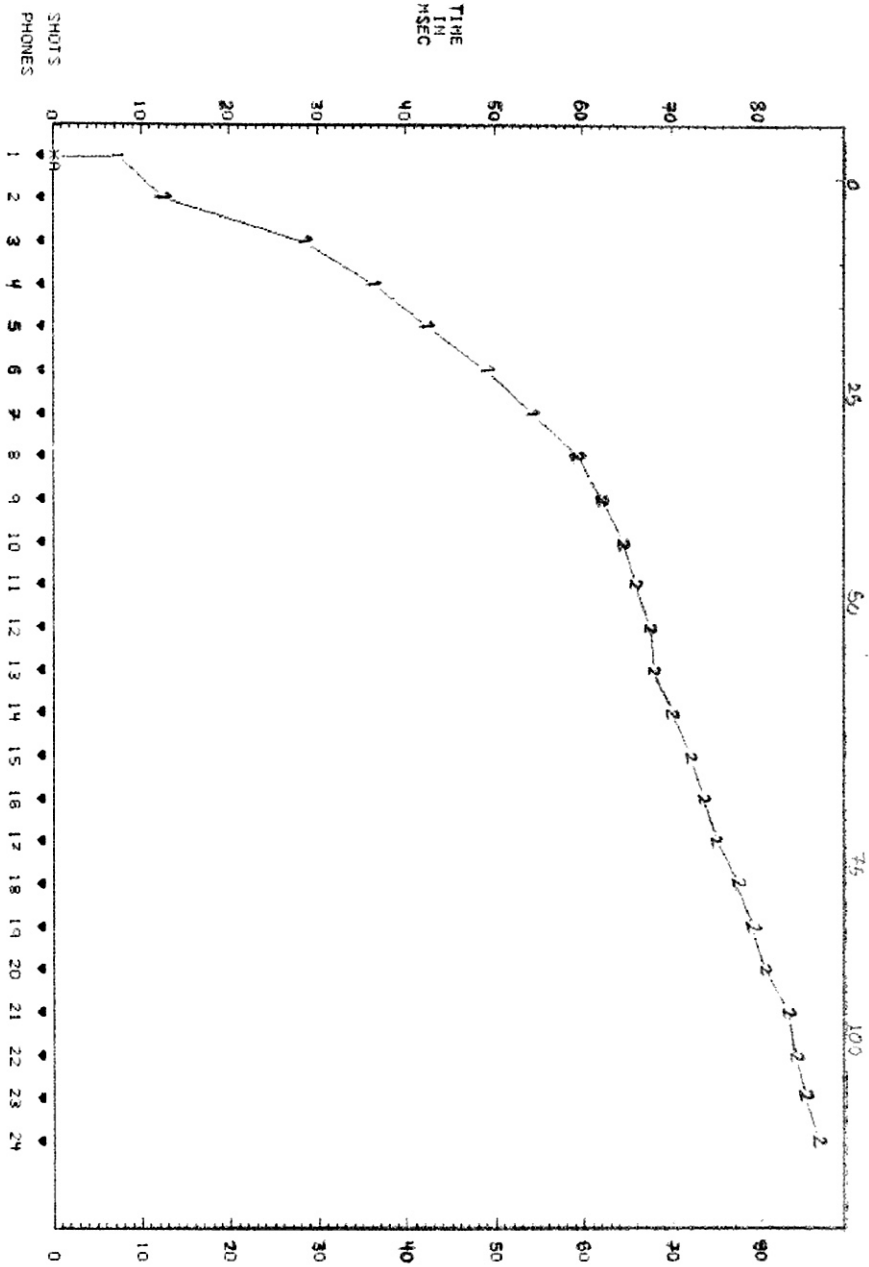
SP	X-Loc	Layer 2
A	-2.5	11.0
Geo		
1	-2.5	11.0
2	2.5	11.0
3	7.5	11.0
4	12.5	11.0
5	17.5	11.0
6	22.5	11.0
7	27.5	10.9
8	32.5	10.9
9	37.5	11.1
10	42.5	11.3
11	47.5	11.2
12	52.5	11.1
13	57.5	10.9
14	62.5	10.9
15	67.5	10.9
16	72.5	11.0
17	77.5	11.0
18	82.5	11.1
19	87.5	11.2
20	92.5	11.2
21	97.5	11.2
22	102.5	11.1
23	107.5	10.9
24	112.5	10.8

Times arrival of seismic waves beneath the
seismic line 8- 8

Velocities used:

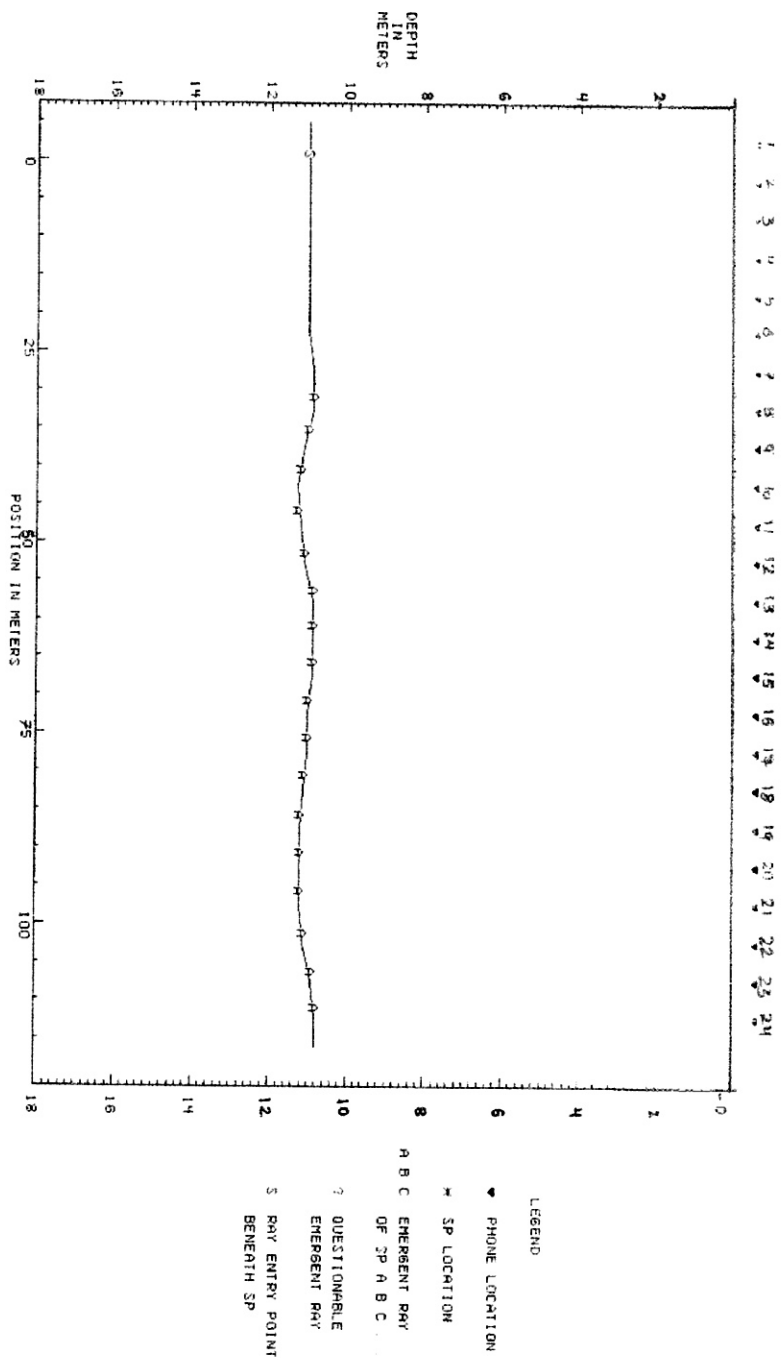
Layer 1	Layer 2	
449.	2991.	m/s

LINE NUMBER 8-8 FILE209.LPK
TIME - DISTANCE PLOT



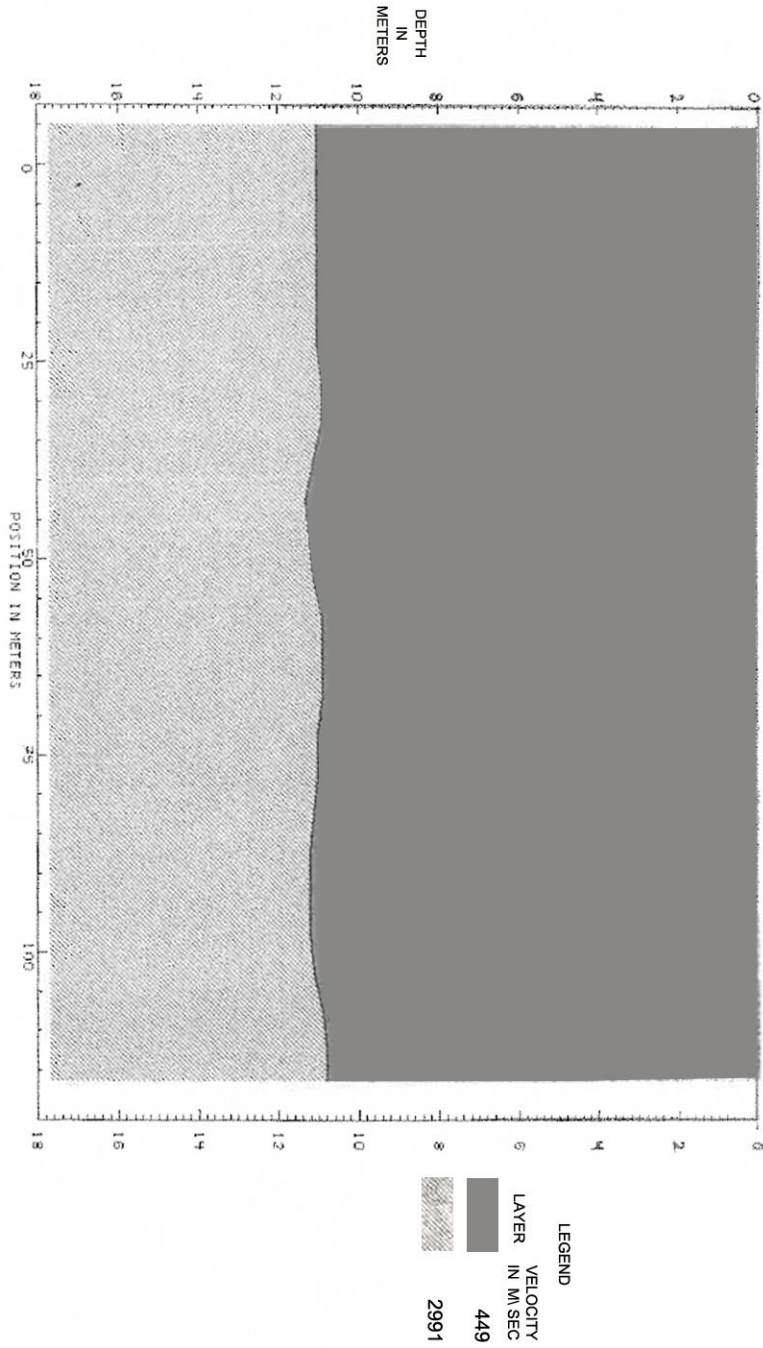
Travel Time Curve for Seismic line 8-8

LINE NUMBER 8-8 FILE209.LPK
 DEPTH PLOT



Refraction waves at the second layer surface beneath the seismic line 8-8

LINE NUMBER 8-8 FILE209.LPK
DEPTH PLOT



Subsurface Geological cross- section beneath seismic line 8-8

THE SPREAD FILE D:\190412\212.LPK WAS MADE FROM THE FILES
212.LPK

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For Final Interpretation, add Elev, Y-Loc, etc., and re-yrds

TITLE: LINE NUMBER 9-9 FILE212.LPK

DATE: 4-22-2012 TIME: 2:01

Spread A contains 1 Shotpoints and 24 Geophones. Distance units

SP	Elev	X-Loc	Y-Loc	Depth
A	.0	-2.5	.0	.0

Arrival Times T and Layers L

Geo	Elev	X-Loc	Y-Loc	SP	A
1	.0	-2.5	.0	26.0	1
2	.0	2.5	.0	30.0	1
3	.0	7.5	.0	36.0	1
4	.0	12.5	.0	39.5	1
5	.0	17.5	.0	46.5	1
6	.0	22.5	.0	52.5	1
7	.0	27.5	.0	59.0	1
8	.0	32.5	.0	65.0	1
9	.0	37.5	.0	70.5	1
10	.0	42.5	.0	76.0	1
11	.0	47.5	.0	85.5	2
12	.0	52.5	.0	90.5	2
13	.0	57.5	.0	94.0	2
14	.0	62.5	.0	99.5	2
15	.0	67.5	.0	106.0	2
16	.0	72.5	.0	109.5	2
17	.0	77.5	.0	113.5	2
18	.0	82.5	.0	117.5	2
19	.0	87.5	.0	120.0	2
20	.0	92.5	.0	124.5	2
21	.0	97.5	.0	126.5	2
22	.0	102.5	.0	129.0	2
23	.0	107.5	.0	131.5	2
24	.0	112.5	.0	137.0	2

Depths of layers directly beneath Shotpoints and Geophones for Spread A:

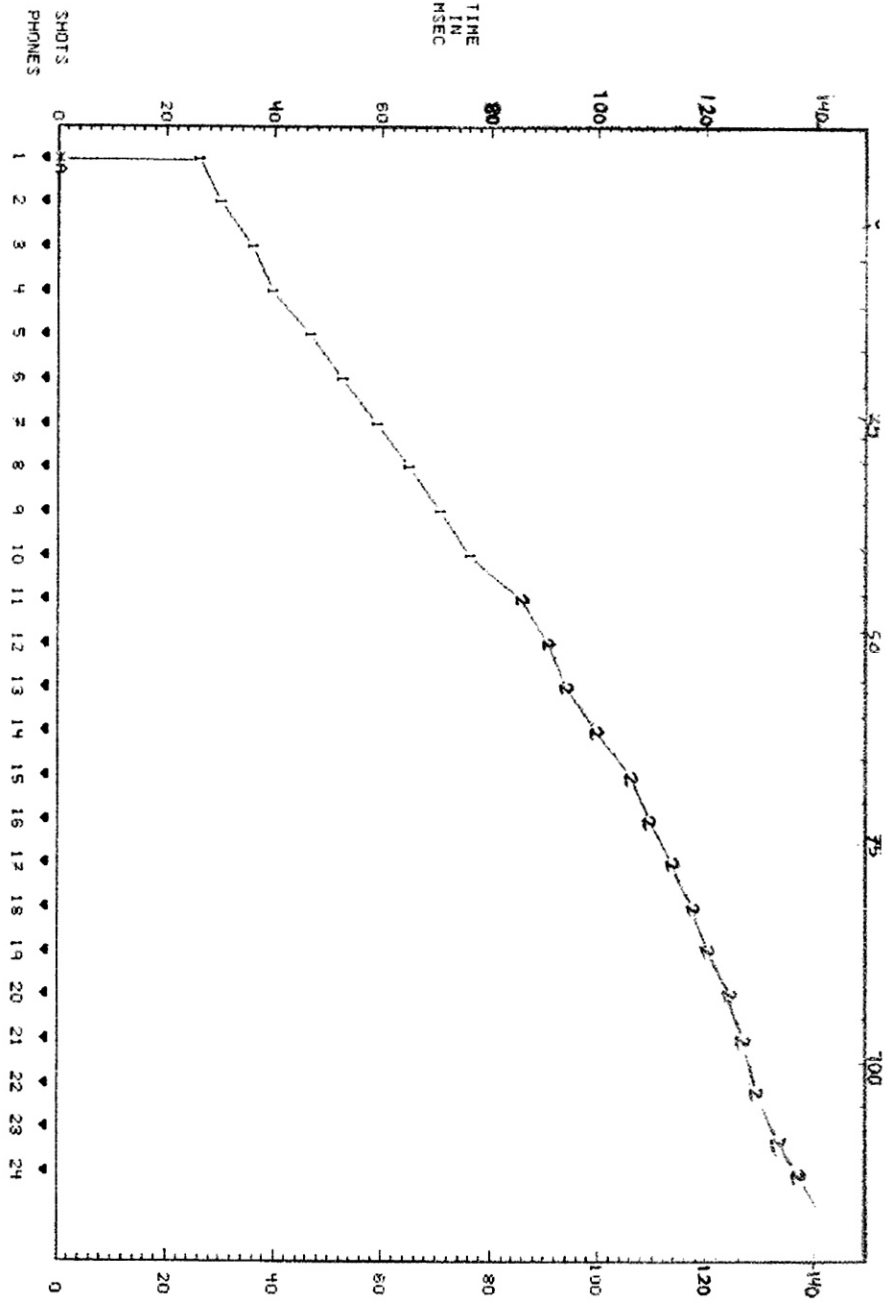
SP	X-Loc	Layer 2
A	-2.5	11.6
Geo		
1	-2.5	11.6
2	2.5	11.5
3	7.5	11.4
4	12.5	11.2
5	17.5	11.1
6	22.5	11.0
7	27.5	10.9
8	32.5	10.8
9	37.5	10.6
10	42.5	10.5
11	47.5	10.6
12	52.5	10.9
13	57.5	11.5
14	62.5	12.4
15	67.5	12.5
16	72.5	12.6
17	77.5	12.5
18	82.5	12.2
19	87.5	12.0
20	92.5	11.5
21	97.5	11.0
22	102.5	10.7
23	107.5	10.7
24	112.5	10.6

**Times arrival of seismic waves beneath the
seismic line 9- 9**

Velocities used:

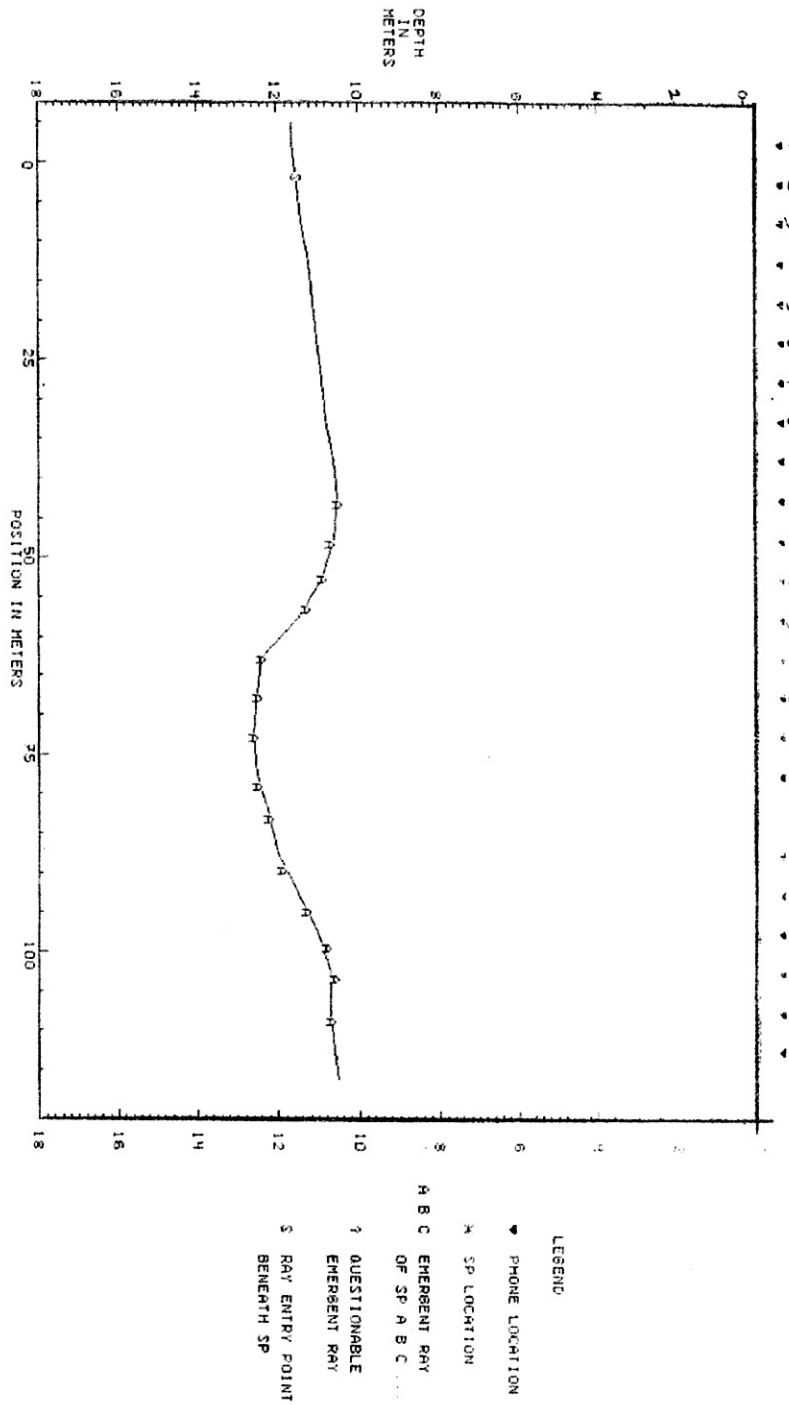
Layer 1	Layer 2
437.	1298. m/s

LINE NUMBER 9-9 FILE212.LPK
TIME - DISTANCE PLOT



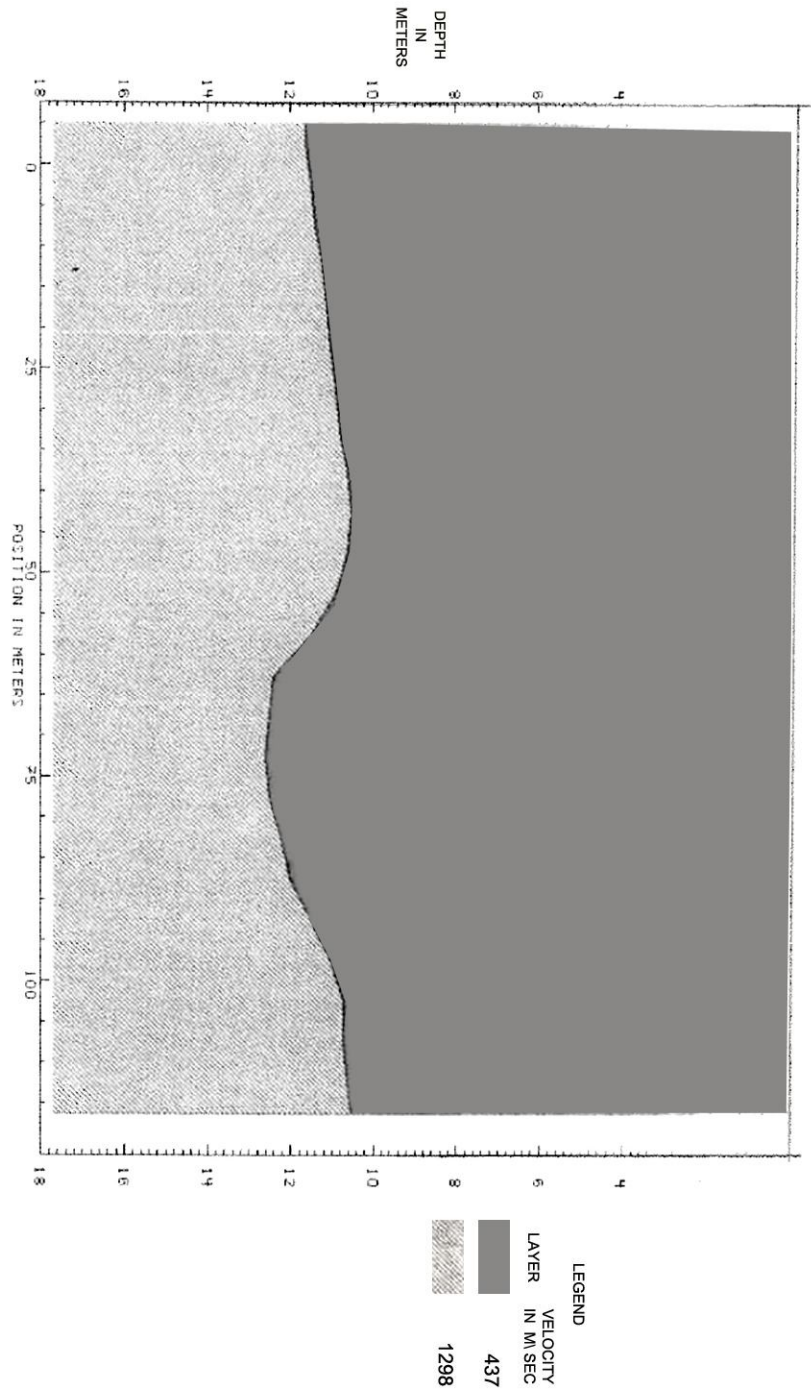
Travel Time Curve for Seismic line 9-9

LINE NUMBER 9-9 FILE212.LPK
 DEPTH PLOT



Refraction waves at the second layer surface beneath the seismic line 9-9

LINE NUMBER 9-9 FILE212.LPK
DEPTH PLOT



Subsurface Geological cross- section beneath seismic line 9-9

THE SPREAD FILE D:\198412\217.LPK WAS MADE FROM THE FILES
217.BPK

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For Final Interpretation, add Elev, Y-Loc, etc., and re-run on

TITLE: LINE NUMBER 10-10 FILE217.LPK

DATE: 4-22-2012 TIME: 0:09

Spread A contains 1 Shotpoints and 24 Geophones. Distance

SP	Elev	X-Loc	Y-Loc	Depth
A	.0	117.5	.0	.0

Arrival Times T and Layers L

Geo	Elev	X-Loc	Y-Loc	SP	A
1	.0	-2.5	.0	102.0	2
2	.0	2.5	.0	97.5	2
3	.0	7.5	.0	94.5	2
4	.0	12.5	.0	92.5	2
5	.0	17.5	.0	91.5	2
6	.0	22.5	.0	87.5	2
7	.0	27.5	.0	84.5	2
8	.0	32.5	.0	82.5	2
9	.0	37.5	.0	80.5	2
10	.0	42.5	.0	69.5	1
11	.0	47.5	.0	66.5	1
12	.0	52.5	.0	61.0	1
13	.0	57.5	.0	57.5	1
14	.0	62.5	.0	54.5	1
15	.0	67.5	.0	51.0	1
16	.0	72.5	.0	46.0	1
17	.0	77.5	.0	42.0	1
18	.0	82.5	.0	35.0	1
19	.0	87.5	.0	31.5	1
20	.0	92.5	.0	26.0	1
21	.0	97.5	.0	21.0	1
22	.0	102.5	.0	15.0	1
23	.0	107.5	.0	8.0	1
24	.0	112.5	.0	4.5	1

Depths of layers directly beneath Shotpoints and Geophones for Spread A:

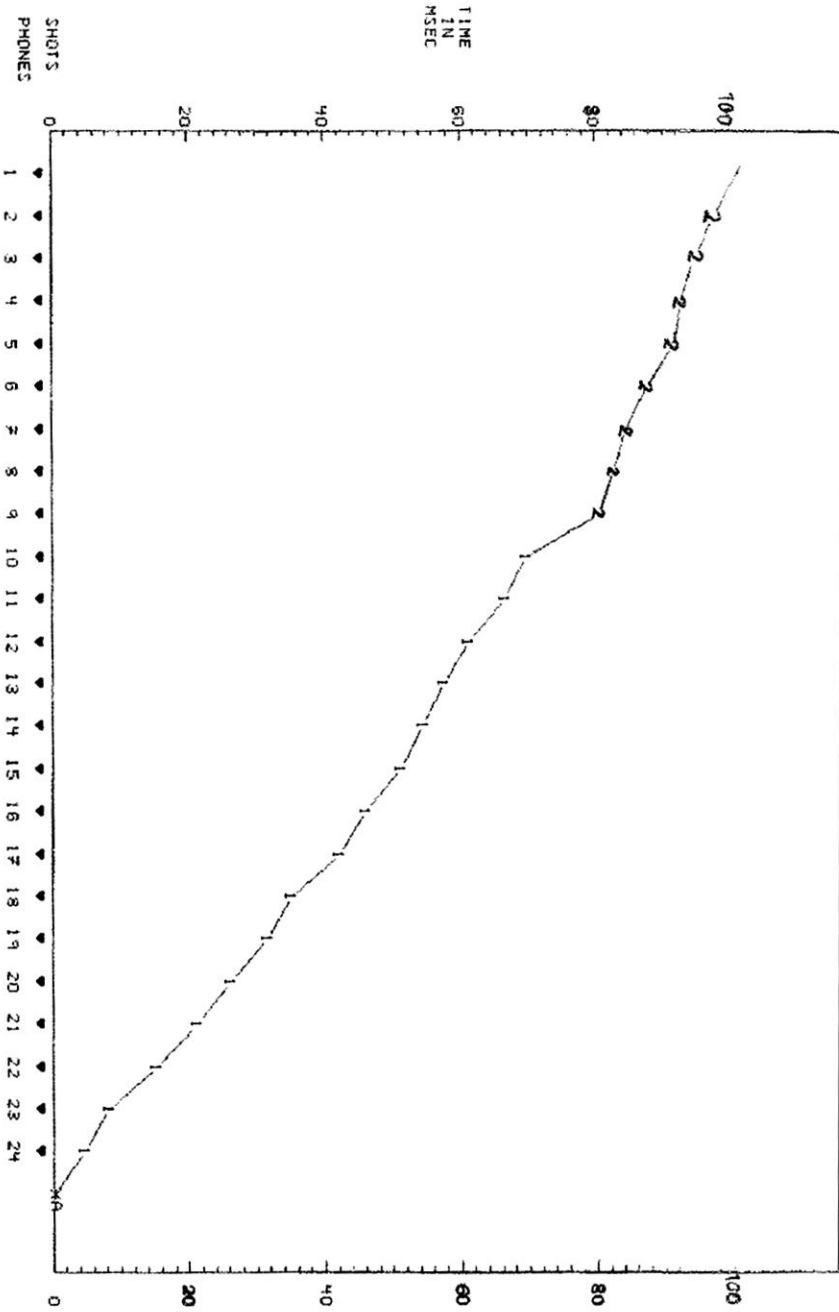
SP	X-Loc	Layer 2
A	117.5	23.0
Geo		
1	-2.5	22.1
2	2.5	22.2
3	7.5	22.4
4	12.5	22.5
5	17.5	22.7
6	22.5	22.4
7	27.5	23.3
8	32.5	23.2
9	37.5	23.1
10	42.5	22.8
11	47.5	23.4
12	52.5	23.9
13	57.5	23.8
14	62.5	23.8
15	67.5	23.7
16	72.5	23.6
17	77.5	23.6
18	82.5	23.5
19	87.5	23.4
20	92.5	23.3
21	97.5	23.3
22	102.5	23.2
23	107.5	23.1
24	112.5	23.1

**Times arrival of seismic waves beneath the
seismic line 10- 10**

Velocities used:

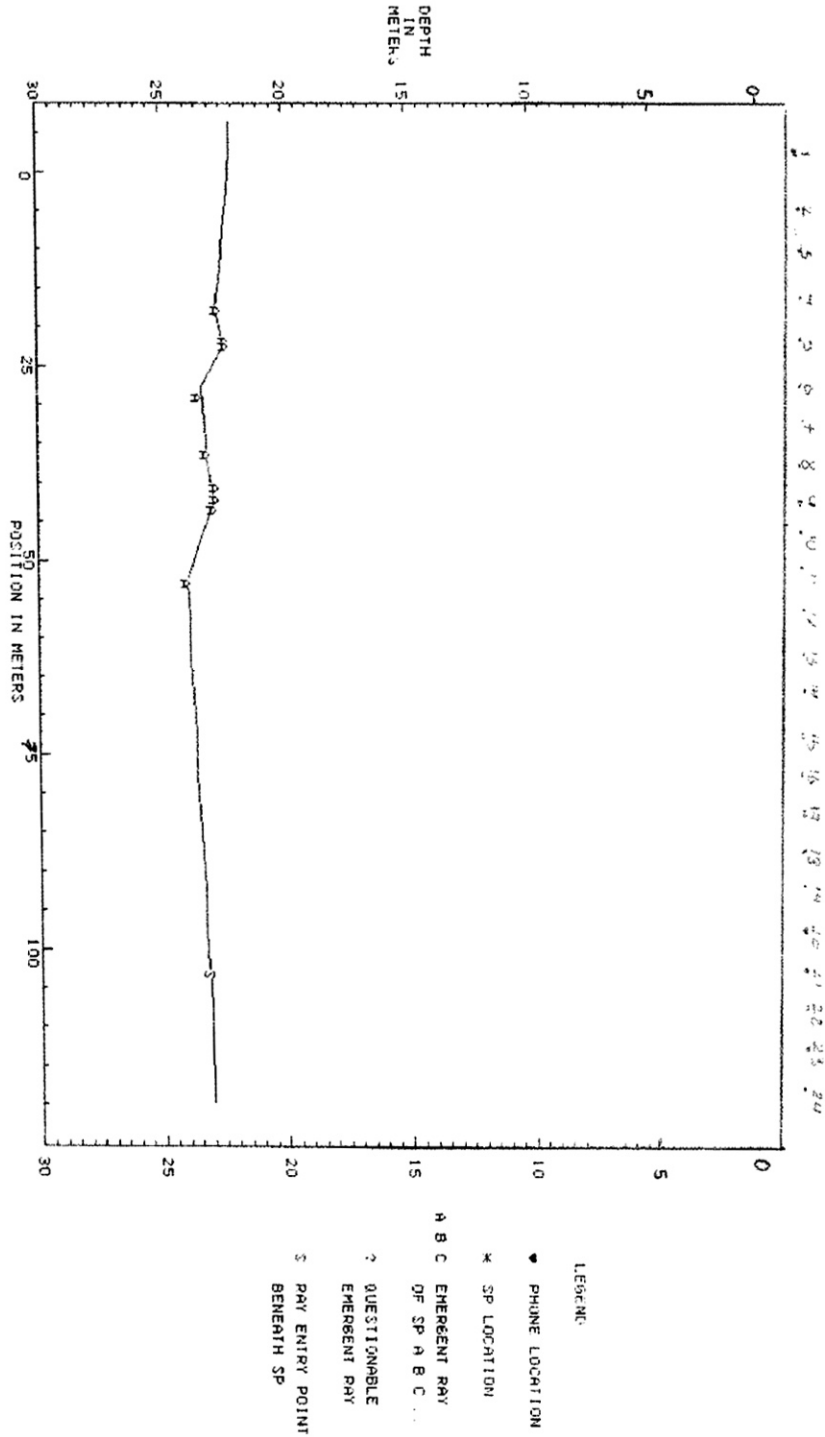
Layer 1	Layer 2
1026.	1923. m/s

LINE NUMBER 10-10 FILE217.LPK
TIME - DISTANCE PLOT



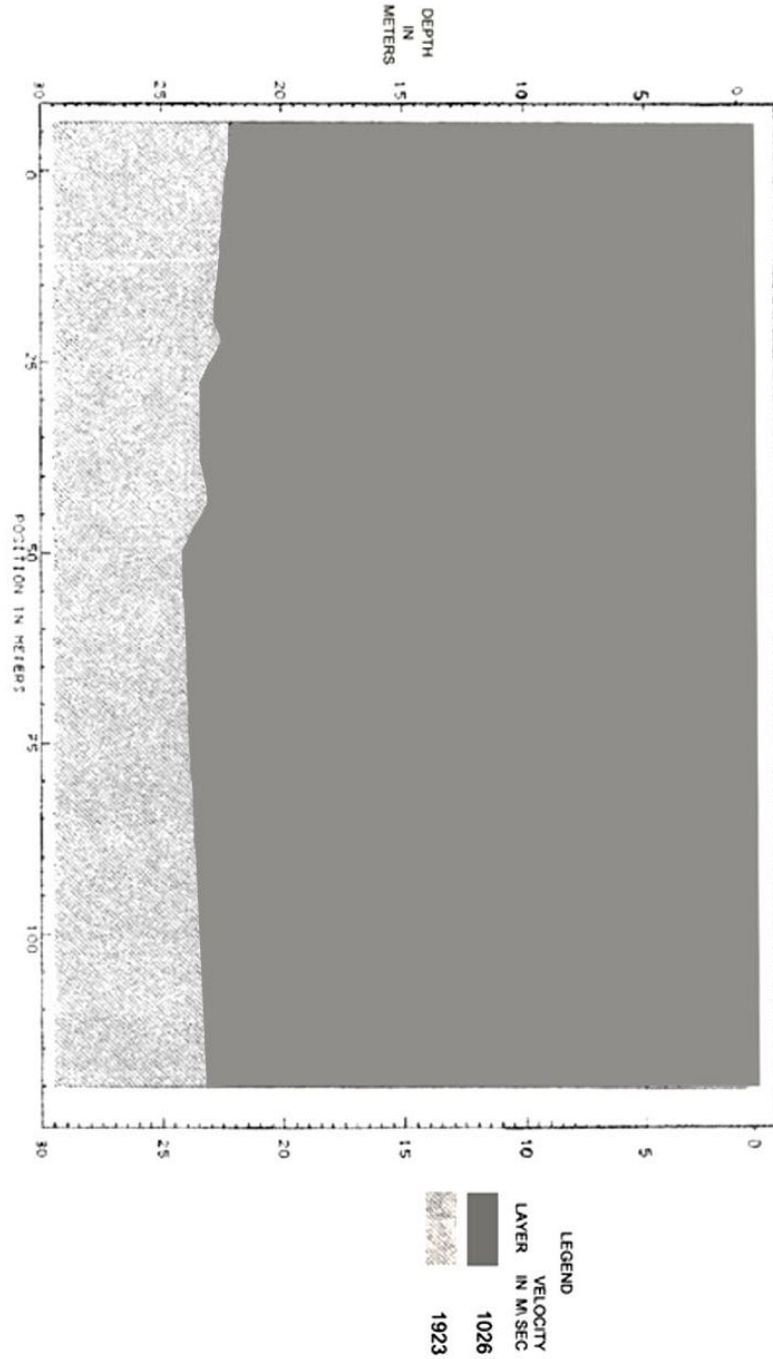
Travel Time Curve for Seismic line 10-10

LINE NUMBER 10-10 FILE217.LPK
 DEPTH PLOT



Refraction waves at the second layer surface beneath the seismic line 10-10

LINE NUMBER 10-10 FILE217.LPK
DEPTH PLOT



Subsurface Geological cross- section beneath seismic line 10-10