

[illegible]

Well coordinates (origin Bogota)

East (m)	North (m)	RT Elev. [ft] @msl	GL Elev. [ft] @msl
459054.5	9508656.8	49	0

Source coordinates (origin Bogota)

East (m)	North (m)	Elevation [ft] @msl
459054.6	9508672.1	-5

Datum [m amsl] 0.0

Replacement Velocity (constant) [ft/s]	rv=	5000
Seismic Reference Datum from RT (constant) [ft]	d=	49.0
Vertical Distance from RT to Source (constant) [ft]	sz=	54.0
Eastwards Horizontal Offset from Wellhead to Source (constant) [ft]	wse=	0.3
Northwards Horizontal Offset from Well to Source (constant) [ft]	wsn=	50.2

Well to Source offset: [ft]
50.2

Well to Source azimuth: [deg]
0.4

PETRO-TECH PERUANA S.A.

GEOSCIENCES STUDY:

July 2, 2001

Date of run: JUN 7, 2001
SECT. OF GEOLOGIST

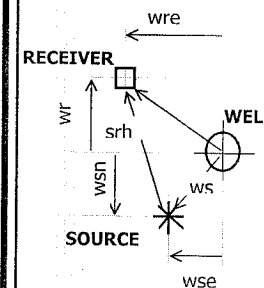
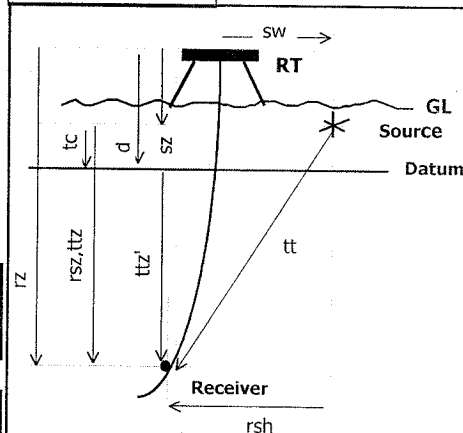
LO6-23

CHECK-SHOT

FINAL VELOCITY REPORT

Date of report delivery: JUN 29, 2001

GENERAL GEOMETRY



DISTRIBUTION LIST:

- 1.
- 2.
- 3.
- 4.
- 5.

SOURCE: Air Gun
TOOL: SAT-B
ACQ. SYSTEM: MAXIS 500
CONTRACTOR: Schlumberger
WITNESS: V. Delgado
REC. by: Claudia Delgado

DEFINITIONS TABLE

RT: Rotary Table
GL: Ground Level

rv: replacement velocity [ft/s]

d: Vertical distance from RT to Datum

sz: Vertical Distance from RT to Source

rz: Vertical Distance from RT to Receiver

wsh: Horizontal Distance from Source to Wellhead

wse: East offset from Source to Wellhead

wsn: North offset from Source to Wellhead

wre: East offset from Receiver to Wellhead

wrn: North offset from Receiver to Wellhead

srh: Horizontal Distance from Source to Receiver

tt: Travel Time from Source to Receiver

ttz: Vertical Travel Time from Source to Receiver

tcz: Vertical Correction Time from Source to Datum

ttz': Vertical Travel Time from Datum to Source

av: Average Velocity from Datum

iv: Interval Velocity

SIGN CONVENTION:

Eastwards, Northwards and Downwards distances are positive.
Downwards time is positive.

NOTE:

Unless it be specified, all distances are in feet from RT.

Vertical Correction Time from Source to Datum [ms]	tcz=	-1.0
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TAKING INTO ACCOUNT MWD DEVIATION DATA

Datum [m amsl]=>	0.0
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TAKING INTO ACCOUNT MWD DEVIATION DATA

Tops	(Comments)	Receiver Vertical Depth (Deviation Survey) [f]	East Offset from Well to Receiver (Deviation Survey) [f]	North Offset from Well to Receiver (Deviation Survey) [f]	Horizontal Offset from Source to Receiver (computed) [f]	Vertical Offset from Source to Receiver (computed) [f]	* Bad pick (?)	Travel Time from Source to Receiver (measured) [ms]	Vertical Travel Time from Source to Receiver (computed) [ms]	Vertical Travel Time from Datum (computed) [f]	Average Velocity from Datum (computed) [f/s]	Interval Velocity (computed) [f/s]
		r	rz	wre	wrn	srh	srz	tt	ttz	ttz'	av	iv
		498.0	497.99	1.41329	1.56962	48.6	444.0	77.31	76.8	77.8	5,768	544
		499.0	498.99	1.41897	1.57593	48.6	445.0	79.15	78.7	79.7	5,647	8,422
		1000.0	999.95	5.69857	6.32889	44.2	946.0	138.32	138.2	139.2	6,833	8,481
		1575.0	1574.82	13.78571	15.17322	37.5	1520.8	206.01	206.0	207.0	7,373	7,897
		2000.0	1989.37	-30.49302	-54.15422	108.8	1935.4	258.85	258.4	259.4	7,479	8,619
		2492.0	2427.79	-148.23744	-242.23157	328.0	2373.8	312.25	309.3	310.3	7,666	10,324
		2999.0	2876.66	-282.00555	-436.16913	562.4	2822.7	359.73	352.8	353.8	9,504	10,155
		3595.0	3411.35	-420.89294	-659.80939	825.6	3357.3	417.52	405.4	406.4	9,534	12,621
		4160.0	3923.98	-542.50055	-863.77148	1063.0	3870.0	462.58	446.1	447.1	9,679	13,019
		4646.0	4376.02	-629.05328	#####	1241.1	4322.0	500.21	480.8	481.8	10,302	12,143
		5311.0	5012.33	-720.49695	#####	1433.7	4958.3	555.03	533.2	534.2	9,713	13,088
		5553.0	5237.73	-770.95319	#####	1521.1	5183.7	573.61	550.4	551.4	9,963	11,755
		5892.0	5542.62	-861.37799	#####	1667.8	5488.6	602.36	576.3	577.3	10,211	12,549
		6342.0	5944.24	-980.62622	#####	1870.1	5890.2	638.27	608.3	609.3	9,675	12,129
		6799.0	6354.13	-1083.19910	#####	2072.1	6300.1	675.98	642.1	643.1	9,804	11,648
		7300.0	6802.18	-1227.10000	#####	2293.9	6748.2	718.85	680.6	681.6	9,908	10,762
		7782.0	7231.29	-1368.50000	#####	2511.2	7177.3	763.30	720.5	721.5	9,955	14,870
		8083.0	7490.39	-1455.30000	#####	2664.4	7436.4	783.83	737.9	738.9	10,071	10,581
		8263.0	7648.90	-1503.60000	#####	2749.6	7594.9	800.70	752.9	753.9	10,081	14,231
		8841.0	8177.20	-1627.90000	#####	2983.4	8123.2	841.60	790.0	791.0	10,276	10,969
		9000.0	8325.30	-1656.10000	#####	3041.3	8271.3	856.10	803.5	804.5	10,287	10,294

CENTRAL FILE
Geosciences

GEOSCIENCES
STUDY:

MAP OF
SECT. OF
GEO. MAP

Mario Chavez

From: Emilio Sopprani [esopprani@bogota.oilfield.slb.com]
Sent: Friday, June 29, 2001 5:07 PM
To: chavezm@petro-tech.com.pe; vilca@petro-tech.com.pe; Pedro Blondet; Jose Martinez; Jose Vasquez
Subject: Resultados Sismica para LO6-23



Lobo-6-23.xls

Señores

Adjunto sirvanse encontrar los resultados (Tabla de Verticalizaciones de Tiempo) para el pozo de la referencia.
Tan pronto se tengan los PDS files les seran enviados.
Por favor no duden en contactarse con nosotros (Jose Martinez) sobre cualquier duda al respecto.

Muchas Gracias

Emilio Sopprani
DCS - PCE

GEOSCIENCES STUDY:	
MAP	OF
SER.	OF
GEOLOGIST	

LO6-23

Survey Report - Standard

Report Date: 09-Jun-2001	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Petro-Tech Peruana S.A.	Vertical Section Azimuth: 213.800°
Field: Lobitos	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: Platform LO6 (WGS84) / Slot #23	TVD Reference Datum: KB
Well: Well LO6-23	TVD Reference Elevation: 50.000 ft relative to MSL
Borehole: Borehole LO6-23	Sea Bed / Ground Level Elevation: 0.000 ft relative to MSL
UWI / API#:	Magnetic Declination: +1.516°
Survey Name / Date: LO6-23 MWD Survey / May 10, 2001	Total Field Strength: 28875.250 nT
Tort / AHD / DDI / ERD ratio: 103.371° / 3050.76 ft / 5.533 / 0.366	Magnetic Dip: 14.828°
Grid Coordinate System: UTM Zone 17S - WGS84, Meters	Declination Date: May 10, 2001
Location Lat / Long: S 4 26 42.554, W 81 22 8.641	Magnetic Declination Model: BGGM 2000
Location Grid N/E Y/X: N 9508656.830 m, E 459054.520 m	North Reference: True North
Grid Convergence Angle: +0.02860485°	Total Corr Mag North -> True North: +1.516°
Grid Scale Factor: 0.99962075	Local Coordinates Referenced To: Well Head

Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N-S (ft)	E-W (ft)	Closure (ft)	at Azim (°)	DLS (°/100ft)	TF (°)
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		42.0 M
13 3/8" shoe @ 1500'	1537.00	1.50	42.00	1536.82	-19.91	14.95	13.46	20.12	42.00	0.10	-148.8 M
	1681.00	5.60	211.20	1680.64	-14.75	10.34	11.08	15.15	46.99	4.92	2.9 G
	1745.00	9.60	212.40	1744.06	-6.29	3.16	6.60	7.32	64.45	6.25	10.1 G
	1837.00	14.60	215.90	1833.99	12.97	-12.72	-4.32	13.44	198.73	5.49	-3.1 G
	1901.00	17.40	215.40	1895.51	30.60	-27.06	-14.59	30.74	208.33	4.38	-56.9 G
	1962.00	18.70	209.60	1953.51	49.48	-43.00	-24.71	49.59	209.88	3.63	-51.5 G
	1993.00	19.70	206.00	1982.79	59.61	-52.02	-29.45	59.78	209.52	5.00	0.0 G
	2056.00	22.40	206.00	2041.58	82.03	-72.35	-39.37	82.37	208.55	4.29	37.8 G
	2119.00	25.30	211.10	2099.20	107.37	-94.68	-51.59	107.82	208.59	5.64	16.4 G
	2182.00	28.20	212.90	2155.45	135.71	-118.71	-66.63	136.13	209.31	4.78	25.5 G
	2245.00	28.40	213.10	2210.92	165.58	-143.76	-82.90	165.95	209.97	0.35	-102.3 G
	2338.00	28.30	212.10	2292.76	209.73	-180.96	-106.69	210.07	210.52	0.52	59.7 G
	2400.00	28.70	213.50	2347.25	239.30	-205.82	-122.72	239.63	210.80	1.26	75.2 G
	2463.00	29.00	215.70	2402.43	269.69	-230.84	-139.98	269.97	211.23	1.75	78.8 G
	2524.00	29.10	216.70	2455.76	299.29	-254.74	-157.47	299.48	211.72	0.81	-146.3 G
	2587.00	28.60	216.00	2510.94	329.66	-279.22	-175.49	329.79	212.15	0.96	-139.0 G
	2697.00	27.60	214.10	2607.98	381.45	-321.63	-205.25	381.54	212.55	1.22	-125.9 G
	2791.00	27.50	213.80	2691.32	424.92	-357.69	-229.53	425.00	212.69	0.18	180.0 G
	2949.00	26.70	213.80	2831.97	496.90	-417.50	-269.57	496.97	212.85	0.51	-127.1 G

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3106.00	26.40	212.90	2972.41	567.07	-476.12	-308.15	567.14	212.91	0.32	-99.2 G
3263.00	26.30	211.40	3113.10	636.72	-535.11	-345.24	636.81	212.83	0.43	-132.4 G
3421.00	26.10	210.90	3254.87	706.40	-594.81	-381.32	706.54	212.66	0.19	131.0 G
3579.00	25.80	211.70	3396.94	775.48	-653.89	-417.24	775.66	212.54	0.29	-147.1 G
3704.00	25.60	211.40	3509.57	829.64	-700.08	-445.60	829.86	212.48	0.19	-142.4 G
3830.00	25.00	210.30	3623.49	883.42	-746.30	-473.22	883.69	212.38	0.60	152.6 G
3988.00	24.60	210.80	3766.92	949.58	-803.38	-506.90	949.93	212.25	0.29	-168.6 G
4113.00	23.80	210.40	3880.93	1000.74	-847.48	-532.99	1001.15	212.17	0.65	-161.0 G
4270.00	22.90	209.60	4025.07	1062.83	-901.37	-564.10	1063.33	212.04	0.61	-171.5 G
4426.00	21.20	208.90	4169.66	1121.21	-952.45	-592.73	1121.83	211.89	1.10	-169.6 G
4581.00	19.90	208.20	4314.79	1175.39	-1000.24	-618.74	1176.15	211.74	0.85	180.0 G
4739.00	18.50	208.20	4464.00	1227.10	-1046.03	-643.30	1228.01	211.59	0.89	174.9 G
4896.00	16.30	208.90	4613.81	1273.85	-1087.28	-665.72	1274.89	211.48	1.41	-165.0 G
5036.30	15.60	208.20	4748.70	1312.24	-1121.14	-684.15	1313.40	211.39	0.52	0.0 G
5099.33	15.70	208.20	4809.40	1329.16	-1136.12	-692.18	1330.37	211.35	0.16	0.0 G
5162.10	16.10	208.20	4869.77	1346.27	-1151.28	-700.31	1347.54	211.31	0.64	-26.5 G
5225.00	16.50	207.50	4930.14	1363.83	-1166.89	-708.55	1365.17	211.27	0.71	22.3 G
5274.00	17.00	208.20	4977.06	1377.88	-1179.37	-715.15	1379.26	211.23	1.10	11.9 G
5346.00	19.20	209.60	5045.49	1400.16	-1198.95	-725.97	1401.61	211.20	3.11	44.3 G
5478.00	22.80	218.10	5168.73	1447.34	-1237.97	-752.49	1448.73	211.29	3.57	110.6 G
5507.00	22.70	218.80	5195.48	1458.52	-1246.75	-759.46	1459.85	211.35	1.00	17.3 G
5538.60	23.60	219.50	5224.53	1470.89	-1256.38	-767.31	1472.16	211.41	2.98	-110.7 G
5597.00	23.30	217.40	5278.11	1494.05	-1274.58	-781.76	1495.23	211.52	1.52	72.9 G
5629.00	23.40	218.20	5307.49	1506.70	-1284.60	-789.53	1507.83	211.58	1.04	-18.3 G
5660.00	24.40	217.40	5335.83	1519.23	-1294.53	-797.23	1520.32	211.63	3.39	-9.1 G
5723.00	26.63	216.60	5392.68	1546.32	-1316.20	-813.55	1547.34	211.72	3.58	22.7 G
5753.00	27.63	217.50	5419.38	1559.98	-1327.12	-821.80	1560.96	211.77	3.60	58.9 G
5799.00	27.80	218.10	5460.10	1581.32	-1344.02	-834.91	1582.24	211.85	0.71	180.0 G
5862.00	27.30	218.10	5515.96	1610.38	-1366.95	-852.89	1611.20	211.96	0.79	180.0 G
5957.00	27.20	218.10	5600.42	1653.75	-1401.18	-879.73	1654.46	212.12	0.11	-115.9 G
6051.00	26.90	216.70	5684.13	1696.41	-1435.14	-905.69	1697.03	212.26	0.75	-119.4 G
6145.00	26.70	215.90	5768.04	1738.75	-1469.29	-930.79	1739.31	212.35	0.44	-99.7 G
6240.00	26.60	214.50	5852.95	1781.35	-1504.11	-955.35	1781.86	212.42	0.67	-108.4 G
6335.00	26.40	213.10	5937.97	1823.73	-1539.33	-978.93	1824.24	212.45	0.69	-108.8 G
6428.00	26.10	211.00	6021.38	1864.84	-1574.19	-1000.76	1865.36	212.45	1.05	90.0 G
6459.00	26.10	211.10	6049.22	1878.47	-1585.87	-1007.79	1879.00	212.44	0.14	-90.0 G
6490.00	26.10	210.30	6077.05	1892.08	-1597.60	-1014.75	1892.63	212.42	1.14	-90.0 G
6516.00	26.10	209.60	6100.40	1903.50	-1607.51	-1020.46	1904.06	212.41	1.18	0.0 G
6540.00	26.10	209.60	6121.96	1914.03	-1616.69	-1025.68	1914.60	212.39	0.00	0.0 G
6572.00	26.20	209.60	6150.68	1928.09	-1628.95	-1032.64	1928.69	212.37	0.31	90.0 G
6603.00	26.20	209.90	6178.50	1941.74	-1640.84	-1039.44	1942.36	212.35	0.43	-24.0 G

Survey Error Model: Wolf & deWardt 1,000 sigma										
Surveying Programme:										
MD From (ft)										
MD To (ft) EOU Freq Survey Tool Type										
9010.00 Act-Stns Anadilli MWVD										
6664.00	26.40	209.70	6233.18	1968.70	-1664.29	-1052.87	1969.36	212.32	0.36	-146.5 G
6700.00	26.20	209.40	6265.45	1984.61	-1678.17	-1060.73	1985.30	212.30	0.67	-65.9 G
6729.00	26.30	208.90	6291.46	1997.40	-1689.37	-1066.98	1998.10	212.28	0.84	83.0 G
6791.00	26.60	213.20	6346.98	2024.96	-1713.01	-1081.22	2025.69	212.26	3.13	96.9 G
6885.00	26.40	219.40	6431.12	2066.81	-1746.77	-1106.01	2067.48	212.34	2.95	-155.0 G
6916.00	25.84	218.80	6458.95	2080.40	-1757.36	-1114.62	2081.04	212.39	2.00	0.0 G
6979.00	26.30	218.80	6515.54	2107.98	-1778.94	-1131.97	2108.55	212.47	0.73	19.6 G
7011.00	27.20	219.50	6544.12	2122.32	-1790.11	-1141.07	2122.86	212.51	2.98	58.4 G
7043.00	27.40	220.20	6572.55	2136.92	-1801.38	-1150.47	2137.41	212.56	1.18	126.1 G
7074.00	27.30	220.50	6600.09	2151.07	-1812.23	-1159.69	2151.53	212.62	0.55	-164.9 G
7105.00	26.80	220.20	6627.70	2165.07	-1822.97	-1168.82	2165.50	212.67	1.67	122.8 G
7136.00	26.60	220.90	6655.39	2178.90	-1833.56	-1177.87	2179.29	212.72	1.20	122.9 G
7167.00	26.40	221.60	6683.14	2192.62	-1843.96	-1186.99	2192.97	212.77	1.20	134.4 G
7198.00	26.10	222.30	6710.94	2206.19	-1854.16	-1196.16	2206.51	212.83	1.39	0.0 G
7230.00	26.40	222.30	6739.64	2220.19	-1864.62	-1205.68	2220.47	212.89	0.94	38.4 G
7262.00	26.80	223.00	6768.25	2234.35	-1875.16	-1215.39	2234.59	212.95	1.59	180.0 G
7293.00	26.70	223.00	6795.93	2248.12	-1885.37	-1224.91	2248.33	213.01	0.32	-46.8 G
7388.00	27.00	222.30	6880.69	2290.52	-1916.92	-1253.98	2290.65	213.19	0.46	-134.3 G
7482.00	26.40	220.90	6964.67	2332.36	-1948.50	-1282.02	2332.43	213.34	0.92	-134.4 G
7576.00	26.10	220.20	7048.98	2373.64	-1980.09	-1309.05	2373.68	213.47	0.46	-30.3 G
7670.00	27.20	218.80	7132.99	2415.60	-2012.63	-1335.86	2415.61	213.57	1.35	-23.5 G
7760.00	29.60	216.70	7215.67	2460.19	-2047.99	-1363.20	2460.20	213.65	2.77	-26.8 G
7796.00	30.30	216.00	7243.40	2476.15	-2060.86	-1372.67	2476.16	213.67	2.44	-39.1 G
7880.00	31.40	214.30	7315.51	2519.21	-2096.08	-1397.45	2519.21	213.69	1.67	176.8 G
Start Multishot Survey										
7973.00	30.50	214.40	7395.27	2567.04	-2135.57	-1424.44	2567.04	213.70	0.97	-149.9 G
8068.00	29.90	213.70	7477.38	2614.82	-2175.16	-1451.20	2614.82	213.71	0.73	175.4 G
8162.00	28.70	213.90	7559.35	2660.82	-2213.39	-1476.79	2660.83	213.71	1.28	155.2 G
8256.00	26.50	216.20	7642.65	2704.35	-2249.05	-1501.77	2704.35	213.73	2.60	-164.1 G
8351.00	25.30	215.40	7728.11	2745.82	-2282.70	-1526.04	2745.82	213.76	1.32	-108.8 G
8445.00	24.90	212.40	7813.23	2785.68	-2315.78	-1548.28	2785.68	213.77	1.42	-174.2 G
8539.00	24.10	212.20	7898.77	2824.65	-2348.73	-1569.11	2824.65	213.75	0.86	-150.5 G
8633.00	23.20	210.90	7984.88	2862.33	-2380.86	-1588.85	2862.33	213.72	1.11	-143.0 G
8727.00	22.40	209.30	8071.53	2898.68	-2412.37	-1607.12	2898.68	213.67	1.08	-168.1 G
8822.00	21.70	208.90	8159.58	2934.22	-2443.53	-1624.47	2934.23	213.62	0.75	180.0 G
8916.00	21.20	208.90	8247.07	2968.47	-2473.62	-1641.08	2968.49	213.56	0.53	27.4 G
9010.00	21.70	209.60	8334.56	3002.73	-2503.61	-1657.88	3002.77	213.51	0.60	---

106-23

Mario Chavez**From:** Pedro Blondet [blondet@lima.oilfield.slb.com]**Sent:** Tuesday, July 03, 2001 11:34 AM**To:** Mario Chavez**Subject:** Resultados de Checkhots

Mario,

Estos son los dos Plots que los he transformado a GIF. Pídele a Edwin Mendiola que te instale el CD de Schlumberger Tool box que trae este visor así como también transformadores de DLIS a LAS, etc. Avisame si no consigues el CD para ver como hacemos, OK?

Saludos,

Pedro

Schlumberger del Peru S.A.

E. Canaval y Moreyra # 452, Piso -8

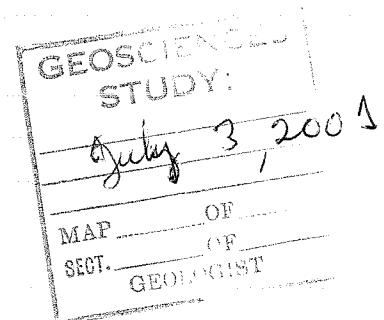
Lima 27, San Isidro

Peru

Telf:(51-1) 421-8055 ext 801

Cel (51-1) 985-7181

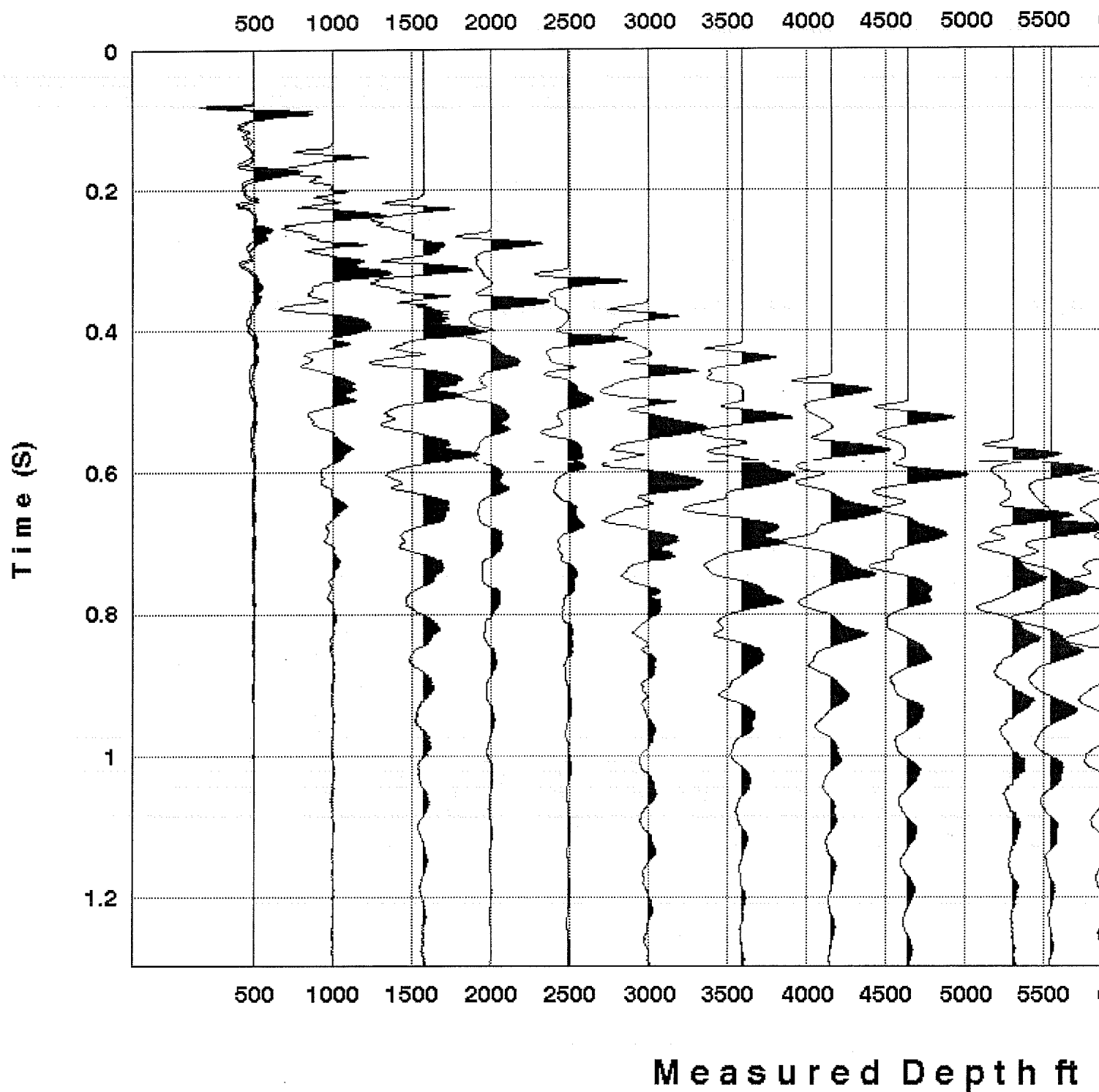
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7/3/01

CENTRAL FILE
Geosciences

LO-6-23 Plot 2. Raw Stack Data



LO-6-23 Plot 2. Raw Stack Data. Z component. Time Vs. Depth C

