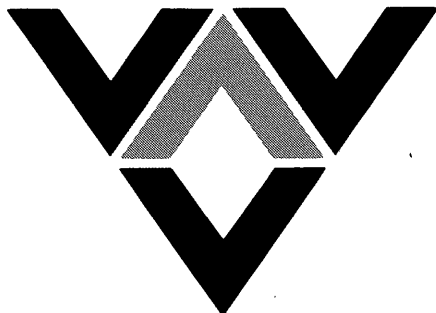




ATTACHMENT TO WCR
APPENDIX 2 OF WCR
DUNBAR EAST-1
W1150

Velocity Data



VELOCITY SURVEY

DUNBAR EAST NO. 1

PPL-1

VICTORIA

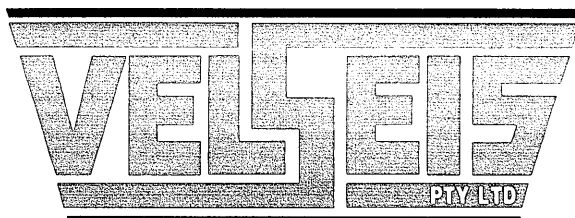
for

CULTUS PETROLEUM NL

recorded by

VELOCITY DATA PTY. LTD.

Processed by



Integrated Seismic Technologies

Brisbane, Australia
3 April, 1997

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FIGURES

Figure 1	Shot location sketch
Figure 2	Time-depth and velocity curves
Figure 3	Trace playouts

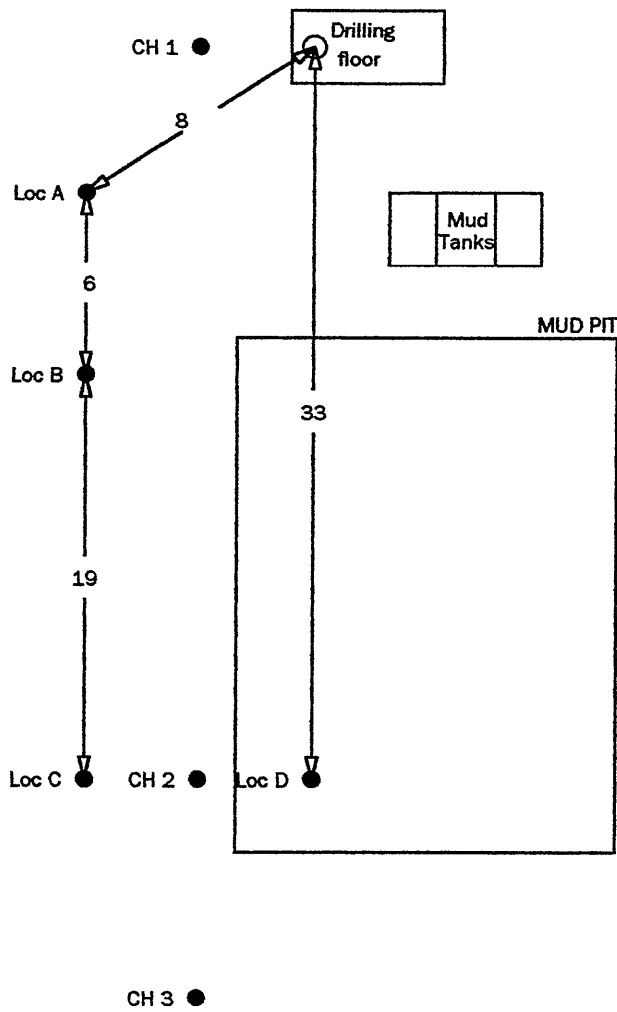
Tables

Table 1	Time-depth values
Table 2	Well deviation calculation sheet

Enclosures

1. Calculation Sheets
2. Well deviation values
3. Trace Display and First Arrival Plots

Z →



DUNBAR EAST #01

SHOT POINT LOCATION SKETCH
CULTUS PETROLEUM NL

Figure 1

SUMMARY

Velocity Data Pty Ltd conducted a velocity survey for Cultus Petroleum NL in the Dunbar East No. 1 well, PPL 1, Victoria, Australia. The date of the survey was the 19th April 1996.

The results of the survey, which are considered to be reliable, have been used to calibrate the sonic log.

Explosives were used as an energy source with shots being fired in the mud pit in the majority of instances.

GENERAL INFORMATION

Name of Well	: Dunbar East No. 1
Hole Type	: Deviated
Location	: PPL-1
Coordinates	: Easting 667890E : Northing 5730202 N
Date of Survey	: 19 th April, 1996
Wireline Logging	: BPB Wireline Services
Weather	: Wet
Operational Base	: Brisbane
Operator	: D. Blick
Shooter	: H. Hunt
Client Representative	: Mr. D. Homer

EQUIPMENT

Downhole Tool

Geospace WLS 1050 Wall-lock

Sensors:

6 HSI 4.5 Hz 215 ohm, high temperature
(300 degrees F) detectors connected in
series parallel. Frequency response
8-300 Hz within 3 dB.

Preamplifier:

48 dB fixed gain.
Frequency response 5-200 Hz within 3 dB.

Reference Geophone

Mark Products L1 4.5 Hz

Recording Instrument

(1) System VDL 16

Windows based high resolution seismic acquisition instruments

Computer :	386 Portable computer
Resolution :	A/D conversion 16 bits
Dynamic Range :	96dB
Total Gain :	136dB
Data channels :	8
Display :	A4 Bubble Jet Printer 300 D.P.I.

RECORDING

Energy Source : Explosive, Powergel
Shot Location : Mud pit
Charge Size : 0.3-5
Average Shot Depth : 2.0 metre
Mud Pit Shot Offset : 33.0 metres
Recording Geometry : Figure 1

Shots were recorded on 3¹/₂" floppy disc. Printouts of the shots used are included with this report.

The sample rate was 0.5 ms across the entire survey.

The scale of the graphic display varies with signal strength and is noted on each playout.
The times were picked from a sample by sample screen plot a full set of these trace displays can be seen at the rear of the report.

PROCESSING**Elevation Data**

Elevation of KB : 77.3 m above sea level
Elevation of Ground : 73.0 m above sea level
Elevation of Seismic Datum : 0.0 m above sea level
Depth Surveyed : 2390.0 m TVD
Total Depth : 2390.0 m
Depth of Casing : 755 m below KB
Sonic Log Interval : 754.4 m to 2420.0 below KB

PROCESSING

Recorded Data

Number of Shots Processed : 29

Number of Levels Recorded : 19

Data Quality : Good

Noise Level : Low

Correction for Borehole Deviation

Dunbar East is a deviated hole and as such it has been necessary to correct both the Measured and Raw pick time to True Vertical Depth (TVD).

A parameter sheet detailing information specific to the deviation was supplied by the client and can be found at the rear of the report. This data were incorporated via the Well deviation calculation sheet (Table 2) to determine the Raw (TVD) arrival time. This is substituted into the calculation sheet for normal geometric correction.

Correction for Instrument Delay and Shot Offset

The 'corrected' times shown on the calculation sheet have been obtained by:

- (1) Subtraction of the instrument delay (2.0 msec) from the recorded arrival times.
- (2) Geometric correction for non-verticality of ray paths resulting from shot offset.
- (3) Shot static correction to correct for the depth of shot below ground level at the well head using a correction velocity of 1500 metres/sec.
- (4) Additional 2.0 msec uphole time added to all shots external to the mud.
- (5) 6.0 msec bulk shift applied to all shots discharged within the mud pit to tie them to shots external to the pit.
- (6) re-addition of the instrument delay (2.0 msec).

Correction to Datum

The datum chosen was 0.0 metres ASL that is 77.3 metres below KB. This level was shot seven times during the survey, six of which have been used to calculate the effective datum correction time of 47.1 msec.

This value includes the 2.0 msec instrument delay which must be subtracted to obtain the raw time.

PROCESSING

Calibration of Sonic Log - Method

Sonic times were adjusted to checkshot times using a polynomial derived least squares fit correction of the sonic transient times. The sonic log that lay within the casing was deleted from the calibration.

Differences between the check shot and sonic times arise as the sonic tool measures the local velocity characteristics of the formation with a high frequency signal, whereas the downhole geophone records the bulk velocity character using a signal of significantly lower frequency.

Calibration of Sonic Log - Results

The discrepancies between shot and sonic interval velocities were generally small. The largest of these occurred over the interval 1544.7 to 1572.6 m which yielded an interval sonic drift of $-75.27 \mu\text{sec/m}$.

In aggregate, the shot and sonic interval times differed by 8.3 msec over the logged portion of the well.

PROCESSING

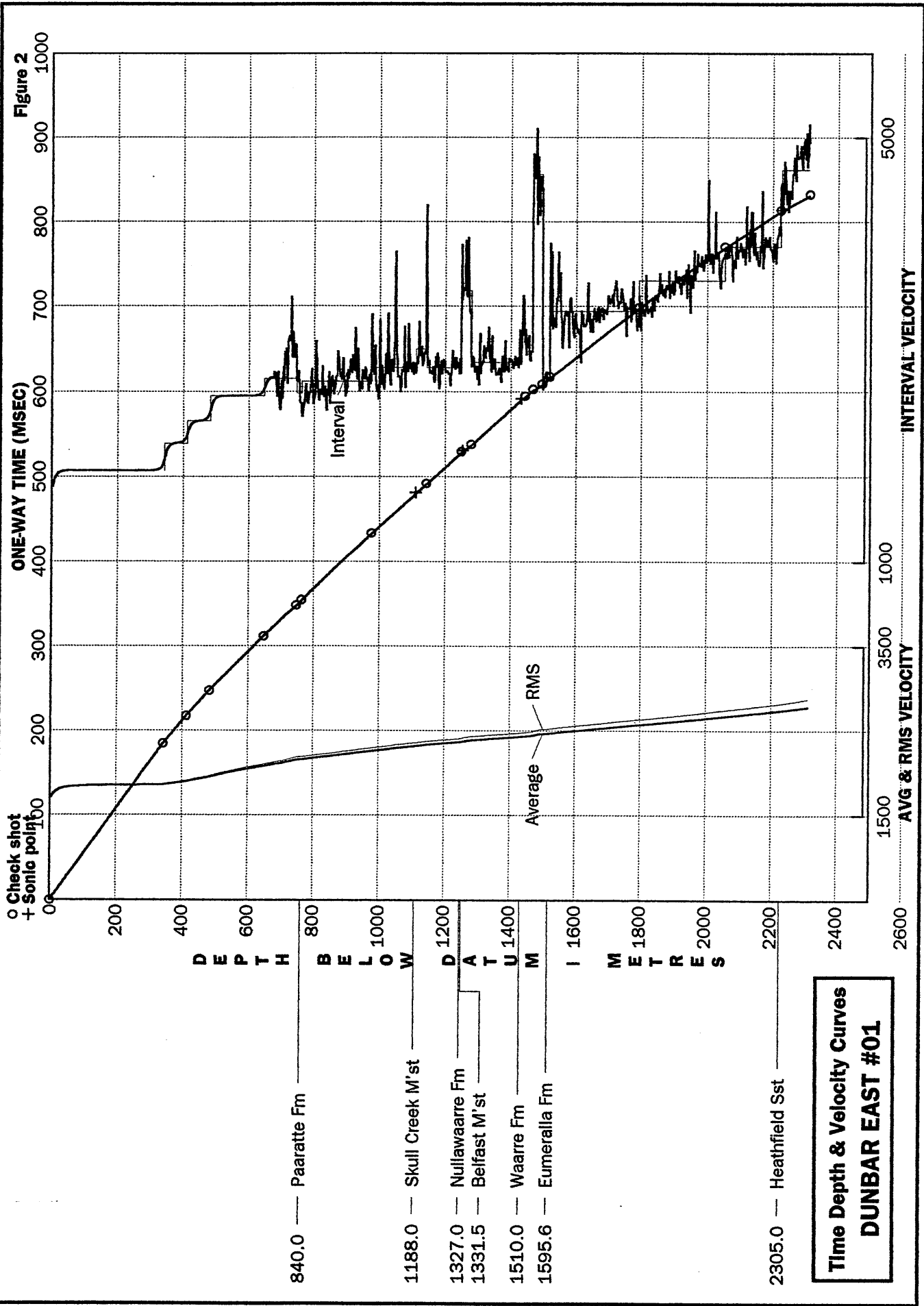
Trace Playouts (Figure 3)

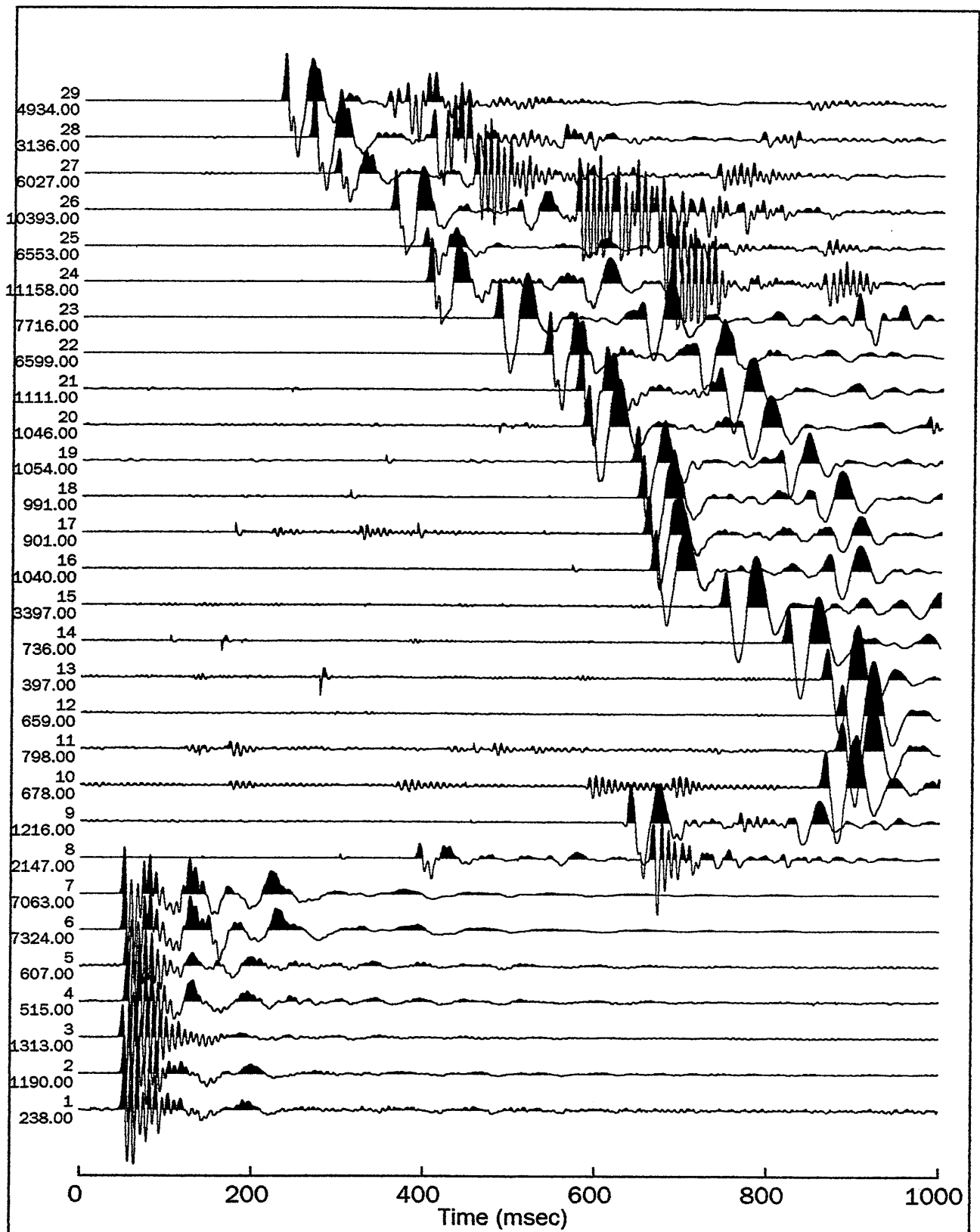
Figure 3A is a plot of all raw data traces used.

Figure 3B is a plot to scale in depth and time of selected traces.

Figure 3C is a plot of selected surface traces. .

**Fiona Duncan
Geophysicist.**

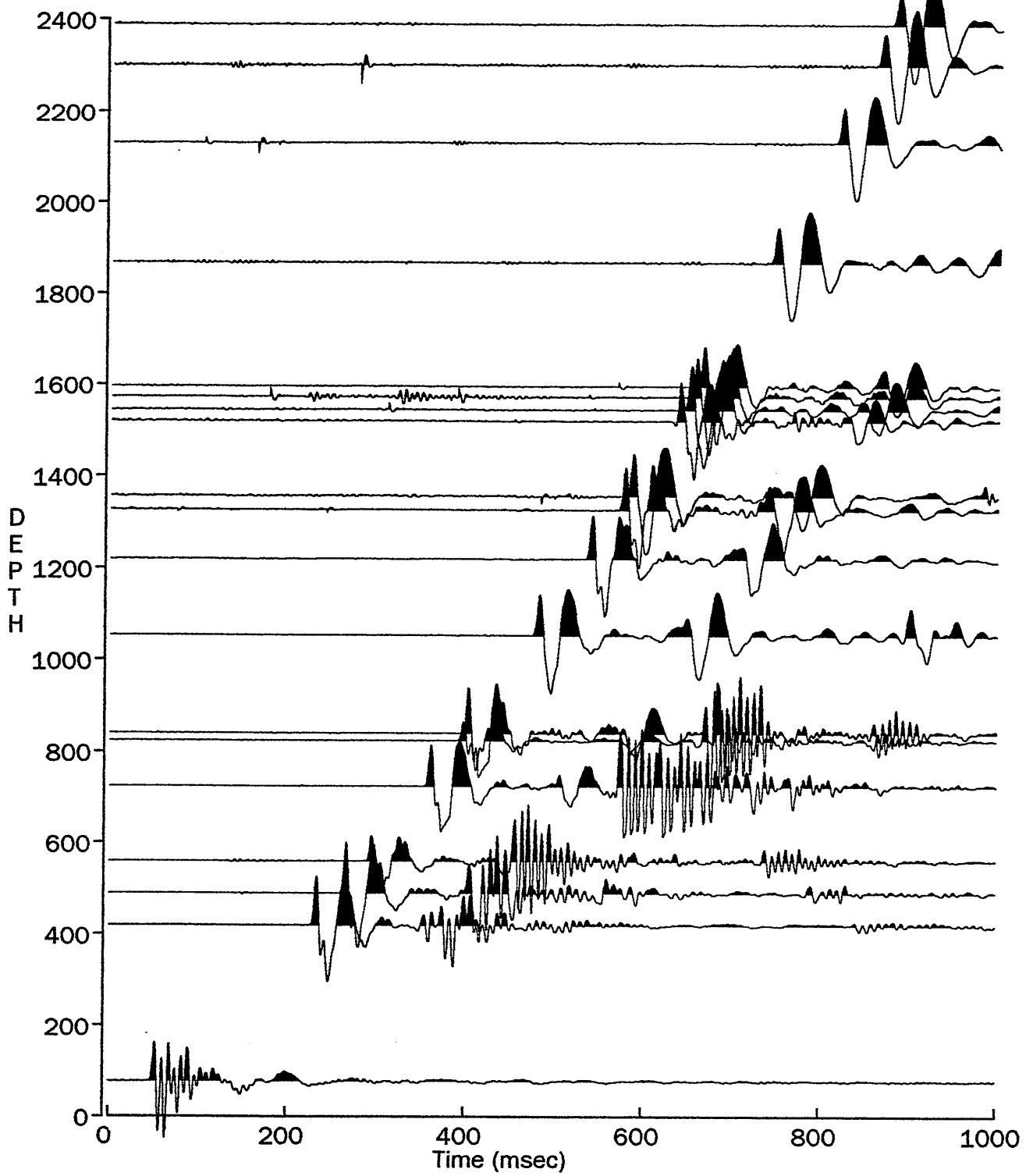




DUNBAR EAST #01

VELOCITY SURVEY TRACE DISPLAY

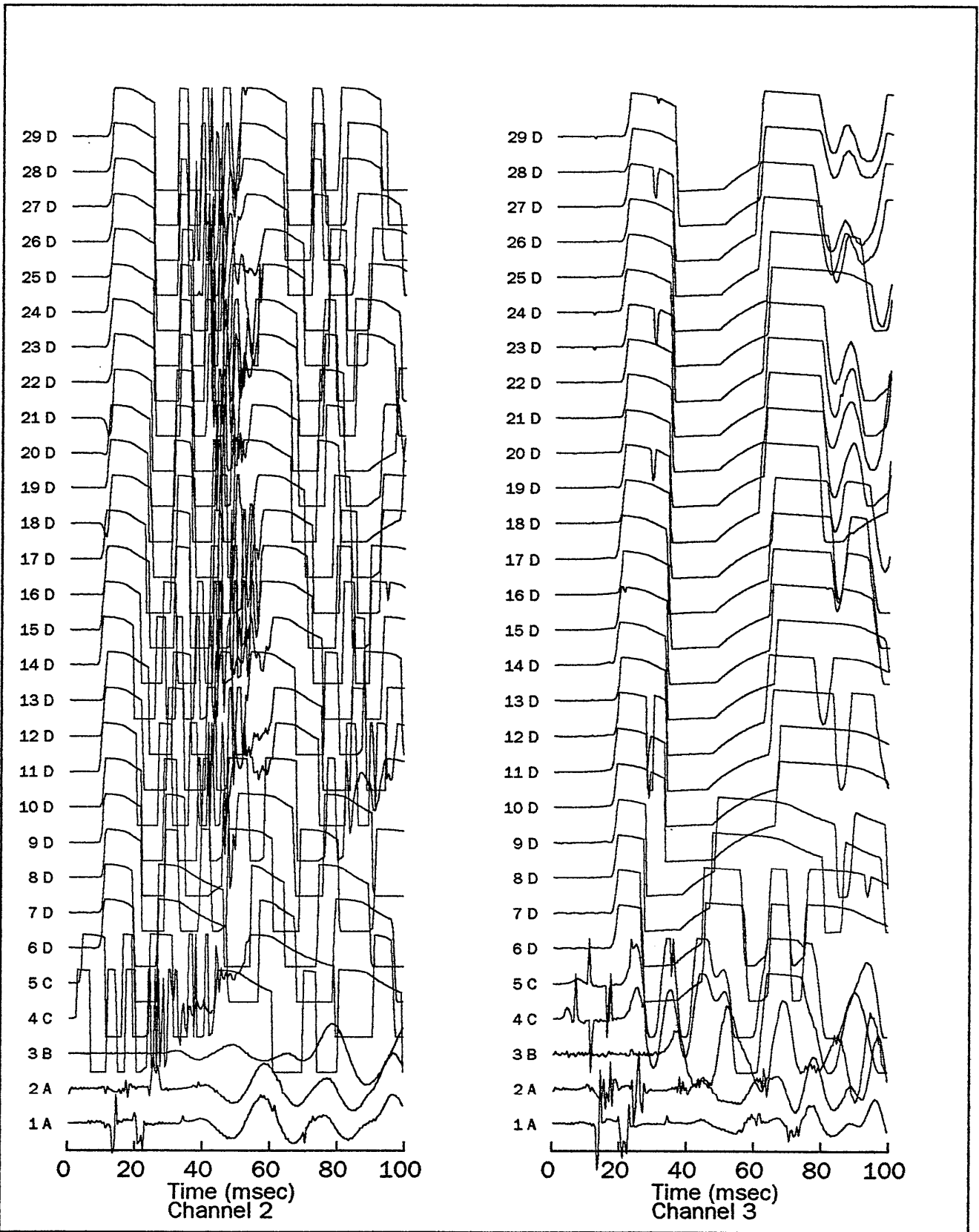
Figure 3a



DUNBAR EAST #01

VELOCITY SURVEY TRACE DISPLAY

Figure 3b



DUNBAR EAST #01

VELOCITY SURVEY TRACE DISPLAY
AUXILIARY CHANNELS

Figure 3c

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
3.0	1.8	1713	1713	1713	123.0	66.6	1847	1848	1860
6.0	3.5	1733	1734	1754	126.0	68.2	1848	1848	1860
9.0	5.1	1750	1750	1784	129.0	69.8	1848	1848	1860
12.0	6.8	1764	1764	1806	132.0	71.4	1848	1848	1860
15.0	8.5	1775	1776	1822	135.0	73.0	1848	1849	1860
18.0	10.1	1784	1785	1833	138.0	74.6	1849	1849	1860
21.0	11.7	1792	1793	1841	141.0	76.3	1849	1849	1860
24.0	13.3	1799	1800	1847	144.0	77.9	1849	1849	1860
27.0	15.0	1805	1805	1851	147.0	79.5	1849	1850	1860
30.0	16.6	1809	1810	1854	150.0	81.1	1850	1850	1860
33.0	18.2	1813	1814	1856	153.0	82.7	1850	1850	1860
36.0	19.8	1817	1818	1857	156.0	84.3	1850	1850	1860
39.0	21.4	1820	1821	1858	159.0	85.9	1850	1850	1860
42.0	23.0	1823	1823	1859	162.0	87.6	1850	1851	1860
45.0	24.7	1825	1826	1859	165.0	89.2	1851	1851	1860
48.0	26.3	1827	1828	1859	168.0	90.8	1851	1851	1860
51.0	27.9	1829	1830	1860	171.0	92.4	1851	1851	1860
54.0	29.5	1831	1831	1860	174.0	94.0	1851	1851	1860
57.0	31.1	1832	1833	1860	177.0	95.6	1851	1851	1860
60.0	32.7	1834	1834	1860	180.0	97.2	1851	1852	1860
63.0	34.3	1835	1835	1860	183.0	98.8	1852	1852	1860
66.0	35.9	1836	1837	1860	186.0	100.5	1852	1852	1860
69.0	37.6	1837	1838	1860	189.0	102.1	1852	1852	1860
72.0	39.2	1838	1838	1860	192.0	103.7	1852	1852	1860
75.0	40.8	1839	1839	1860	195.0	105.3	1852	1852	1860
78.0	42.4	1840	1840	1860	198.0	106.9	1852	1852	1860
81.0	44.0	1841	1841	1860	201.0	108.5	1852	1852	1860
84.0	45.6	1841	1842	1860	204.0	110.1	1852	1853	1860
87.0	47.2	1842	1842	1860	207.0	111.7	1853	1853	1860
90.0	48.8	1842	1843	1860	210.0	113.4	1853	1853	1860
93.0	50.5	1843	1843	1860	213.0	115.0	1853	1853	1860
96.0	52.1	1844	1844	1860	216.0	116.6	1853	1853	1860
99.0	53.7	1844	1844	1860	219.0	118.2	1853	1853	1860
102.0	55.3	1845	1845	1860	222.0	119.8	1853	1853	1860
105.0	56.9	1845	1845	1860	225.0	121.4	1853	1853	1860
108.0	58.5	1845	1846	1860	228.0	123.0	1853	1853	1860
111.0	60.1	1846	1846	1860	231.0	124.6	1853	1853	1860
114.0	61.7	1846	1846	1860	234.0	126.3	1853	1854	1860
117.0	63.4	1847	1847	1860	237.0	127.9	1854	1854	1860
120.0	65.0	1847	1847	1860	240.0	129.5	1854	1854	1860

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
243.0	131.1	1854	1854	1860	363.0	194.2	1869	1870	2105
246.0	132.7	1854	1854	1860	366.0	195.6	1871	1872	2110
249.0	134.3	1854	1854	1860	369.0	197.1	1872	1873	2114
252.0	135.9	1854	1854	1860	372.0	198.5	1874	1875	2116
255.0	137.5	1854	1854	1860	375.0	199.9	1876	1877	2118
258.0	139.2	1854	1854	1860	378.0	201.3	1878	1879	2120
261.0	140.8	1854	1854	1860	381.0	202.7	1879	1881	2121
264.0	142.4	1854	1854	1860	384.0	204.1	1881	1882	2123
267.0	144.0	1854	1854	1860	387.0	205.6	1883	1884	2124
270.0	145.6	1854	1854	1860	390.0	207.0	1884	1886	2126
273.0	147.2	1854	1855	1860	393.0	208.4	1886	1888	2129
276.0	148.8	1854	1855	1860	396.0	209.8	1888	1890	2132
279.0	150.4	1855	1855	1860	399.0	211.2	1889	1891	2137
282.0	152.1	1855	1855	1860	402.0	212.6	1891	1893	2144
285.0	153.7	1855	1855	1860	405.0	214.0	1893	1895	2154
288.0	155.3	1855	1855	1860	408.0	215.4	1895	1897	2168
291.0	156.9	1855	1855	1861	411.0	216.7	1896	1899	2188
294.0	158.5	1855	1855	1861	414.0	218.1	1898	1901	2217
297.0	160.1	1855	1855	1861	417.0	219.4	1900	1903	2248
300.0	161.7	1855	1855	1861	420.0	220.7	1903	1906	2270
303.0	163.3	1855	1855	1861	423.0	222.1	1905	1908	2287
306.0	165.0	1855	1855	1862	426.0	223.4	1907	1911	2298
309.0	166.6	1855	1855	1862	429.0	224.7	1910	1913	2307
312.0	168.2	1855	1855	1863	432.0	226.0	1912	1916	2312
315.0	169.8	1855	1855	1864	435.0	227.3	1914	1918	2317
318.0	171.4	1855	1856	1866	438.0	228.5	1916	1921	2320
321.0	173.0	1856	1856	1868	441.0	229.8	1919	1923	2322
324.0	174.6	1856	1856	1871	444.0	231.1	1921	1926	2324
327.0	176.2	1856	1856	1876	447.0	232.4	1923	1928	2325
330.0	177.8	1856	1856	1883	450.0	233.7	1925	1930	2327
333.0	179.4	1856	1857	1892	453.0	235.0	1928	1933	2328
336.0	181.0	1857	1857	1906	456.0	236.3	1930	1935	2329
339.0	182.5	1857	1858	1925	459.0	237.6	1932	1938	2331
342.0	184.0	1858	1858	1954	462.0	238.9	1934	1940	2334
345.0	185.6	1859	1860	1994	465.0	240.1	1936	1942	2337
348.0	187.0	1861	1861	2030	468.0	241.4	1939	1945	2342
351.0	188.5	1862	1863	2056	471.0	242.7	1941	1947	2349
354.0	189.9	1864	1864	2075	474.0	244.0	1943	1949	2359
357.0	191.4	1865	1866	2089	477.0	245.2	1945	1952	2373
360.0	192.8	1867	1868	2098	480.0	246.5	1947	1954	2394

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
483.0	247.7	1950	1957	2423	603.0	294.8	2046	2063	2561
486.0	248.9	1952	1960	2460	606.0	295.9	2048	2066	2561
489.0	250.1	1955	1963	2489	609.0	297.1	2050	2068	2561
492.0	251.3	1957	1966	2509	612.0	298.3	2052	2070	2562
495.0	252.5	1960	1969	2524	615.0	299.4	2054	2072	2562
498.0	253.7	1963	1972	2535	618.0	300.6	2056	2074	2563
501.0	254.9	1966	1975	2542	621.0	301.8	2058	2076	2564
504.0	256.1	1968	1978	2548	624.0	302.9	2060	2078	2565
507.0	257.2	1971	1981	2551	627.0	304.1	2062	2081	2567
510.0	258.4	1974	1984	2554	630.0	305.3	2064	2083	2569
513.0	259.6	1976	1987	2556	633.0	306.4	2066	2085	2573
516.0	260.8	1979	1989	2557	636.0	307.6	2068	2087	2579
519.0	261.9	1981	1992	2558	639.0	308.8	2069	2089	2586
522.0	263.1	1984	1995	2559	642.0	309.9	2071	2091	2597
525.0	264.3	1986	1998	2559	645.0	311.1	2073	2093	2613
528.0	265.5	1989	2001	2560	648.0	312.2	2076	2095	2635
531.0	266.6	1992	2004	2560	651.0	313.3	2078	2098	2663
534.0	267.8	1994	2007	2560	654.0	314.5	2080	2100	2685
537.0	269.0	1996	2009	2560	657.0	315.6	2082	2103	2701
540.0	270.1	1999	2012	2560	660.0	316.7	2084	2105	2712
543.0	271.3	2001	2015	2560	663.0	317.8	2086	2107	2720
546.0	272.5	2004	2017	2560	666.0	318.9	2089	2110	2725
549.0	273.7	2006	2020	2560	669.0	320.0	2091	2112	2729
552.0	274.8	2008	2023	2560	672.0	321.1	2093	2115	2732
555.0	276.0	2011	2025	2560	675.0	322.2	2095	2117	2734
558.0	277.2	2013	2028	2560	678.0	323.3	2097	2119	2708
561.0	278.3	2015	2030	2560	681.0	324.4	2099	2122	2769
564.0	279.5	2018	2033	2561	684.0	325.5	2102	2124	2686
567.0	280.7	2020	2035	2560	687.0	326.6	2104	2127	2744
570.0	281.9	2022	2038	2561	690.0	327.7	2106	2129	2783
573.0	283.0	2024	2040	2561	693.0	328.8	2108	2131	2595
576.0	284.2	2027	2043	2560	696.0	330.0	2109	2132	2539
579.0	285.4	2029	2045	2561	699.0	331.1	2111	2134	2672
582.0	286.5	2031	2047	2561	702.0	332.2	2113	2136	2646
585.0	287.7	2033	2050	2561	705.0	333.3	2115	2139	2828
588.0	288.9	2035	2052	2561	708.0	334.4	2117	2141	2762
591.0	290.1	2037	2054	2561	711.0	335.3	2120	2145	3158
594.0	291.2	2040	2057	2561	714.0	336.4	2123	2148	2947
597.0	292.4	2042	2059	2561	717.0	337.5	2125	2150	2744
600.0	293.6	2044	2061	2561	720.0	338.4	2127	2153	3069

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
723.0	339.4	2130	2157	3118	843.0	384.5	2193	2223	2602
726.0	340.4	2133	2160	3028	846.0	385.6	2194	2224	2575
729.0	341.3	2136	2164	3345	849.0	386.8	2195	2225	2534
732.0	342.3	2139	2166	2970	852.0	387.9	2196	2227	2709
735.0	343.2	2141	2170	3155	855.0	389.0	2198	2228	2744
738.0	344.3	2144	2172	2923	858.0	390.1	2199	2230	2690
741.0	345.3	2146	2175	2901	861.0	391.3	2200	2231	2532
744.0	346.3	2148	2178	2939	864.0	392.4	2202	2232	2651
747.0	347.4	2150	2180	2738	867.0	393.5	2203	2233	2726
750.0	348.5	2152	2181	2693	870.0	394.6	2205	2235	2745
753.0	349.6	2154	2183	2734	873.0	395.7	2206	2237	2854
756.0	350.8	2155	2185	2582	876.0	396.7	2208	2239	2904
759.0	352.0	2157	2186	2592	879.0	397.9	2209	2240	2649
762.0	353.2	2157	2187	2354	882.0	398.9	2211	2242	2864
765.0	354.5	2158	2188	2410	885.0	400.0	2212	2243	2712
768.0	355.7	2159	2189	2468	888.0	401.0	2214	2245	2880
771.0	356.9	2160	2190	2550	891.0	402.2	2215	2246	2602
774.0	358.0	2162	2191	2615	894.0	403.3	2217	2248	2635
777.0	359.2	2163	2193	2617	897.0	404.5	2218	2249	2618
780.0	360.4	2165	2194	2493	900.0	405.6	2219	2250	2646
783.0	361.5	2166	2195	2552	903.0	406.6	2221	2252	2916
786.0	362.7	2167	2197	2647	906.0	407.8	2222	2253	2606
789.0	363.8	2169	2198	2640	909.0	408.8	2223	2255	2871
792.0	364.9	2171	2200	2823	912.0	409.9	2225	2257	2918
795.0	366.0	2172	2202	2672	915.0	410.9	2227	2258	2780
798.0	367.2	2173	2203	2508	918.0	412.0	2228	2260	2877
801.0	368.4	2174	2204	2452	921.0	413.0	2230	2262	2873
804.0	369.6	2176	2205	2604	924.0	414.1	2231	2263	2791
807.0	370.6	2177	2207	2779	927.0	415.1	2233	2265	2929
810.0	371.8	2179	2209	2699	930.0	416.2	2234	2267	2716
813.0	372.9	2180	2210	2616	933.0	417.2	2236	2269	3090
816.0	374.1	2181	2211	2508	936.0	418.3	2238	2270	2733
819.0	375.3	2182	2212	2579	939.0	419.4	2239	2271	2628
822.0	376.4	2184	2214	2534	942.0	420.6	2240	2272	2669
825.0	377.5	2185	2216	2837	945.0	421.7	2241	2273	2628
828.0	378.6	2187	2217	2626	948.0	422.8	2242	2275	2815
831.0	379.8	2188	2218	2610	951.0	423.9	2244	2276	2759
834.0	381.0	2189	2219	2560	954.0	424.9	2245	2278	2838
837.0	382.2	2190	2220	2507	957.0	426.0	2246	2279	2767
840.0	383.3	2191	2222	2619	960.0	427.1	2248	2280	2717

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
963.0	428.2	2249	2282	2657	1083.0	470.6	2302	2338	2812
966.0	429.4	2250	2283	2633	1086.0	471.6	2303	2339	2889
969.0	430.5	2251	2284	2666	1089.0	472.6	2304	2340	2901
972.0	431.6	2252	2285	2766	1092.0	473.6	2306	2343	3230
975.0	432.5	2254	2288	3324	1095.0	474.6	2307	2344	2861
978.0	433.6	2256	2289	2825	1098.0	475.7	2308	2345	2840
981.0	434.6	2257	2291	2920	1101.0	476.7	2309	2346	2770
984.0	435.7	2259	2292	2809	1104.0	477.8	2311	2347	2810
987.0	436.7	2260	2293	2760	1107.0	478.9	2312	2348	2835
990.0	437.9	2261	2294	2616	1110.0	480.0	2313	2349	2774
993.0	439.0	2262	2295	2648	1113.0	481.0	2314	2351	2874
996.0	440.2	2263	2296	2586	1116.0	482.0	2315	2352	2944
999.0	441.2	2264	2298	2989	1119.0	482.8	2318	2355	3661
1002.0	442.3	2266	2299	2772	1122.0	483.9	2319	2356	2952
1005.0	443.3	2267	2301	2842	1125.0	484.9	2320	2358	2957
1008.0	444.4	2268	2302	2759	1128.0	485.9	2322	2359	3040
1011.0	445.5	2269	2303	2661	1131.0	486.9	2323	2360	2778
1014.0	446.7	2270	2304	2570	1134.0	488.0	2324	2362	2934
1017.0	447.7	2272	2305	2983	1137.0	489.0	2325	2363	2997
1020.0	448.7	2273	2307	2954	1140.0	490.0	2327	2365	2979
1023.0	449.8	2274	2308	2812	1143.0	490.8	2329	2367	3676
1026.0	450.8	2276	2310	3047	1146.0	491.9	2330	2368	2796
1029.0	451.9	2277	2312	2791	1149.0	492.9	2331	2369	2774
1032.0	453.0	2278	2312	2615	1152.0	494.0	2332	2370	2802
1035.0	454.0	2280	2314	2887	1155.0	495.1	2333	2371	2785
1038.0	455.1	2281	2315	2837	1158.0	496.2	2334	2372	2750
1041.0	456.1	2282	2317	2898	1161.0	497.2	2335	2373	2832
1044.0	457.2	2284	2318	2866	1164.0	498.3	2336	2374	2730
1047.0	458.0	2286	2321	3604	1167.0	499.4	2337	2375	2748
1050.0	459.0	2288	2323	3065	1170.0	500.5	2338	2376	2922
1053.0	460.0	2289	2325	2978	1173.0	501.5	2339	2377	2854
1056.0	461.1	2290	2326	2746	1176.0	502.5	2340	2379	3048
1059.0	462.2	2291	2327	2765	1179.0	503.7	2341	2379	2526
1062.0	463.3	2292	2328	2617	1182.0	504.8	2342	2380	2743
1065.0	464.4	2293	2328	2668	1185.0	505.8	2343	2381	2801
1068.0	465.5	2294	2330	2864	1188.0	506.9	2344	2382	2821
1071.0	466.5	2296	2331	2895	1191.0	508.0	2344	2383	2738
1074.0	467.3	2298	2334	3718	1194.0	509.0	2346	2384	2886
1077.0	468.4	2299	2335	2695	1197.0	510.1	2347	2385	2885
1080.0	469.5	2300	2337	2872	1200.0	511.2	2348	2386	2780

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
1203.0	512.2	2349	2387	2809	1323.0	552.2	2396	2439	2971
1206.0	513.3	2349	2388	2743	1326.0	553.3	2397	2439	2777
1209.0	514.4	2350	2389	2821	1329.0	554.3	2398	2440	2908
1212.0	515.5	2351	2390	2802	1332.0	555.3	2399	2442	3091
1215.0	516.6	2352	2390	2658	1335.0	556.3	2400	2442	2911
1218.0	517.7	2353	2391	2762	1338.0	557.3	2401	2443	2868
1221.0	518.7	2354	2393	2956	1341.0	558.4	2401	2444	2710
1224.0	519.7	2355	2394	2877	1344.0	559.6	2402	2444	2696
1227.0	520.8	2356	2395	2887	1347.0	560.6	2403	2445	2829
1230.0	521.8	2357	2396	2813	1350.0	561.6	2404	2446	2900
1233.0	522.9	2358	2397	2926	1353.0	562.7	2404	2447	2820
1236.0	523.9	2359	2398	2869	1356.0	563.8	2405	2448	2806
1239.0	524.9	2360	2399	2881	1359.0	564.9	2406	2448	2734
1242.0	526.0	2361	2400	2799	1362.0	565.9	2407	2449	2979
1245.0	527.0	2362	2401	2904	1365.0	566.9	2408	2450	2818
1248.0	528.1	2363	2402	2747	1368.0	568.1	2408	2450	2675
1251.0	529.0	2365	2404	3359	1371.0	569.1	2409	2451	2895
1254.0	529.9	2367	2406	3651	1374.0	570.2	2410	2452	2801
1257.0	530.7	2369	2408	3626	1377.0	571.2	2411	2453	2805
1260.0	531.5	2371	2411	3558	1380.0	572.3	2411	2453	2792
1263.0	532.2	2373	2414	4290	1383.0	573.3	2412	2454	2940
1266.0	533.1	2375	2416	3523	1386.0	574.4	2413	2455	2813
1269.0	533.9	2377	2419	3718	1389.0	575.4	2414	2456	2916
1272.0	534.7	2379	2421	3474	1392.0	576.5	2415	2457	2814
1275.0	535.6	2380	2423	3335	1395.0	577.5	2415	2458	2909
1278.0	536.5	2382	2424	3363	1398.0	578.5	2416	2459	2953
1281.0	537.6	2383	2426	2955	1401.0	579.6	2417	2459	2848
1284.0	538.6	2384	2427	2936	1404.0	580.6	2418	2460	3041
1287.0	539.6	2385	2428	2867	1407.0	581.7	2419	2461	2819
1290.0	540.7	2386	2428	2786	1410.0	582.7	2420	2462	2864
1293.0	541.8	2387	2429	2836	1413.0	583.7	2421	2463	2910
1296.0	542.8	2387	2430	2761	1416.0	584.8	2421	2464	2892
1299.0	543.9	2388	2431	2831	1419.0	585.8	2422	2464	2922
1302.0	545.0	2389	2431	2660	1422.0	586.9	2423	2465	2815
1305.0	546.0	2390	2433	3142	1425.0	587.9	2424	2466	2868
1308.0	547.1	2391	2433	2766	1428.0	588.9	2425	2467	3047
1311.0	548.1	2392	2434	2850	1431.0	589.9	2426	2468	2900
1314.0	549.2	2393	2435	2916	1434.0	590.9	2427	2469	3090
1317.0	550.1	2394	2436	3041	1437.0	591.8	2428	2471	3480
1320.0	551.2	2395	2437	2931	1440.0	592.6	2430	2473	3465

TABLE 1**Time depth curve values**

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
1443.0	593.6	2431	2473	3005	1563.0	629.3	2484	2537	3276
1446.0	594.6	2432	2475	3087	1566.0	630.1	2485	2539	3518
1449.0	595.6	2433	2476	3093	1569.0	631.0	2486	2540	3264
1452.0	596.6	2434	2477	3016	1572.0	631.9	2488	2542	3388
1455.0	597.5	2435	2478	3123	1575.0	632.8	2489	2543	3309
1458.0	598.5	2436	2479	2965	1578.0	633.8	2490	2544	3118
1461.0	599.6	2437	2480	2924	1581.0	634.7	2491	2545	3374
1464.0	600.6	2437	2480	2821	1584.0	635.5	2492	2547	3569
1467.0	601.5	2439	2482	3242	1587.0	636.4	2494	2548	3392
1470.0	602.2	2441	2485	4811	1590.0	637.3	2495	2549	3191
1473.0	602.8	2444	2489	4662	1593.0	638.3	2496	2550	3159
1476.0	603.4	2446	2492	4818	1596.0	639.2	2497	2551	3259
1479.0	604.1	2448	2495	4265	1599.0	640.1	2498	2553	3209
1482.0	604.8	2451	2498	4748	1602.0	641.1	2499	2554	3147
1485.0	605.4	2453	2501	4545	1605.0	642.0	2500	2555	3186
1488.0	606.1	2455	2504	4315	1608.0	643.0	2501	2556	3197
1491.0	606.7	2458	2508	5138	1611.0	644.0	2502	2557	3086
1494.0	607.3	2460	2511	4747	1614.0	644.8	2503	2558	3423
1497.0	608.5	2460	2512	2695	1617.0	645.8	2504	2559	3255
1500.0	609.6	2461	2512	2692	1620.0	646.7	2505	2560	3321
1503.0	610.7	2461	2513	2759	1623.0	647.6	2506	2561	3255
1506.0	611.8	2462	2513	2694	1626.0	648.5	2507	2562	3208
1509.0	612.9	2462	2513	2764	1629.0	649.4	2509	2564	3484
1512.0	614.0	2463	2514	2684	1632.0	650.3	2510	2565	3230
1515.0	615.1	2463	2514	2727	1635.0	651.1	2511	2567	3619
1518.0	616.1	2464	2515	3015	1638.0	652.1	2512	2568	3257
1521.0	616.7	2466	2518	4458	1641.0	653.0	2513	2569	3250
1524.0	617.7	2467	2519	3279	1644.0	654.0	2514	2570	3049
1527.0	618.6	2468	2520	3192	1647.0	654.9	2515	2571	3229
1530.0	619.5	2470	2522	3235	1650.0	655.8	2516	2572	3159
1533.0	620.4	2471	2523	3593	1653.0	656.8	2517	2573	3277
1536.0	621.3	2472	2525	3224	1656.0	657.6	2518	2574	3403
1539.0	622.2	2474	2526	3470	1659.0	658.6	2519	2575	3266
1542.0	623.1	2475	2527	3309	1662.0	659.5	2520	2576	3273
1545.0	623.8	2477	2530	3915	1665.0	660.4	2521	2577	3376
1548.0	624.7	2478	2531	3501	1668.0	661.2	2523	2579	3391
1551.0	625.6	2479	2533	3406	1671.0	662.2	2524	2580	3298
1554.0	626.4	2481	2534	3434	1674.0	663.1	2525	2581	3311
1557.0	627.4	2482	2535	3134	1677.0	663.9	2526	2582	3370
1560.0	628.3	2483	2536	3155	1680.0	664.8	2527	2583	3366

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
1683.0	665.7	2528	2585	3329	1803.0	701.0	2572	2632	3360
1686.0	666.6	2529	2586	3331	1806.0	701.8	2573	2634	3930
1689.0	667.5	2530	2587	3371	1809.0	702.7	2574	2635	3295
1692.0	668.4	2531	2588	3299	1812.0	703.5	2576	2636	3692
1695.0	669.3	2532	2589	3399	1815.0	704.4	2577	2637	3436
1698.0	670.2	2534	2591	3456	1818.0	705.3	2578	2638	3327
1701.0	671.1	2535	2592	3478	1821.0	706.2	2579	2639	3413
1704.0	671.9	2536	2593	3463	1824.0	707.1	2580	2640	3378
1707.0	672.8	2537	2595	3558	1827.0	708.0	2580	2641	3049
1710.0	673.6	2539	2596	3506	1830.0	708.9	2581	2642	3302
1713.0	674.5	2540	2597	3409	1833.0	709.8	2582	2643	3466
1716.0	675.4	2541	2599	3497	1836.0	710.7	2583	2644	3453
1719.0	676.2	2542	2600	3520	1839.0	711.6	2584	2645	3441
1722.0	677.1	2543	2601	3560	1842.0	712.4	2586	2646	3496
1725.0	677.9	2545	2603	3464	1845.0	713.3	2587	2648	3486
1728.0	678.8	2546	2604	3418	1848.0	714.1	2588	2649	3470
1731.0	679.7	2547	2605	3473	1851.0	715.0	2589	2650	3500
1734.0	680.5	2548	2606	3415	1854.0	715.7	2590	2652	4110
1737.0	681.4	2549	2608	3558	1857.0	716.6	2592	2653	3583
1740.0	682.2	2550	2609	3503	1860.0	717.4	2593	2654	3603
1743.0	683.1	2552	2610	3467	1863.0	718.2	2594	2656	3532
1746.0	684.0	2553	2611	3375	1866.0	719.1	2595	2657	3502
1749.0	684.9	2554	2613	3407	1869.0	720.0	2596	2658	3500
1752.0	685.8	2555	2613	3115	1872.0	720.8	2597	2659	3542
1755.0	686.7	2556	2615	3386	1875.0	721.6	2598	2660	3598
1758.0	687.6	2557	2616	3377	1878.0	722.5	2599	2662	3561
1761.0	688.5	2558	2617	3348	1881.0	723.3	2600	2663	3519
1764.0	689.4	2559	2618	3422	1884.0	724.2	2602	2664	3543
1767.0	690.3	2560	2619	3340	1887.0	725.0	2603	2665	3595
1770.0	691.2	2561	2620	3339	1890.0	725.9	2604	2666	3531
1773.0	692.0	2562	2621	3562	1893.0	726.7	2605	2668	3625
1776.0	692.9	2563	2622	3346	1896.0	727.5	2606	2669	3558
1779.0	693.8	2564	2624	3344	1899.0	728.4	2607	2670	3363
1782.0	694.7	2565	2625	3370	1902.0	729.2	2608	2671	3693
1785.0	695.7	2566	2625	3177	1905.0	730.1	2609	2673	3662
1788.0	696.6	2567	2626	3241	1908.0	730.9	2611	2674	3637
1791.0	697.5	2568	2627	3271	1911.0	731.7	2612	2675	3647
1794.0	698.3	2569	2629	3560	1914.0	732.4	2613	2677	4215
1797.0	699.3	2570	2630	3248	1917.0	733.3	2614	2678	3566
1800.0	700.1	2571	2631	3434	1920.0	734.1	2615	2679	3522

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
1923.0	734.9	2617	2681	3646	2043.0	766.8	2664	2735	3742
1926.0	735.7	2618	2682	3682	2046.0	767.6	2666	2736	3850
1929.0	736.6	2619	2683	3729	2049.0	768.3	2667	2737	3816
1932.0	737.4	2620	2685	3598	2052.0	769.1	2668	2739	3940
1935.0	738.2	2621	2686	3743	2055.0	769.9	2669	2740	3910
1938.0	739.1	2622	2687	3457	2058.0	770.6	2670	2742	3863
1941.0	739.9	2623	2688	3710	2061.0	771.4	2672	2743	3850
1944.0	740.7	2624	2689	3467	2064.0	772.2	2673	2744	3959
1947.0	741.6	2625	2690	3467	2067.0	773.0	2674	2746	3748
1950.0	742.4	2627	2692	3690	2070.0	773.7	2675	2747	3954
1953.0	743.2	2628	2693	3649	2073.0	774.5	2677	2749	4008
1956.0	744.0	2629	2694	3684	2076.0	775.3	2678	2750	3908
1959.0	744.8	2630	2696	3782	2079.0	776.1	2679	2751	3774
1962.0	745.7	2631	2697	3617	2082.0	776.8	2680	2753	3849
1965.0	746.5	2632	2698	3754	2085.0	777.6	2681	2754	3768
1968.0	747.3	2634	2700	3718	2088.0	778.4	2682	2755	3982
1971.0	748.0	2635	2701	3930	2091.0	779.1	2684	2757	3965
1974.0	748.8	2636	2702	3719	2094.0	779.9	2685	2758	3897
1977.0	749.6	2637	2704	3780	2097.0	780.7	2686	2760	4002
1980.0	750.4	2638	2705	3777	2100.0	781.4	2687	2761	3930
1983.0	751.2	2640	2707	3851	2103.0	782.2	2689	2762	3954
1986.0	752.0	2641	2708	3810	2106.0	782.9	2690	2764	3940
1989.0	752.8	2642	2709	3796	2109.0	783.7	2691	2765	3957
1992.0	753.6	2643	2711	3822	2112.0	784.5	2692	2766	3895
1995.0	754.3	2645	2712	3893	2115.0	785.3	2693	2768	3801
1998.0	755.1	2646	2714	3811	2118.0	786.0	2695	2769	3936
2001.0	755.9	2647	2715	3884	2121.0	786.7	2696	2771	4269
2004.0	756.7	2649	2717	3987	2124.0	787.5	2697	2772	3993
2007.0	757.4	2650	2718	3815	2127.0	788.2	2698	2773	3874
2010.0	758.2	2651	2719	3846	2130.0	789.0	2700	2775	4139
2013.0	759.0	2652	2721	3915	2133.0	789.7	2701	2776	3997
2016.0	759.8	2653	2722	3844	2136.0	790.5	2702	2778	3955
2019.0	760.6	2655	2723	3723	2139.0	791.2	2703	2779	4053
2022.0	761.3	2656	2725	3904	2142.0	792.0	2705	2781	3926
2025.0	762.0	2657	2727	4293	2145.0	792.7	2706	2782	4100
2028.0	762.8	2659	2728	3885	2148.0	793.5	2707	2783	3971
2031.0	763.5	2660	2730	4183	2151.0	794.3	2708	2785	3766
2034.0	764.3	2661	2731	3802	2154.0	795.1	2709	2786	3640
2037.0	765.1	2662	2732	3685	2157.0	795.9	2710	2787	3676
2040.0	766.0	2663	2733	3572	2160.0	796.7	2711	2788	3821

Well : DUNBAR EAST #01

Client : CULTUS PETROLEUM NL

Survey units : METRES

Datum : 0.0

Calibrated sonic velocities used from 678.0 to 2310.0

Datum depth	One-way time(ms)	— VELOCITIES —			Datum depth	One-way time(ms)	— VELOCITIES —		
		Average	RMS	Interval			Average	RMS	Interval
2163.0	797.4	2712	2789	3985	2283.0	825.4	2766	2854	4875
2166.0	798.2	2714	2791	4110	2286.0	826.1	2767	2856	4801
2169.0	799.0	2715	2792	3812	2289.0	826.7	2769	2858	4692
2172.0	799.7	2716	2793	3894	2292.0	827.3	2770	2860	4814
2175.0	800.5	2717	2795	3957	2295.0	827.9	2772	2862	4954
2178.0	801.2	2718	2796	4032	2298.0	828.5	2774	2864	4898
2181.0	802.0	2720	2797	4017	2301.0	829.2	2775	2866	4913
2184.0	802.7	2721	2799	4012	2304.0	829.8	2777	2868	4908
2187.0	803.5	2722	2800	4042	2307.0	830.4	2778	2870	4875
2190.0	804.2	2723	2802	4062	2310.0	831.0	2780	2872	4881
2193.0	805.0	2724	2803	3926					
2196.0	805.8	2725	2804	3814					
2199.0	806.5	2726	2805	3859					
2202.0	807.3	2728	2807	4031					
2205.0	808.0	2729	2808	3996					
2208.0	808.8	2730	2809	3995					
2211.0	809.5	2731	2811	4051					
2214.0	810.3	2732	2812	4026					
2217.0	811.0	2734	2813	4076					
2220.0	811.7	2735	2815	4158					
2223.0	812.5	2736	2816	4092					
2226.0	813.1	2738	2819	4931					
2229.0	813.8	2739	2820	4366					
2232.0	814.4	2741	2822	4414					
2235.0	815.1	2742	2824	4768					
2238.0	815.7	2744	2826	4655					
2241.0	816.4	2745	2828	4516					
2244.0	817.0	2747	2829	4599					
2247.0	817.7	2748	2831	4269					
2250.0	818.4	2749	2833	4386					
2253.0	819.1	2751	2834	4554					
2256.0	819.8	2752	2836	4344					
2259.0	820.4	2753	2838	4586					
2262.0	821.1	2755	2840	4619					
2265.0	821.7	2757	2842	4810					
2268.0	822.3	2758	2844	4602					
2271.0	823.0	2760	2846	4807					
2274.0	823.6	2761	2848	4922					
2277.0	824.2	2763	2850	4822					
2280.0	824.8	2764	2852	4810					

WELL DEVIATION CALCULATION SHEET TABLE 2

SHOT NO.	SHOT LOCATION	SHOT		SHOT DIR (DEG)	GEOPHONE DEPTH (M)	ARRIVAL PICK TIME (MSEC)	GEOPHONE TVD (M)	GEOPHONE OFFSET (M)	GEOPHONE DIR (DEG)	ARRIVAL TIME (TVD)
		SHOT OFFSET (M)	SHOT DIR							
1	A	8.00	155.00	77.30	45.50	77.30	0	186	45.50	
2	A	8.00	155.00	77.30	46.00	77.30	0	186	46.00	
3	B	14.00	105.00	77.30	44.50	77.30	0	186	44.50	
4	C	33.00	100.00	77.30	49.00	77.30	0	186	49.00	
5	C	33.00	100.00	77.30	49.50	77.30	0	186	49.50	
6	D	33.00	95.00	77.30	45.00	77.30	0	186	45.00	
7	D	33.00	95.00	77.30	44.50	77.30	0	186	44.50	
8	D	33.00	95.00	824.00	389.00	824.00	0	235	389.00	
9	D	33.00	95.00	1520.00	636.00	1520.10	23	277	635.72	
10	D	33.00	95.00	2392.00	857.50	2302.10	169	8	855.25	
11	D	33.00	95.00	2419.00	876.00	2390.00	170	8	873.84	
12	D	33.00	95.00	2419.00	876.50	2390.00	170	8	874.34	
13	D	33.00	95.00	2392.00	857.50	2302.10	169	8	855.25	
14	D	33.00	95.00	2154.00	813.50	2131.30	126	13.8	812.20	
15	D	33.00	95.00	1874.00	740.00	1868.00	34	11.3	739.90	
16	D	33.00	95.00	1596.00	659.00	1595.60	26	290	658.70	
17	D	33.00	95.00	1573.00	650.50	1572.60	25	280	650.20	
18	D	33.00	95.00	1545.00	644.50	1544.70	24	280	644.21	
19	D	33.00	95.00	1520.00	637.00	1520.00	23	277	636.72	
20	D	33.00	95.00	1357.00	580.00	1357.00	18	277	579.76	
21	D	33.00	95.00	1327.00	571.50	1327.00	17	277	571.27	
22	D	33.00	95.00	1220.00	533.50	1220.00	13	215	533.39	
23	D	33.00	95.00	1053.00	475.00	1053.00	11	212	474.90	
24	D	33.00	95.00	840.00	396.00	840.00	7	235	396.89	
25	D	33.00	95.00	824.00	390.50	824.00	7	235	390.38	
26	D	33.00	95.00	725.00	353.50	725.00	4	235	353.43	
27	D	33.00	95.00	560.00	289.00	560.00	2	232	288.95	
28	D	33.00	95.00	490.00	259.00	490.00	1	232	258.97	
29	D	33.00	95.00	420.00	226.00	420.00	1	217	225.98	

**COMPANY : CULTUS PETROLEUM NL
WELL : DUNBAR EAST #01**

Latitude : 667 890 E Longitude : 573 0202 N Survey date : 19-Apr-96
Elevations : Datum : 0 Ground : 73 Kelly : 77.3

Survey units : METRES
Times : MILLISECONDS

Shot data : Location Elevation Offset
A 73.0 8.0
B 73.0 14.0
C 73.0 33.0
D 72.7 33.0

Rig identification : O.D.E. RIG 30
Energy source : POWERGEL
Logger : B.P.B.
Elevation velocity
for shot statics : 1500
Instrument delay : 2.0 msec

SHOT CALCULATIONS :

Shot no.	Geophone depth Kelly - Datum	Shot Locn	Shot Depth	TIMES			Datum	Check shot interval		Velocities	
				Record	Corr.	Avg.		distance	time	Average	RMS
1	77.3	0.0	A	0.6	45.5	47.2					
2	77.3	0.0	A	0.6	46.0	47.7					
3	77.3	0.0	B	0.6	44.5	45.7 n/u					
4	77.3	0.0	C	0.6	49.0	46.8					
5	77.3	0.0	C	0.6	49.5	47.2					
6	77.3	0.0	D	2.0	45.0	47.2					
7	77.3	0.0	D	2.0	44.5	46.7	47.1	0.0			
29	420.0	342.7	D	2.0	226.0	231.5	231.5	184.4	342.7	184.4	1858.5
28	490.0	412.7	D	2.0	259.0	264.6	264.6	217.5	70.0	33.1	2114.8
27	560.0	482.7	D	2.0	289.0	294.7	294.7	247.6	70.0	30.1	2325.6
26	725.0	647.7	D	2.0	353.4	359.2	359.2	312.1	165.0	64.5	2558.1
8	824.0	746.7	D	2.0	389.0	394.9	394.9		99.0	36.4	2719.8
25	824.0	746.7	D	2.0	390.4	396.3	395.6	348.5	16.0	6.2	2580.7
24	840.0	762.7	D	2.0	395.9	401.8	401.8	354.7	2150.3	2176.6	2142.6

SHOT CALCULATIONS : (cont)

Shot no.	Geophone depth		Shot Locn	Shot Depth	TIMES			Check shot interval		Velocities			
	Kelly - Datum	Datum			Record	Corr.	Avg.	Datum	distance	time	Average	RMS	Interval
23	1053.0	975.7	D	2.0	474.9	480.9	480.9	433.8	213.0	79.1	2249.2	2279.4	2692.8
22	1220.0	1142.7	D	2.0	533.4	539.4	539.4	492.3	167.0	58.5	2321.1	2355.2	2854.7
21	1327.0	1249.7	D	2.0	571.3	577.3	577.3	530.2	107.0	37.9	2357.0	2391.7	2823.2
20	1357.0	1279.7	D	2.0	579.8	585.8	585.8	538.7	30.0	8.5	2375.5	2413.8	3529.4
9	1520.1	1442.8	D	2.0	635.7	641.7	641.7		163.1	56.4	2424.5	2463.1	2891.8
19	1520.1	1442.8	D	2.0	636.7	642.7	642.7	595.1	24.6	8.1	2432.7	2471.7	3037.0
18	1544.7	1467.4	D	2.0	644.2	650.3	650.3	603.2	27.9	6.0	2454.5	2502.4	4650.0
17	1572.6	1495.3	D	2.0	650.2	656.3	656.3	609.2	23.0	8.5	2458.0	2505.3	2705.9
16	1595.6	1518.3	D	3.0	658.7	664.8	664.8	617.7	272.4	81.2	2562.2	2618.2	3354.7
15	1868.0	1790.7	D	2.0	739.9	746.0	746.0	698.9	263.3	72.3	2663.4	2730.5	3641.8
14	2131.3	2054.0	D	2.0	812.2	818.3	818.3	771.2	170.8	43.1	2732.2	2809.3	3962.9
10	2302.1	2224.8	D	2.0	855.3	861.4	861.4		87.9	18.8	2776.2	2865.2	4688.0
13	2302.1	2224.8	D	2.0	855.3	861.4	861.4	814.3					
11	2390.0	2312.7	D	2.5	873.8	879.9	879.9						
12	2390.0	2312.7	D	2.0	874.3	880.4	880.4	833.1					

**COMPANY : CULTUS PETROLEUM NL
WELL : DUNBAR EAST #01**

Latitude : 667 890 E Longitude : 573 0202 N Survey date : 19-Apr-96 Survey units : METRES
Elevations : Datum : 0 Ground : 73 Kelly : 77.3 Times : MILLISECONDS

SONIC DRIFT :

Geophone Kelly — Datum	depth Datum	Check shot times Average - Below Datum	Check shot interval Distance - Time	Sonic Int. time	Interval sonic drift usec/m - msec	Cumulative drift msec
77.3	0.0	47.1	0.0			
420.0	342.7	231.5	184.4			
490.0	412.7	264.6	33.1			
560.0	482.7	294.7	30.1			
725.0	647.7	359.2	64.5			
824.0	746.7	395.6	36.4			
Paaratte Fm						
840.0	762.7	401.8	6.2	5.6	37.50	0.6
1053.0	975.7	480.9	213.0	78.8	1.41	0.9
1220.0	1142.7	539.4	167.0	58.6	-0.60	0.8
Nullwaarre Fm			107.0	36.1	16.82	2.6
1327.0	1249.7	577.3	30.0	9.8	-43.33	1.3
1357.0	1279.7	585.8	163.1	54.4	12.26	3.3
1520.1	1442.8	642.2	56.4			

SONIC DRIFT : (cont)

Geophone depth Kelly — Datum	Check shot times Average - Below Datum	Check shot interval Distance - Time	Sonic Int. time	Interval sonic drift usec/m - msec	Cumulative drift msec
1520.1 1442.8	642.2 595.1	24.6 8.1	7.6	20.32 0.5	3.8
1544.7 1467.4	650.3 603.2	27.9 6.0	8.1	-75.27 -2.1	1.7
1572.6 1495.3	656.3 609.2	23.0 8.5	7.1	60.87 1.4	3.1
Eumeralla Fm					
1595.6 1518.3	664.8 617.7	272.4 81.2	77.6	13.22 3.6	6.7
1868.0 1790.7	746.0 698.9	263.3 72.3	70.0	8.74 2.3	9.0
2131.3 2054.0	818.3 771.2	170.8 43.1	42.0	6.44 1.1	10.1
2302.1 2224.8	861.4 814.3	87.9 18.8	20.6	-21.05 -1.9	8.3
2390.0 2312.7	880.2 833.1				

COMPANY : CULTUS PETROLEUM NL
WELL : DUNBAR EAST #01

Latitude : 667 890 E Longitude : 573 0202 N Survey date : 19-Apr-96
 Elevations : Datum : 0 Ground : 73 Kelly : 77.3

Survey units : METRES
 Times : MILLISECONDS

SONIC CALIBRATION :

Geophone Kelly — Datum	Interval Distance	Original sonic times Interval — Cumulative	Adjusted sonic times Interval — Calibrated	Velocities	
				Average	RMS
77.3	0.0				
420.0	342.7			1858.5	1858.5
490.0	70.0			1897.5	1899.7
560.0	70.0			1949.5	1956.4
725.0	165.0			2075.3	2095.0
824.0	99.0			2142.6	2168.7
	16.0	5.6	6.2		2580.7
Paaratte Fm					
840.0	762.7	5.6		2150.3	2176.6
1053.0	213.0	78.8	79.1	2249.2	2279.4
	135.0	47.9	47.8		2823.2
Skull Creek M'st					
1188.0	1110.7	132.3	481.6	2306.2	2339.1
1220.0	32.0	10.7	10.7	2321.1	2355.3
	107.0	36.1	37.9		2823.2
Nullawaarre Fm					
1327.0	1249.7	179.1	530.2	2357.0	2391.8

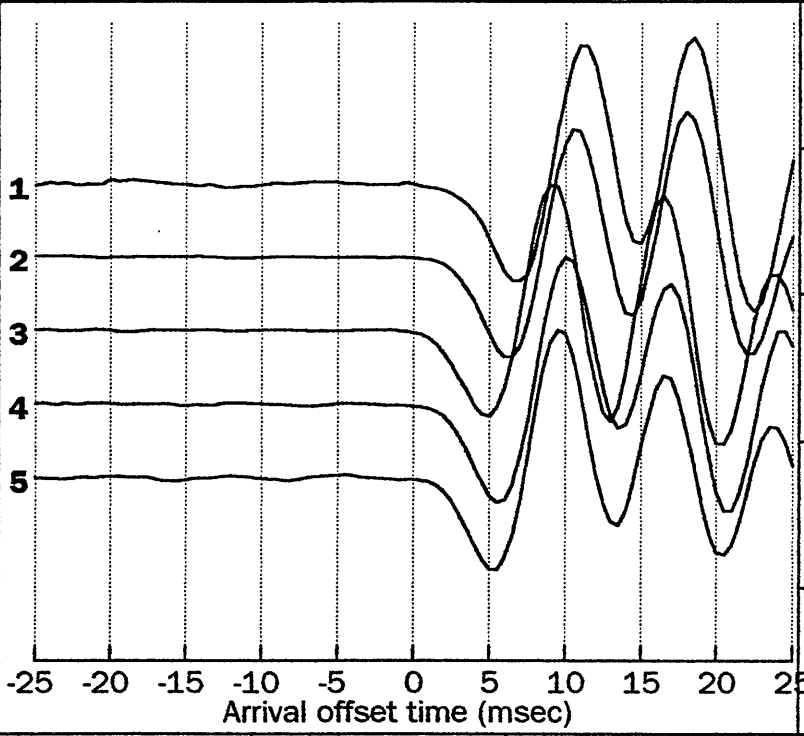
SONIC CALIBRATION : (cont)

Geophone depth Kelly — Datum	Interval Distance	Original sonic times Interval — Cumulative	Adjusted sonic times Interval — Calibrated	Velocities	
				Average	RMS
Nullawaarre Fm 1327.0 1249.7	4.5	1.5	1.3	2357.0	2391.8
Belfast M'st 1331.5 1254.2	25.5	180.6	7.2	2359.7	2394.9
1357.0 1279.7	153.0	188.9	53.3	2375.5	2413.9
Waarre Fm 1510.0 1432.7	10.1	240.3	3.1	2420.1	2458.5
1520.1 1442.8	24.6	243.3	8.1	2424.5	2463.3
1544.7 1467.4	27.9	250.9	6.0	2432.7	2471.9
1572.6 1495.3	23.0	259.0	8.5	2454.5	2502.6
Eumeralla Fm 1595.6 1518.3	272.4	266.1	81.2	2458.0	2505.5
1868.0 1790.7	263.3	343.7	72.3	2562.2	2618.3
2131.3 2054.0	170.8	413.7	43.1	2663.4	2730.6
2302.1 2224.8	2.9	455.7	0.6	2732.2	2809.4
Heathfield Sst 2305.0 2227.7	85.0	456.4	18.1	2733.6	2811.2
2390.0 2312.7		476.3		2776.2	2865.3
					3458.8
					3542.2
					2871.1
					3247.3
					3037.0
					4650.0
					2705.9
					3354.7
					3641.8
					3962.9
					4551.4
					4692.8

SONIC CALIBRATION : (cont)

Geophone depth Kelly --- Datum	Interval Distance	Original sonic times Interval - Cumulative	Adjusted sonic times Interval - Calibrated	Average --- RMS --- Interval	Velocities --- Interval
2390.0	2312.7			2776.2	2865.3

First arrivals plot : DUNBAR EAST #01



Shot 1 Location : A
Charge depth 0.6 Size 0.3
Phone depth : 77.3
Arrival time : 45.5 msec

Shot 2 Location : A
Charge depth 0.6 Size 0.3
Phone depth : 77.3
Arrival time : 46.0 msec

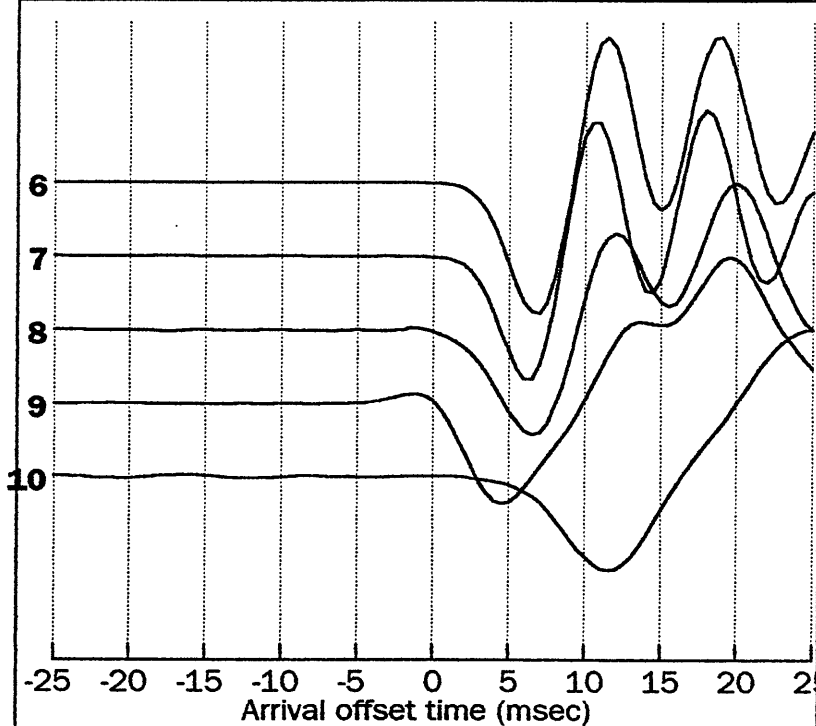
Shot 3 Location : B
Charge depth 0.6 Size 0.3
Phone depth : 77.3
Arrival time : 44.5 msec

Shot 4 Location : C
Charge depth 0.6 Size 0.3
Phone depth : 77.3
Arrival time : 49.0 msec

Shot 5 Location : C
Charge depth 0.6 Size 0.3
Phone depth : 77.3
Arrival time : 49.5 msec

SHOT 1		SHOT 2		SHOT 3		SHOT 4		SHOT 5	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
34.0	3.00	35.0	5.00	34.0	-2.00	38.0	-6.00	38.0	-6.00
34.5	2.00	35.5	3.00	34.5	-4.00	38.5	-4.00	38.5	-2.00
35.0	0.00	36.0	1.00	35.0	-5.00	39.0	-3.00	39.0	1.00
35.5	-2.00	36.5	-2.00	35.5	-5.00	39.5	-2.00	39.5	5.00
36.0	-3.00	37.0	-4.00	36.0	-5.00	40.0	0.00	40.0	5.00
36.5	-2.00	37.5	-4.00	36.5	-6.00	40.5	0.00	40.5	12.00
37.0	-2.00	38.0	-7.00	37.0	-5.00	41.0	2.00	41.0	8.00
37.5	-3.00	38.5	-3.00	37.5	-3.00	41.5	4.00	41.5	5.00
38.0	-4.00	39.0	-1.00	38.0	0.00	42.0	6.00	42.0	-1.00
38.5	-5.00	39.5	-1.00	38.5	2.00	42.5	6.00	42.5	-6.00
39.0	-4.00	40.0	0.00	39.0	3.00	43.0	2.00	43.0	-8.00
39.5	-4.00	40.5	1.00	39.5	3.00	43.5	1.00	43.5	-10.00
40.0	-4.00	41.0	3.00	40.0	2.00	44.0	-3.00	44.0	-10.00
40.5	-2.00	41.5	3.00	40.5	1.00	44.5	-4.00	44.5	-14.00
41.0	-2.00	42.0	3.00	41.0	0.00	45.0	-3.00	45.0	-10.00
41.5	-2.00	42.5	2.00	41.5	-2.00	45.5	-2.00	45.5	-4.00
42.0	0.00	43.0	1.00	42.0	-4.00	46.0	-2.00	46.0	-2.00
42.5	0.00	43.5	0.00	42.5	-5.00	46.5	-1.00	46.5	1.00
43.0	0.00	44.0	4.00	43.0	-4.00	47.0	1.00	47.0	3.00
43.5	0.00	44.5	3.00	43.5	-5.00	47.5	4.00	47.5	5.00
44.0	-1.00	45.0	1.00	44.0	1.00	48.0	1.00	48.0	8.00
44.5	-3.00	45.5	2.00	44.5	7.00	48.5	4.00	48.5	6.00
45.0	-1.00	46.0	6.00	45.0	20.00	49.0	7.00	49.0	6.00
45.5	3.00	46.5	14.00	45.5	36.00	49.5	9.00	49.5	10.00
46.0	4.00	47.0	20.00	46.0	69.00	50.0	15.00	50.0	16.00
46.5	6.00	47.5	33.00	46.5	122.00	50.5	25.00	50.5	30.00
47.0	9.00	48.0	60.00	47.0	200.00	51.0	42.00	51.0	57.00
47.5	14.00	48.5	105.00	47.5	302.00	51.5	71.00	51.5	94.00
48.0	23.00	49.0	171.00	48.0	425.00	52.0	111.00	52.0	149.00
48.5	32.00	49.5	264.00	48.5	537.00	52.5	161.00	52.5	216.00
49.0	45.00	50.0	360.00	49.0	663.00	53.0	221.00	53.0	274.00
49.5	64.00	50.5	491.00	49.5	746.00	53.5	270.00	53.5	337.00
50.0	90.00	51.0	624.00	50.0	761.00	54.0	320.00	54.0	377.00
50.5	117.00	51.5	740.00	50.5	677.00	54.5	344.00	54.5	381.00
51.0	143.00	52.0	808.00	51.0	515.00	55.0	334.00	55.0	333.00
51.5	157.00	52.5	803.00	51.5	230.00	55.5	280.00	55.5	241.00
52.0	158.00	53.0	721.00	52.0	-140.00	56.0	182.00	56.0	100.00
52.5	147.00	53.5	540.00	52.5	-540.00	56.5	67.00	56.5	-82.00
53.0	110.00	54.0	268.00	53.0	-913.00	57.0	-89.00	57.0	-270.00
53.5	54.00	54.5	-66.00	53.5	-1194.00	57.5	-247.00	57.5	-438.00
54.0	-17.00	55.0	-415.00	54.0	-1313.00	58.0	-383.00	58.0	-560.00
54.5	-91.00	55.5	-730.00	54.5	-1298.00	58.5	-478.00	58.5	-607.00
55.0	-147.00	56.0	-927.00	55.0	-1101.00	59.0	-515.00	59.0	-595.00
55.5	-198.00	56.5	-1050.00	55.5	-753.00	59.5	-499.00	59.5	-508.00
56.0	-226.00	57.0	-1032.00	56.0	-311.00	60.0	-426.00	60.0	-362.00

First arrivals plot : DUNBAR EAST #01



Shot 6 Location : D
 Charge depth 2.0 Size 0.3
 Phone depth : 77.3
 Arrival time : 45.0 msec

Shot 7 Location : D
 Charge depth 2.0 Size 0.3
 Phone depth : 77.3
 Arrival time : 44.5 msec

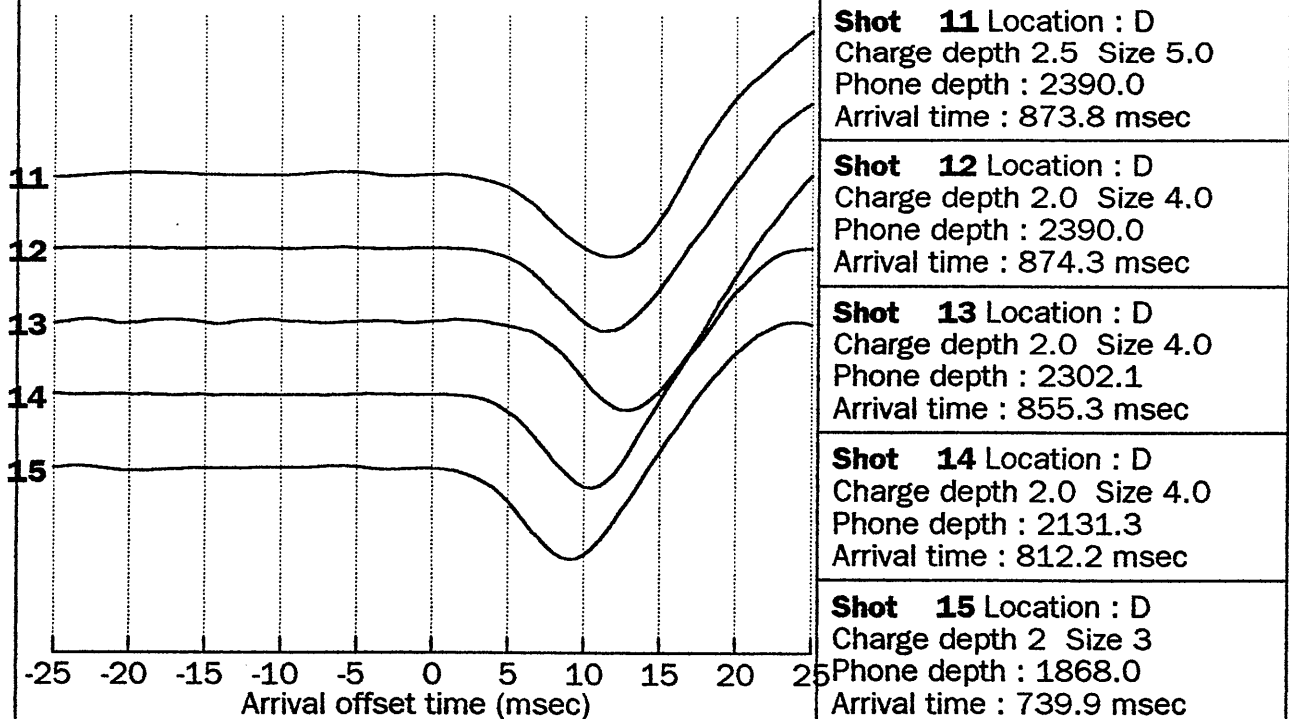
Shot 8 Location : D
 Charge depth 2.0 Size 1.0
 Phone depth : 824.0
 Arrival time : 389.0 msec

Shot 9 Location : D
 Charge depth 2.0 Size 2.0
 Phone depth : 1520.1
 Arrival time : 635.7 msec

Shot 10 Location : D
 Charge depth 2.0 Size 4.0
 Phone depth : 2302.1
 Arrival time : 855.3 msec

SHOT 6		SHOT 7		SHOT 8		SHOT 9		SHOT 10	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
34.0	-7.00	34.0	-4.00	378.0	0.00	611.0	3.00	830.0	-4.00
34.5	-7.00	34.5	-6.00	378.5	-1.00	611.5	4.00	830.5	-4.00
35.0	-6.00	35.0	-7.00	379.0	-1.00	612.0	3.00	831.0	-5.00
35.5	-1.00	35.5	-8.00	379.5	0.00	612.5	1.00	831.5	-3.00
36.0	2.00	36.0	-7.00	380.0	1.00	613.0	-1.00	832.0	-1.00
36.5	4.00	36.5	-6.00	380.5	0.00	613.5	-3.00	832.5	2.00
37.0	2.00	37.0	-3.00	381.0	2.00	614.0	-2.00	833.0	6.00
37.5	2.00	37.5	0.00	381.5	3.00	614.5	-3.00	833.5	6.00
38.0	0.00	38.0	0.00	382.0	3.00	615.0	-3.00	834.0	6.00
38.5	-4.00	38.5	2.00	382.5	4.00	615.5	-2.00	834.5	7.00
39.0	-7.00	39.0	4.00	383.0	0.00	616.0	-1.00	835.0	5.00
39.5	-10.00	39.5	3.00	383.5	1.00	616.5	-1.00	835.5	3.00
40.0	-8.00	40.0	1.00	384.0	-6.00	617.0	-1.00	836.0	0.00
40.5	-8.00	40.5	-1.00	384.5	1.00	617.5	3.00	836.5	-3.00
41.0	-6.00	41.0	-3.00	385.0	1.00	618.0	3.00	837.0	-6.00
41.5	-5.00	41.5	-4.00	385.5	1.00	618.5	3.00	837.5	-8.00
42.0	-1.00	42.0	-4.00	386.0	1.00	619.0	3.00	838.0	-10.00
42.5	2.00	42.5	-5.00	386.5	-1.00	619.5	4.00	838.5	-11.00
43.0	7.00	43.0	-3.00	387.0	-1.00	620.0	4.00	839.0	-10.00
43.5	10.00	43.5	-2.00	387.5	-15.00	620.5	4.00	839.5	-9.00
44.0	10.00	44.0	3.00	388.0	-11.00	621.0	4.00	840.0	-5.00
44.5	11.00	44.5	19.00	388.5	-5.00	621.5	4.00	840.5	-4.00
45.0	20.00	45.0	37.00	389.0	7.00	622.0	5.00	841.0	0.00
45.5	34.00	45.5	63.00	389.5	23.00	622.5	2.00	841.5	4.00
46.0	67.00	46.0	115.00	390.0	40.00	623.0	1.00	842.0	6.00
46.5	137.00	46.5	226.00	390.5	63.00	623.5	1.00	842.5	6.00
47.0	268.00	47.0	392.00	391.0	91.00	624.0	1.00	843.0	6.00
47.5	506.00	47.5	703.00	391.5	124.00	624.5	3.00	843.5	6.00
48.0	892.00	48.0	1188.00	392.0	170.00	625.0	2.00	844.0	6.00
48.5	1367.00	48.5	1865.00	392.5	228.00	625.5	-2.00	844.5	2.00
49.0	2110.00	49.0	2728.00	393.0	295.00	626.0	0.00	845.0	0.00
49.5	3034.00	49.5	3708.00	393.5	367.00	626.5	0.00	845.5	-3.00
50.0	4061.00	50.0	4528.00	394.0	439.00	627.0	-1.00	846.0	-4.00
50.5	5086.00	50.5	5368.00	394.5	490.00	627.5	0.00	846.5	-5.00
51.0	5946.00	51.0	5865.00	395.0	541.00	628.0	2.00	847.0	-5.00
51.5	6385.00	51.5	5845.00	395.5	561.00	628.5	0.00	847.5	-5.00
52.0	6478.00	52.0	5188.00	396.0	550.00	629.0	0.00	848.0	-3.00
52.5	5944.00	52.5	3920.00	396.5	501.00	629.5	0.00	848.5	0.00
53.0	4732.00	53.0	2271.00	397.0	409.00	630.0	-2.00	849.0	0.00
53.5	2891.00	53.5	76.00	397.5	302.00	630.5	-3.00	849.5	-1.00
54.0	934.00	54.0	-2225.00	398.0	153.00	631.0	-6.00	850.0	2.00
54.5	-1532.00	54.5	-4288.00	398.5	-12.00	631.5	-10.00	850.5	3.00
55.0	-3890.00	55.0	-5807.00	399.0	-172.00	632.0	-17.00	851.0	3.00
55.5	-5807.00	55.5	-6454.00	399.5	-317.00	632.5	-28.00	851.5	2.00
56.0	-7000.00	56.0	-6452.00	400.0	-428.00	633.0	-43.00	852.0	1.00
						633.5	-58.00	852.5	1.00

First arrivals plot : DUNBAR EAST #01



Shot 11 Location : D
 Charge depth 2.5 Size 5.0
 Phone depth : 2390.0
 Arrival time : 873.8 msec

Shot 12 Location : D
 Charge depth 2.0 Size 4.0
 Phone depth : 2390.0
 Arrival time : 874.3 msec

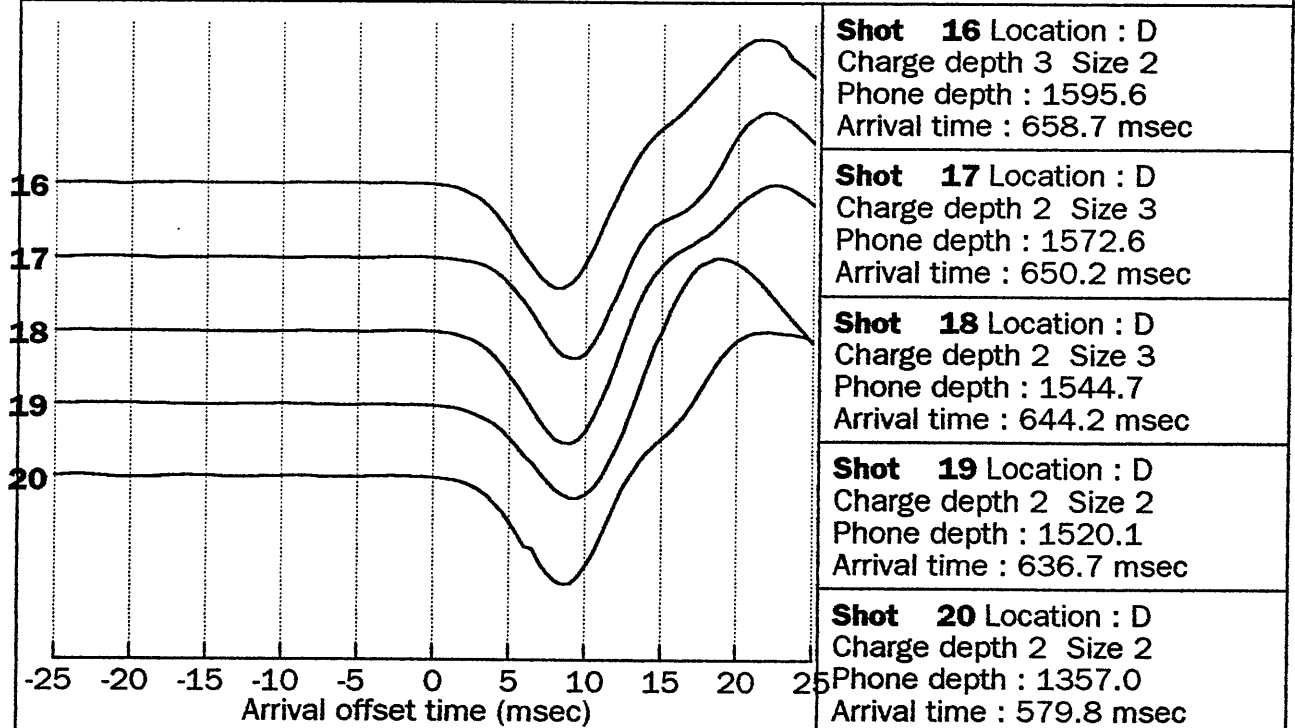
Shot 13 Location : D
 Charge depth 2.0 Size 4.0
 Phone depth : 2302.1
 Arrival time : 855.3 msec

Shot 14 Location : D
 Charge depth 2.0 Size 4.0
 Phone depth : 2131.3
 Arrival time : 812.2 msec

Shot 15 Location : D
 Charge depth 2 Size 3
 Phone depth : 1868.0
 Arrival time : 739.9 msec

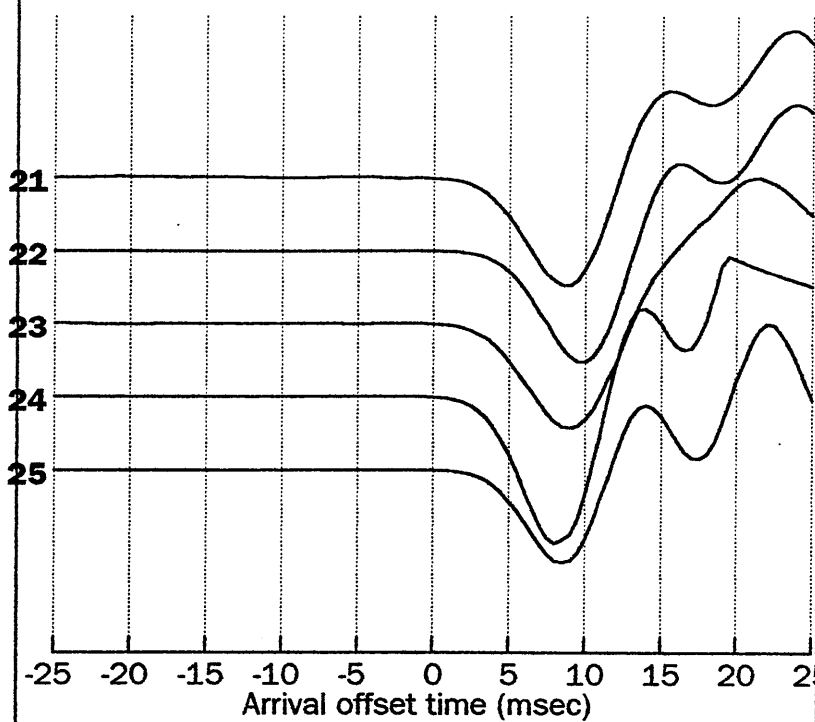
SHOT 11		SHOT 12		SHOT 13		SHOT 14		SHOT 15	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
849.0	11.00	849.0	2.00	830.0	4.00	787.0	-2.00	715.0	-10.00
849.5	10.00	849.5	0.00	830.5	1.00	787.5	-2.00	715.5	-26.00
850.0	9.00	850.0	1.00	831.0	-1.00	788.0	0.00	716.0	-41.00
850.5	5.00	850.5	1.00	831.5	-4.00	788.5	1.00	716.5	-47.00
851.0	2.00	851.0	0.00	832.0	-5.00	789.0	0.00	717.0	-44.00
851.5	0.00	851.5	0.00	832.5	-5.00	789.5	1.00	717.5	-31.00
852.0	-2.00	852.0	-1.00	833.0	-3.00	790.0	0.00	718.0	-10.00
852.5	-4.00	852.5	0.00	833.5	-2.00	790.5	0.00	718.5	17.00
853.0	-6.00	853.0	-1.00	834.0	3.00	791.0	0.00	719.0	39.00
853.5	-7.00	853.5	0.00	834.5	4.00	791.5	-1.00	719.5	56.00
854.0	-10.00	854.0	0.00	835.0	3.00	792.0	0.00	720.0	63.00
854.5	-9.00	854.5	0.00	835.5	3.00	792.5	1.00	720.5	66.00
855.0	-9.00	855.0	0.00	836.0	0.00	793.0	-2.00	721.0	62.00
855.5	-7.00	855.5	1.00	836.5	-3.00	793.5	0.00	721.5	52.00
856.0	-7.00	856.0	3.00	837.0	-4.00	794.0	2.00	722.0	41.00
856.5	-7.00	856.5	1.00	837.5	-4.00	794.5	2.00	722.5	28.00
857.0	-6.00	857.0	1.00	838.0	-4.00	795.0	4.00	723.0	20.00
857.5	-5.00	857.5	2.00	838.5	-4.00	795.5	3.00	723.5	10.00
858.0	-4.00	858.0	2.00	839.0	-3.00	796.0	2.00	724.0	3.00
858.5	-3.00	858.5	2.00	839.5	-1.00	796.5	0.00	724.5	-1.00
859.0	-1.00	859.0	1.00	840.0	2.00	797.0	0.00	725.0	-2.00
859.5	-1.00	859.5	1.00	840.5	4.00	797.5	4.00	725.5	-1.00
860.0	1.00	860.0	1.00	841.0	6.00	798.0	2.00	726.0	0.00
860.5	2.00	860.5	1.00	841.5	3.00	798.5	2.00	726.5	0.00
861.0	3.00	861.0	-1.00	842.0	0.00	799.0	2.00	727.0	-1.00
861.5	4.00	861.5	-1.00	842.5	-3.00	799.5	3.00	727.5	-4.00
862.0	4.00	862.0	-1.00	843.0	-4.00	800.0	2.00	728.0	-8.00
862.5	4.00	862.5	0.00	843.5	-5.00	800.5	2.00	728.5	-10.00
863.0	4.00	863.0	1.00	844.0	-6.00	801.0	-1.00	729.0	-12.00
863.5	4.00	863.5	1.00	844.5	-5.00	801.5	1.00	729.5	-12.00
864.0	4.00	864.0	2.00	845.0	-3.00	802.0	1.00	730.0	-11.00
864.5	1.00	864.5	1.00	845.5	-2.00	802.5	2.00	730.5	-10.00
865.0	-2.00	865.0	2.00	846.0	-1.00	803.0	2.00	731.0	-11.00
865.5	-3.00	865.5	0.00	846.5	0.00	803.5	3.00	731.5	-15.00
866.0	-8.00	866.0	-1.00	847.0	2.00	804.0	3.00	732.0	-21.00
866.5	-10.00	866.5	-1.00	847.5	2.00	804.5	3.00	732.5	-30.00
867.0	-13.00	867.0	-2.00	848.0	3.00	805.0	4.00	733.0	-41.00
867.5	-14.00	867.5	-3.00	848.5	2.00	805.5	0.00	733.5	-46.00
868.0	-14.00	868.0	-5.00	849.0	1.00	806.0	1.00	734.0	-47.00
868.5	-15.00	868.5	-3.00	849.5	1.00	806.5	0.00	734.5	-41.00
869.0	-12.00	869.0	-2.00	850.0	0.00	807.0	-1.00	735.0	-29.00
869.5	-9.00	869.5	0.00	850.5	-1.00	807.5	-2.00	735.5	-11.00
870.0	-5.00	870.0	0.00	851.0	-2.00	808.0	-2.00	736.0	8.00
870.5	-1.00	870.5	2.00	851.5	-2.00	808.5	-1.00	736.5	25.00
871.0	2.00	871.0	1.00	852.0	-1.00	809.0	-1.00	737.0	33.00
871.5	5.00	871.5	3.00	852.5	0.00	809.5	0.00	737.5	35.00

First arrivals plot : DUNBAR EAST #01



SHOT 16		SHOT 17		SHOT 18		SHOT 19		SHOT 20	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
634.0	-1.00	625.0	1.00	619.0	2.00	612.0	1.00	555.0	-8.00
634.5	-2.00	625.5	3.00	619.5	2.00	612.5	0.00	555.5	-11.00
635.0	-1.00	626.0	1.00	620.0	0.00	613.0	-1.00	556.0	-13.00
635.5	-2.00	626.5	0.00	620.5	0.00	613.5	-3.00	556.5	-14.00
636.0	-2.00	627.0	-1.00	621.0	0.00	614.0	-4.00	557.0	-13.00
636.5	0.00	627.5	-2.00	621.5	-1.00	614.5	-4.00	557.5	-10.00
637.0	1.00	628.0	-2.00	622.0	1.00	615.0	-4.00	558.0	-6.00
637.5	2.00	628.5	-2.00	622.5	1.00	615.5	-6.00	558.5	-3.00
638.0	4.00	629.0	-2.00	623.0	0.00	616.0	-6.00	559.0	3.00
638.5	6.00	629.5	-2.00	623.5	1.00	616.5	-6.00	559.5	4.00
639.0	3.00	630.0	0.00	624.0	2.00	617.0	-4.00	560.0	5.00
639.5	2.00	630.5	2.00	624.5	3.00	617.5	-4.00	560.5	5.00
640.0	2.00	631.0	2.00	625.0	2.00	618.0	-2.00	561.0	4.00
640.5	0.00	631.5	3.00	625.5	2.00	618.5	-1.00	561.5	-1.00
641.0	-1.00	632.0	6.00	626.0	2.00	619.0	-1.00	562.0	-3.00
641.5	-2.00	632.5	5.00	626.5	3.00	619.5	0.00	562.5	-6.00
642.0	-2.00	633.0	4.00	627.0	2.00	620.0	3.00	563.0	-8.00
642.5	-2.00	633.5	5.00	627.5	2.00	620.5	1.00	563.5	-9.00
643.0	-2.00	634.0	3.00	628.0	2.00	621.0	2.00	564.0	-9.00
643.5	-1.00	634.5	5.00	628.5	3.00	621.5	3.00	564.5	-8.00
644.0	0.00	635.0	0.00	629.0	4.00	622.0	4.00	565.0	-7.00
644.5	1.00	635.5	0.00	629.5	4.00	622.5	3.00	565.5	-5.00
645.0	0.00	636.0	0.00	630.0	4.00	623.0	4.00	566.0	-3.00
645.5	1.00	636.5	-1.00	630.5	4.00	623.5	3.00	566.5	0.00
646.0	0.00	637.0	0.00	631.0	4.00	624.0	0.00	567.0	2.00
646.5	0.00	637.5	0.00	631.5	4.00	624.5	0.00	567.5	2.00
647.0	0.00	638.0	1.00	632.0	4.00	625.0	-2.00	568.0	0.00
647.5	0.00	638.5	2.00	632.5	4.00	625.5	0.00	568.5	-2.00
648.0	0.00	639.0	2.00	633.0	4.00	626.0	-2.00	569.0	-4.00
648.5	0.00	639.5	3.00	633.5	3.00	626.5	-3.00	569.5	-4.00
649.0	-1.00	640.0	3.00	634.0	2.00	627.0	-4.00	570.0	-7.00
649.5	-2.00	640.5	4.00	634.5	1.00	627.5	-3.00	570.5	-8.00
650.0	-3.00	641.0	4.00	635.0	0.00	628.0	-2.00	571.0	-8.00
650.5	-4.00	641.5	2.00	635.5	0.00	628.5	0.00	571.5	-6.00
651.0	-3.00	642.0	1.00	636.0	0.00	629.0	0.00	572.0	-5.00
651.5	-4.00	642.5	1.00	636.5	1.00	629.5	2.00	572.5	0.00
652.0	-7.00	643.0	1.00	637.0	1.00	630.0	3.00	573.0	-1.00
652.5	-4.00	643.5	1.00	637.5	2.00	630.5	4.00	573.5	0.00
653.0	-4.00	644.0	1.00	638.0	2.00	631.0	6.00	574.0	-1.00
653.5	-4.00	644.5	2.00	638.5	1.00	631.5	6.00	574.5	-2.00
654.0	-3.00	645.0	3.00	639.0	3.00	632.0	5.00	575.0	-1.00
654.5	-2.00	645.5	4.00	639.5	4.00	632.5	4.00	575.5	-2.00
655.0	-1.00	646.0	1.00	640.0	2.00	633.0	2.00	576.0	-3.00
655.5	-2.00	646.5	1.00	640.5	2.00	633.5	2.00	576.5	-4.00
656.0	-2.00	647.0	-1.00	641.0	0.00	634.0	1.00	577.0	-5.00
656.5	-2.00	647.5	-2.00	641.5	-2.00	634.5	3.00	577.5	-5.00

First arrivals plot : DUNBAR EAST #01



Shot 21 Location : D
 Charge depth 2 Size 2
 Phone depth : 1327.0
 Arrival time : 571.3 msec

Shot 22 Location : D
 Charge depth 2 Size 2
 Phone depth : 1220.0
 Arrival time : 533.4 msec

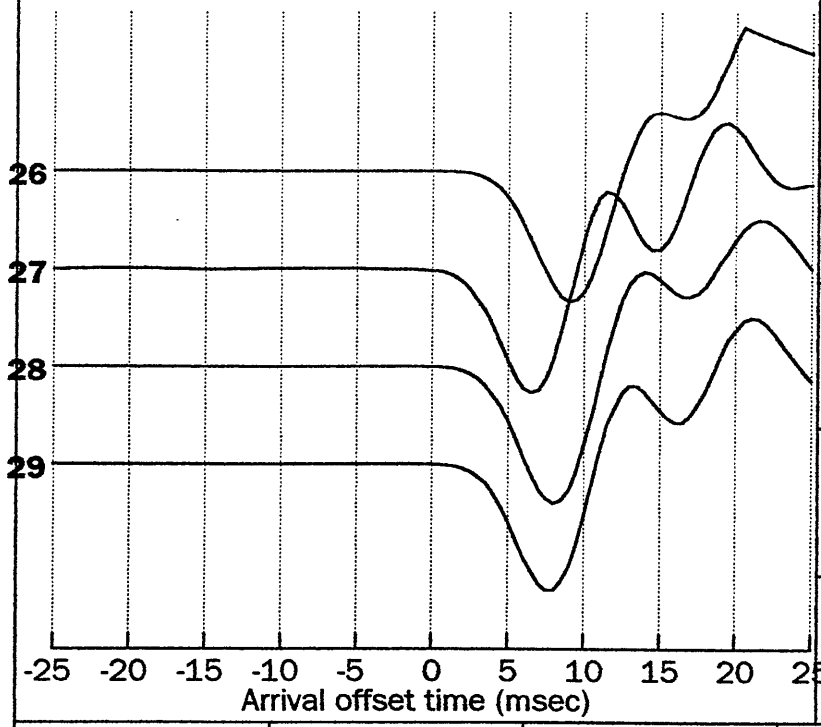
Shot 23 Location : D
 Charge depth 2 Size 2
 Phone depth : 1053.0
 Arrival time : 474.9 msec

Shot 24 Location : D
 Charge depth 2 Size 2
 Phone depth : 840.0
 Arrival time : 395.9 msec

Shot 25 Location : D
 Charge depth 2 Size 2
 Phone depth : 824.0
 Arrival time : 390.4 msec

SHOT 21		SHOT 22		SHOT 23		SHOT 24		SHOT 25	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
546.0	1.00	508.0	1.00	450.0	-36.00	371.0	0.00	365.0	-1.00
546.5	0.00	508.5	1.00	450.5	-33.00	371.5	-1.00	365.5	-2.00
547.0	-1.00	509.0	-1.00	451.0	-28.00	372.0	-3.00	366.0	-3.00
547.5	-2.00	509.5	0.00	451.5	-18.00	372.5	-2.00	366.5	-1.00
548.0	-1.00	510.0	-3.00	452.0	-9.00	373.0	-1.00	367.0	-2.00
548.5	-2.00	510.5	-3.00	452.5	0.00	373.5	2.00	367.5	-2.00
549.0	-4.00	511.0	-2.00	453.0	8.00	374.0	2.00	368.0	-2.00
549.5	-4.00	511.5	-3.00	453.5	13.00	374.5	3.00	368.5	-1.00
550.0	-6.00	512.0	-2.00	454.0	15.00	375.0	3.00	369.0	0.00
550.5	-6.00	512.5	-3.00	454.5	16.00	375.5	5.00	369.5	2.00
551.0	-5.00	513.0	-2.00	455.0	15.00	376.0	6.00	370.0	1.00
551.5	-5.00	513.5	-2.00	455.5	11.00	376.5	4.00	370.5	1.00
552.0	-4.00	514.0	-1.00	456.0	8.00	377.0	3.00	371.0	0.00
552.5	-4.00	514.5	0.00	456.5	3.00	377.5	-1.00	371.5	-1.00
553.0	-3.00	515.0	1.00	457.0	-2.00	378.0	-1.00	372.0	-1.00
553.5	-2.00	515.5	0.00	457.5	-4.00	378.5	-1.00	372.5	-1.00
554.0	-2.00	516.0	2.00	458.0	-6.00	379.0	-5.00	373.0	-3.00
554.5	-1.00	516.5	1.00	458.5	-6.00	379.5	-6.00	373.5	-2.00
555.0	-2.00	517.0	1.00	459.0	-6.00	380.0	-8.00	374.0	-1.00
555.5	-2.00	517.5	0.00	459.5	-6.00	380.5	-6.00	374.5	-2.00
556.0	-2.00	518.0	-1.00	460.0	-6.00	381.0	-5.00	375.0	-1.00
556.5	-3.00	518.5	0.00	460.5	-5.00	381.5	-2.00	375.5	-1.00
557.0	-3.00	519.0	-1.00	461.0	-3.00	382.0	0.00	376.0	-1.00
557.5	-3.00	519.5	-1.00	461.5	-2.00	382.5	1.00	376.5	0.00
558.0	-3.00	520.0	-1.00	462.0	-2.00	383.0	3.00	377.0	1.00
558.5	-4.00	520.5	-2.00	462.5	-2.00	383.5	3.00	377.5	1.00
559.0	-1.00	521.0	-1.00	463.0	-3.00	384.0	3.00	378.0	-2.00
559.5	-1.00	521.5	0.00	463.5	-5.00	384.5	2.00	378.5	-1.00
560.0	2.00	522.0	-1.00	464.0	-7.00	385.0	5.00	379.0	-1.00
560.5	4.00	522.5	0.00	464.5	-8.00	385.5	1.00	379.5	-1.00
561.0	2.00	523.0	0.00	465.0	-9.00	386.0	-2.00	380.0	2.00
561.5	5.00	523.5	-1.00	465.5	-10.00	386.5	-3.00	380.5	1.00
562.0	4.00	524.0	-1.00	466.0	-8.00	387.0	-3.00	381.0	1.00
562.5	2.00	524.5	0.00	466.5	-10.00	387.5	-3.00	381.5	0.00
563.0	3.00	525.0	0.00	467.0	-7.00	388.0	-7.00	382.0	1.00
563.5	0.00	525.5	4.00	467.5	-6.00	388.5	-9.00	382.5	3.00
564.0	-2.00	526.0	3.00	468.0	-3.00	389.0	-6.00	383.0	3.00
564.5	-5.00	526.5	2.00	468.5	-2.00	389.5	-1.00	383.5	1.00
565.0	-5.00	527.0	2.00	469.0	2.00	390.0	5.00	384.0	1.00
565.5	-4.00	527.5	2.00	469.5	4.00	390.5	8.00	384.5	0.00
566.0	-4.00	528.0	2.00	470.0	6.00	391.0	9.00	385.0	0.00
566.5	-2.00	528.5	1.00	470.5	5.00	391.5	10.00	385.5	-1.00
567.0	-2.00	529.0	-1.00	471.0	3.00	392.0	10.00	386.0	-2.00
567.5	2.00	529.5	-1.00	471.5	3.00	392.5	9.00	386.5	-1.00
568.0	3.00	530.0	-1.00	472.0	-1.00	393.0	6.00	387.0	-2.00
568.5	5.00	530.5	1.00	472.5	-4.00	393.5	5.00	387.5	-4.00

First arrivals plot : DUNBAR EAST #01



Shot 26 Location : D
 Charge depth 2 Size 1
 Phone depth : 725.0
 Arrival time : 353.4 msec

Shot 27 Location : D
 Charge depth 2 Size 1
 Phone depth : 560.0
 Arrival time : 289.0 msec

Shot 28 Location : D
 Charge depth 2 Size 1
 Phone depth : 490.0
 Arrival time : 259.0 msec

Shot 29 Location : D
 Charge depth 2 Size 1
 Phone depth : 420.0
 Arrival time : 226.0 msec

SHOT 26		SHOT 27		SHOT 28		SHOT 29	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
328.0	14.00	278.0	-6.00	248.0	3.00	215.0	0.00
328.5	10.00	278.5	-6.00	248.5	1.00	215.5	1.00
329.0	7.00	279.0	-5.00	249.0	2.00	216.0	1.00
329.5	5.00	279.5	-6.00	249.5	2.00	216.5	0.00
330.0	1.00	280.0	-7.00	250.0	2.00	217.0	0.00
330.5	0.00	280.5	-5.00	250.5	3.00	217.5	0.00
331.0	-1.00	281.0	-6.00	251.0	-1.00	218.0	0.00
331.5	0.00	281.5	-6.00	251.5	-2.00	218.5	-2.00
332.0	2.00	282.0	-8.00	252.0	0.00	219.0	0.00
332.5	3.00	282.5	-8.00	252.5	1.00	219.5	0.00
333.0	5.00	283.0	-9.00	253.0	1.00	220.0	-1.00
333.5	7.00	283.5	-8.00	253.5	-1.00	220.5	2.00
334.0	8.00	284.0	-8.00	254.0	-2.00	221.0	0.00
334.5	9.00	284.5	-5.00	254.5	-1.00	221.5	1.00
335.0	7.00	285.0	-2.00	255.0	-1.00	222.0	0.00
335.5	7.00	285.5	3.00	255.5	-1.00	222.5	0.00
336.0	8.00	286.0	6.00	256.0	0.00	223.0	0.00
336.5	5.00	286.5	9.00	256.5	0.00	223.5	0.00
337.0	9.00	287.0	13.00	257.0	-1.00	224.0	-1.00
337.5	10.00	287.5	13.00	257.5	0.00	224.5	-1.00
338.0	11.00	288.0	14.00	258.0	1.00	225.0	0.00
338.5	12.00	288.5	18.00	258.5	4.00	225.5	3.00
339.0	11.00	289.0	29.00	259.0	7.00	226.0	7.00
339.5	10.00	289.5	48.00	259.5	16.00	226.5	18.00
340.0	10.00	290.0	89.00	260.0	26.00	227.0	35.00
340.5	10.00	290.5	159.00	260.5	47.00	227.5	72.00
341.0	10.00	291.0	269.00	261.0	86.00	228.0	139.00
341.5	9.00	291.5	431.00	261.5	148.00	228.5	250.00
342.0	7.00	292.0	654.00	262.0	248.00	229.0	426.00
342.5	5.00	292.5	891.00	262.5	396.00	229.5	637.00
343.0	5.00	293.0	1217.00	263.0	596.00	230.0	974.00
343.5	2.00	293.5	1580.00	263.5	813.00	230.5	1409.00
344.0	0.00	294.0	1951.00	264.0	1118.00	231.0	1931.00
344.5	1.00	294.5	2281.00	264.5	1472.00	231.5	2512.00
345.0	2.00	295.0	2524.00	265.0	1845.00	232.0	3102.00
345.5	0.00	295.5	2610.00	265.5	2202.00	232.5	3546.00
346.0	-2.00	296.0	2567.00	266.0	2506.00	233.0	3970.00
346.5	-3.00	296.5	2332.00	266.5	2679.00	233.5	4206.00
347.0	-4.00	297.0	1910.00	267.0	2776.00	234.0	4195.00
347.5	-3.00	297.5	1328.00	267.5	2720.00	234.5	3906.00
348.0	-1.00	298.0	644.00	268.0	2495.00	235.0	3419.00
348.5	2.00	298.5	35.00	268.5	2104.00	235.5	2646.00
349.0	4.00	299.0	-620.00	269.0	1575.00	236.0	1692.00
349.5	4.00	299.5	-1149.00	269.5	1036.00	236.5	648.00
350.0	4.00	300.0	-1497.00	270.0	374.00	237.0	-384.00
350.5	2.00						

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Date: 1994/06
Time: 4:51 pm
Wellpath ID: DUNBAR EAST 1
Date Created: 20/4/96
Last Revision: 18/0/96

Survey Report

Calculated using the Minimum Curvature Method
Computed using WIN-CADDB REV2.2.0
Vertical Section Plans: 7.38 deg.

Survey Reference: WELLHEAD
Reference World Coordinates: Lat. 38.29.88 S - Long. 142.65.87 E
Reference GRID System: Australian (UTM) Zone: 54, Cent. Merid: 141.00.00 E
Reference GRID Coordinates: (m): 6730202.00 N 687890.00 E
North Aligned To: GRID NORTH
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELL HEAD

CULTUS PETROLEUM LTD
PPL-OFFWAY BASIN
DUNBAR EAST 1

Measured Depth (m)	Incl (deg.)	Dip/Dic (deg)	TVD (m)	Subsea Depth (m)	Rectangular Offsets (m)	TOTAL (m)	GRID Coordinates Northing Easting (m)	Vertical Section (m)	Build Rate (deg/30m)	Walk Rate (deg/30m)	D18 (deg/30m)	Cum. Dogleg (deg)	Survey Tool
0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E	6730202.00 687890.00	0.00	0.00	0.00	0.00	0.0	UNKNOWN
Single shot surveys corrected to grid													
27.00	0.26	294.00	27.00	27.00	0.02 N	0.05 W	6730202.02 687890.95	0.02	0.28	0.00	0.28	0.3	MSS
102.60	0.26	186.00	182.60	182.60	0.18 S	0.40 W	6730201.82 687889.60	-0.23	0.00	-20.82	0.00	0.7	MSS
337.00	0.00	12.00	337.00	337.00	0.51 S	0.49 W	6730201.49 687889.57	-0.66	-0.05	0.00	0.05	0.9	MSS
484.60	0.25	217.00	464.60	464.60	0.77 S	0.63 W	6730201.28 687889.37	-0.84	0.05	0.00	0.05	1.2	MSS
590.00	0.78	232.00	699.90	589.69	1.38 S	1.31 W	6730200.62 687889.69	-1.59	0.14	4.27	0.16	1.7	MSS
713.30	1.26	237.00	713.27	713.27	2.61 S	3.07 W	6730199.39 687889.83	-2.98	0.12	1.22	0.12	2.2	MSS
840.60	1.25	239.00	849.54	849.54	4.27 S	5.54 W	6730187.73 687889.46	-4.94	0.00	-0.44	0.01	2.2	MSS
882.90	1.90	242.00	849.81	869.81	5.72 S	7.87 W	6730186.28 687889.13	-6.80	-0.05	1.60	0.06	2.5	MSS
1141.10	1.25	212.00	1140.99	1140.99	7.74 S	9.91 W	6730194.28 687890.93	-8.04	0.05	-6.93	0.13	3.1	MSS
1802.70	1.76	216.00	1302.53	1302.53	11.26 S	12.28 W	6730190.75 687877.74	-12.78	0.09	0.64	0.09	3.6	MSS
1520.40	2.60	277.00	1520.11	1620.11	13.40 S	18.98 W	6730184.60 687871.12	-16.71	0.10	0.54	0.31	6.9	MSS
1578.00	2.50	280.00	1577.65	1577.65	18.03 S	21.37 W	6730185.97 687869.63	-16.98	0.00	1.58	0.07	6.1	MSS
RWD SURVEYS													
1608.00	2.80	290.10	1607.62	1607.62	12.68 S	22.70 W	6730189.34 687867.30	-16.47	0.30	10.10	0.55	6.6	RWD
1636.20	1.80	1.60	1633.60	1633.60	12.11 S	20.34 W	6730189.69 687866.60	-16.00	-1.60	76.28	2.86	9.3	RWD
1654.40	3.60	34.10	1653.97	1663.97	11.01 S	22.90 W	6730190.99 687867.20	-18.84	2.66	34.38	2.97	12.1	RWD
1895.00	6.00	25.00	1694.48	1694.48	6.72 S	21.56 W	6730193.28 687868.44	-11.41	2.18	-8.92	2.18	14.4	RWD
1720.40	8.10	15.80	1719.67	1719.67	6.78 S	20.52 W	6730196.21 687868.46	-8.38	2.48	-11.22	2.83	16.0	RWD

Halliburton Australia Pty Ltd - Drilling Systems

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Date: 18/04/96
Wellpath ID: DUNBAR EAST 1

Survey Report

Measured Depth (m)	Incl (deg.)	Drift D.C. (deg)	TVD (m)	Subsea Depth (m)	Rectangular Offsets (m)	GRID Coordinates Northing Easting (m)	Vertical Section (m)	Build Rate (deg/30m)	Walk Rate (deg/30m)	DLR (deg/30m)	Cum. Dogleg (deg)	Survey Tool
1739.70	8.60	13.80	1738.74	1738.74	2.92 S	6730189.08 667870.23	-5.43	2.23	-2.54	2.27	18.3	MWD
1767.70	11.70	14.50	1768.28	1768.28	2.08 N	6730204.08 667871.50	-0.29	2.28	0.76	2.25	20.4	MWD
1786.40	13.80	14.80	1784.24	1784.24	8.25 N	6730210.28 667873.11	8.01	2.30	0.31	2.30	22.8	MWD
1825.00	16.20	14.60	1821.86	1821.86	15.43 N	6730217.43 667874.98	13.38	2.41	-0.31	2.41	24.8	MWD
1853.30	18.30	14.80	1848.88	1848.88	23.85 N	6730225.85 667877.11	21.70	2.23	0.32	2.23	27.0	MWD
1881.30	21.00	11.80	1878.25	1878.25	32.72 N	6730234.72 667878.21	31.07	2.89	-0.75	3.15	30.0	MWD
1909.00	22.20	12.40	1901.84	1901.84	43.02 N	6730248.02 667881.38	42.58	1.26	1.19	1.33	31.2	MWD
1938.70	21.70	12.40	1928.85	1928.85	53.69 N	6730255.68 667883.68	62.20	-0.52	0.00	0.82	31.7	MWD
1967.00	21.50	12.00	1954.87	1954.87	63.68 N	6730265.68 667886.14	62.84	-0.21	2.64	0.96	32.7	MWD
1995.30	21.00	14.80	1981.24	1981.24	73.69 N	6730278.88 667888.76	72.81	-0.63	0.00	0.69	33.2	MWD
2023.60	20.00	16.20	2007.76	2007.75	83.15 N	6730285.16 667891.32	82.84	-1.08	0.48	1.07	34.2	MWD
2052.00	19.70	16.20	2034.46	2034.46	92.44 N	6730294.44 667893.93	92.78	-0.32	1.08	0.48	34.6	MWD
2080.60	18.90	16.80	2061.28	2061.28	101.71 N	6730303.71 667898.50	101.72	0.21	-0.32	0.24	34.0	MWD
2108.00	17.80	18.70	2088.24	2088.24	110.60 N	6730312.50 667900.41	110.80	-2.11	4.01	2.47	37.2	MWD
2137.40	16.70	19.60	2116.30	2116.30	119.61 N	6730320.61 667901.70	119.13	-1.27	-0.60	2.84	39.9	MWD
2163.80	16.28	19.80	2140.84	2140.84	126.71 N	6730327.71 667903.29	129.48	-1.70	2.49	1.83	41.6	MWD
2192.60	14.60	14.60	2169.58	2169.58	132.65 N	6730334.85 667904.09	133.89	-0.78	0.78	0.78	42.2	MWD
2211.40	13.10	14.60	2198.55	2198.55	139.50 N	6730341.60 667906.81	140.50	-1.48	0.00	1.48	43.6	MWD
2249.60	11.60	12.70	2224.28	2224.28	145.28 N	6730347.38 667908.24	149.51	-1.69	-1.60	1.74	45.3	MWD
2278.60	10.30	8.50	2252.50	2252.50	150.72 N	6730352.72 667909.29	151.85	-1.28	-3.83	1.40	48.8	MWD
2308.30	9.00	8.00	2279.88	2279.88	155.91 N	6730357.31 667909.93	158.69	-1.41	-3.70	1.94	48.9	MWD
2324.60	7.60	8.00	2297.88	2297.88	167.02 N	6730359.92 667910.29	168.21	-2.21	8.43	2.49	49.6	MWD
2367.00	6.60	8.00	2368.84	2369.84	168.72 N	6730368.72 667911.54	168.10	-0.46	-1.51	0.50	50.7	MWD

2390m

