

SEISMIC VELOCITY SURVEY
AND
LOG CALIBRATION
OCS-P-0333 No. 1
Santa Barbara, California
September 23, 1983
Airgun

COPY TO REGION

RECEIVED
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MINERALS MGT. SERVICE
CENTRAL DISTRICT

CONDUCTED
FOR
CHAMPLIN PETROLEUM COMPANY
BY



Seismograph Service Corporation

4380 SOUTH SYRACUSE, STE. 400 • DENVER, COLORADO 80237
(303) 694-2332

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INTRODUCTION

A Seismic Velocity Survey was conducted for Champlin Petroleum Company in their OCS-P-0333 No. 1 well located offshore Santa Barbara, California. The survey was conducted by the Velocity and Special Projects Division of Seismograph Service Corporation on September 23, 1983.

A borehole compensated Sonic Log, digitized and integrated from 1890 ft. K.B. (Meas.) to 12650 ft. K.B. (Meas.), was calibrated to the geophone survey data.

The borehole was deviated. Depth corrections to true vertical were based on a subsurface directional survey furnished by Champlin Petroleum Company. Unless otherwise stated, all depths in this report refer to true vertical depths.

OPERATION STATISTICS

Location:	X=(720,656) Y=(809,035)
Surface conditions:	Favorable
K.B. elevation:	37 ft.
Seismic datum elevation:	Sea level
Elevation velocity:	4850 ft./sec.
Survey based on:	K.B. elevation
Water depth:	1290 feet
Casing depth:	Driller: 6420 ft. Meas. Logger: 6416 ft. Meas. Driller: 6029 ft. TVD Logger: 6025 ft. TVD
Well total depth:	Driller: 12687 ft. Meas. Logger: 12652 ft. Meas. Driller: 11258 ft. TVD Logger: 11226 ft. TVD
Airgun location:	70 ft. SW

Depth of Airgun	-35 ft.
Depth of time break hydrophone:	-45 ft.
Number of levels tested:	34
Upper geophone level tested:	1800 ft. (Meas.)
Deepest geophone level tested:	12650 ft. (Meas.)
Quality of geophone breaks:	Good

INSTRUMENTATION

Energy source:	Bolt par model 1900C airgun
Airgun chamber used:	40, 120, 200 cubic inches
Gas pressure on gun:	1000 - 2000 psi
Pressure source:	Rig air
Time break hydrophone:	10 feet below airgun
Downhole detector:	Six 15 Hz. geophones connected in parallel
Downhole amplification:	60 db
Borehole coupling:	Surface controlled locking arm
Surface amplification:	Floating point amplifier
Recording:	SSC model IDPC-1100 floating point digital well survey recording system
Tape format:	9 track, 800 bpi, IBM com- patible
Sample rate:	1 millisecond
Trace polarity:	
Digital tape playouts:	Time breaks: down Geophone breaks: down

FIELD PROCEDURE

Standard practice, using the wall-coupled geophone, is to lower the instrument to the level to be tested, open the coupling device, slacken the cable, shoot, pick up the slack, retract the coupling device and then move to the next level where the cycle is repeated. Slackening the cable while the phone is coupled to the borehole wall minimizes the effect of cable-borne energy.

RESULTS AND INTERPRETATION

Seismic

The digital tape data have been demultiplexed, edited, arranged according to depth and vertically stacked for each level producing a stacked trace display. A copy of this display, which is labeled First Arrivals, is included in the report pocket. The data used for the calculations consists of the times picked from this display for each level. These time data are tabulated with the velocities and calculation steps on the velocity calculation sheets found in the appendix. Sea bed, at a reported depth of 1290 ft. below sea level, is considered a velocity interface, and the computed interval velocities shown in the tabulation include this level. A computer plot of the time-depth, average and interval velocities, with a reduced scale plot of the calibrated sonic log, is included in the report pocket.

SONIC LOG

The time depth values obtained from the velocity survey are used to calibrate the sonic log. The measured timed intervals from the survey are compared with the corresponding integrated time intervals from the uncalibrated sonic log. A plot is made indicating the differences between the geophone data and the log, and from this plot adjustments are determined and applied to the log. This plot is labeled Deviation Plot and is included in the report pocket. The adjustments determined from the Deviation Plot are applied by moving the uncalibrated sonic log curve laterally in such a way that when reintegrated the log times will agree closely with the well geophone times. The lateral adjustments consist of a linear or differential shift.

Linear shifts are calculated using the equation:

$$\text{Shift} = \frac{t_{A2} - t_{A1}}{D_1 - D_2} \times 10^6$$

where D is the depth of the adjustment point, and t_A is the amount of time adjustment indicated by the adjustment point. The result is expressed in microseconds/ft. The linear shifts are applied only when the equation is positive as the log error in this case is assumed to be instrumental in origin. When the equation is negative a differential shift is used.

Differential shifts are calculated using the equation:

$$\% \text{ Shift} = \frac{(t_L - t_A)_2 - (t_L - t_A)_1}{t_{L2} - t_{L1}} \times 100$$

where t_L is the travel time from the uncalibrated sonic log at the adjustment point, and t_A is the amount of time adjustment indicated by the adjustment point. Differential shifts are applied whenever the calibration data indicates a shift towards higher velocities. The lower velocities, due to borehole effects, are assumed to have contributed more transit time error than higher velocities. Therefore, lower velocity sections of the log receive larger corrections than higher velocity sections. Differential shifts are expressed as a percentage of the uncalibrated sonic log values. In both equations above, subscript 1 corresponds with the shallow adjustment point, and subscript 2 corresponds with the deep adjustment point. (See Deviation Plot)

The adjustment to the log interval time data are listed on the calibrated log heading, and have been absorbed into the natural velocity contrasts as recorded on the sonic log. The total travel times for the geophone levels as shown by the calibrated log, and indicated time differences between the geophone and calibrated log data, are listed on the calibrated velocity log data sheets in the appendix. The time differences are minimal.

Three copies of the calibrated log are included in the report pocket: One at a linear depth scale of 1"= 100', one at a linear time scale of 5" per second , two way time, and one at a linear time scale of 7½" per second, two way time. A computer printout of the calibrated log data, listing one and two way travel times, depth, interval and average velocities, is included in the appendix.

The results from the combined survey and sonic log are good, and the data are considered reliable.

Respectfully Submitted,

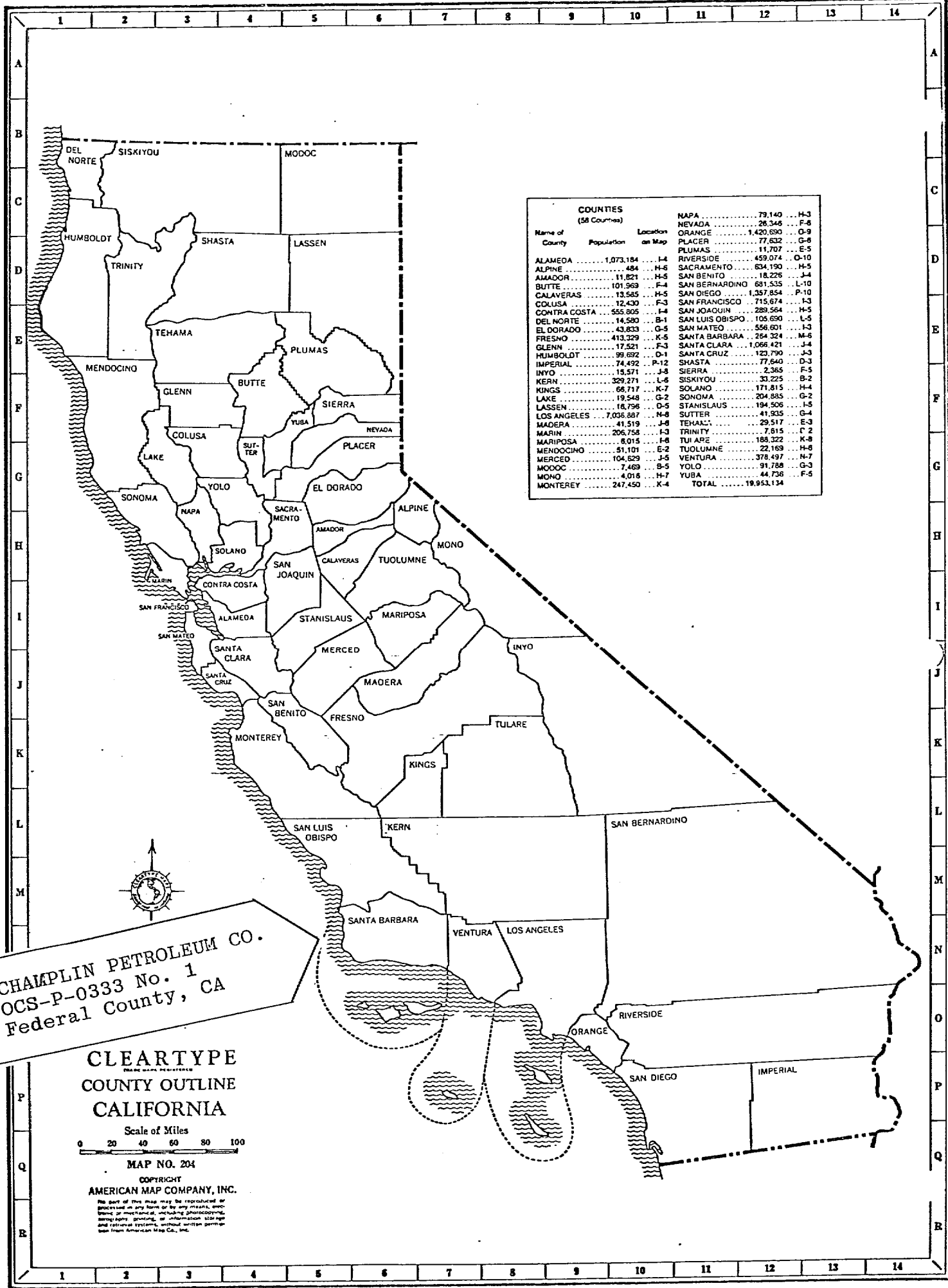
Velocity and Special Projects
Division of
Seismograph Service
Corporation

Date 10-7-83

By *Judith Flaxbeard*
Judith Flaxbeard, Analyst

Date 10-7-83

By *John Mathes*
John Mathes, Manager



COUNTIES
(58 Counties)

Name of County	Population	Location on Map
ALAMEDA	1,073,184	H-4
ALPINE	484	H-6
AMADOR	11,821	H-5
BUTTE	101,969	F-4
CALAVERAS	13,585	H-5
COLUSA	12,430	F-3
CONTRA COSTA	555,805	I-4
DEL NORTE	14,580	B-1
EL DORADO	43,833	G-5
FRESNO	413,329	K-5
GLENN	17,521	F-3
HUMBOLDT	99,692	D-1
IMPERIAL	74,492	P-12
INYO	15,571	J-8
KEAN	329,271	L-6
KINGS	66,717	K-7
LAKE	19,548	G-2
LASSEN	18,796	D-5
LOS ANGELES	7,036,387	H-8
MADERA	41,519	J-6
MARIN	206,758	I-3
MARIPOSA	8,015	I-6
MENDOCINO	51,101	E-2
MERCED	104,629	J-5
MODOC	7,469	B-5
MONO	4,015	H-7
MONTEREY	247,450	K-4
NAPA	79,140	H-3
NEVADA	26,346	F-6
ORANGE	1,420,690	O-9
PLACER	77,632	G-6
PLUMAS	11,707	E-5
RIVERSIDE	459,074	O-10
SACRAMENTO	634,190	H-5
SAN BENITO	18,226	J-4
SAN BERNARDINO	681,535	L-10
SAN DIEGO	1,357,854	P-10
SAN FRANCISCO	715,674	I-3
SAN JOAQUIN	289,564	H-5
SAN LUIS OBISPO	105,690	L-5
SAN MATEO	556,601	I-3
SANTA BARBARA	254,324	M-6
SANTA CLARA	1,066,421	J-4
SANTA CRUZ	123,790	J-3
SHASTA	77,640	D-3
SIERRA	2,365	F-5
SISKIYOU	33,225	B-2
SOLANO	171,815	H-4
SONOMA	204,885	G-2
STANISLAUS	194,506	I-5
SUTTER	41,905	C-4
TEHAMA	29,517	E-3
TRINITY	7,815	F-2
TULARE	188,322	K-8
TUOLUMNE	22,169	H-6
VENTURA	378,497	H-7
YOLO	91,788	G-3
YUBA	44,756	F-5
TOTAL	19,953,134	



CHAMPLIN PETROLEUM CO.
OCS-P-0333 No. 1
Federal County, CA

CLEARTYPE
COUNTY OUTLINE
CALIFORNIA

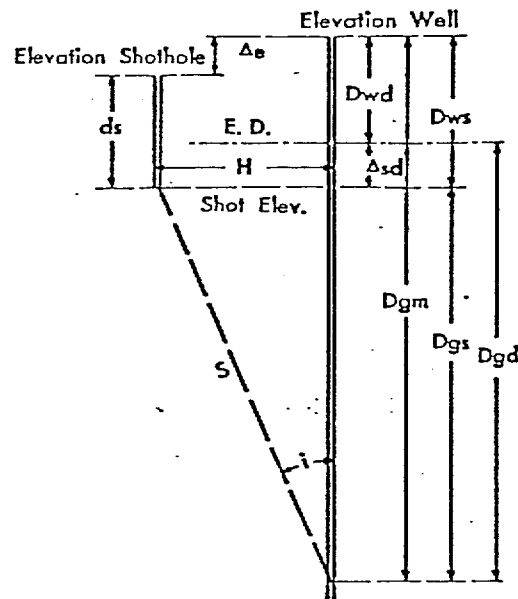
Scale of Miles
0 20 40 60 80 100

MAP NO. 204

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CROSS-SECTION AND DEFINITION OF TERMS



- D_{gm} = Geophone depth below well elevation
- D_{wd} = Difference between well elevation and elevation datum = $E_w - ED$
- D_{gd} = Geophone depth below elevation datum = $D_{gm} - D_{wd}$
- t_s = Uphole time in shothole
- t_r = Refraction time from reference geophone
- d_s = Depth of shot
- H = Horizontal distance from well to shothole
- Δ_{sd} = Difference between shot elevation and elevation datum = $E_s - d_s - ED$
- D_{gs} = Geophone depth below shot elevation = $D_{gd} + \Delta_{sd}$
- $\cos i$ = $D_{gs} / \sqrt{H^2 + D_{gs}^2}$
- T = Observed travel time from shot to well geophone
- G_r = Quality grade of well geophone "break"
- T_{gs} = Travel time for D_{gs} distance = $T \cos i$
- Δ_{sd}/v_e = Time correction from shot to elevation datum
- T_{gd} = Travel time for D_{gd} distance = $T_{gs} - \Delta_{sd}/v_e$
- v_a = Average velocity to depth D_{gd} = D_{gd}/T_{gd}
- ΔD_{gd} = Interval distance = $D_{gd_n} - D_{gd_m}$
- ΔT_{gd} = Interval time for ΔD_{gd} distance = $T_{gd_n} - T_{gd_m}$
- v_i = Interval velocity = $\Delta D_{gd}/\Delta T_{gd}$
- S = Direct diagonal distance from shot to geophone = $D_{gs}/\cos i$
- ED = Elevation or reference datum
- v_e = Elevation correction velocity
- Δ_e = Difference between well elevation and shothole elevation = $E_w - E_s$

VELOCITY COMPUTATION TABLE

WELL ID: OCS-P-0333 NO. 1
 LOCATION: OFFSHORE CALIFORNIA
 CLIENT: CHAMPLIN PETROLEUM COMPANY
 DATE OF SURVEY: SEPTEMBER 23, 1983
 DEPTH REFERENCE: KELLY BUSHING
 DEPTH REFERENCE ELEVATION: 37
 DATUM ELEVATION: 0
 CORRECTION VELOCITY: 4850

LVL NO.	LOG BLW REF	DEP VERT BLW REF	DEPTH BLW DTM	SOURCE OFFSET	SOURCE ELEV	MEAS TIME	VERT TIME	TIME FROM DTM	AVE TIME FROM DTM	AVE VEL	INT VEL	ITT
1	1327	1327	1290	70	-45	0.2571	0.2567	0.2660	0.2660	4850	4850	206.200
2	1800	1800	1763	70	-45	0.3490	0.3487	0.3580	0.3580	4925	5142	194.484
3	2300	2300	2263	70	-45	0.4260	0.4258	0.4351	0.4351	5202	6487	154.155
4	2800	2800	2763	70	-45	0.5190	0.5188	0.5281	0.5281	5232	5374	186.080
5	3300	3263	3226	70	-45	0.5980	0.5979	0.6071	0.6071	5313	5859	170.685
6	3460	3423	3386	70	-45	0.6230	0.6229	0.6321	0.6321	5356	6398	156.301
7	3730	3692	3655	60	-45	0.6620	0.6619	0.6712	0.6712	5446	6889	145.149
8	4040	3998	3961	40	-45	0.7090	0.7090	0.7182	0.7182	5515	6503	153.773
9	4500	4439	4402	136	-45	0.7770	0.7766	0.7859	0.7859	5601	6518	153.421
10	4650	4578	4541	193	-45	0.7980	0.7973	0.8065	0.8065	5630	6733	148.518
11	5000	4888	4851	354	-45	0.8450	0.8427	0.8520	0.8520	5694	6820	146.617
12	5250	5092	5055	499	-45	0.8770	0.8727	0.8820	0.8820	5732	6808	146.887
13	5600	5379	5342	698	-45	0.9180	0.9101	0.9194	0.9194	5810	7663	130.489
14	6100	5787	5750	981	-45	0.9790	0.9648	0.9741	0.9741	5903	7458	134.087

LVL NO.	LOG BLW	DEP REF	VERT BLW	DEP REF	DEPTH BLW	SOURCE DTM	SOURCE OFFSET	SOURCE ELEV	MEAS TIME	VERT TIME	TIME FROM DTM	AVE TIME FROM DTM	AVE VEL	INT VEL	ITT
15	6600		6198		6161	1269	-45	1.0380	1.0164	1.0256	1.0256	1.0256	6007	7979	125.336
16	6860		6419		6382	1402	-45	1.0700	1.0447	1.0540	1.0540	1.0540	6055	7786	128.435
17	7135		6649		6612	1546	-45	1.1010	1.0717	1.0810	1.0810	1.0810	6117	8529	117.240
18	7600		7032		6995	1799	-45	1.1430	1.1065	1.1158	1.1158	1.1158	6269	10997	90.936
19	7800		7199		7162	1906	-45	1.1650	1.1253	1.1346	1.1346	1.1346	6312	8877	112.648
20	8200		7523		7486	2100	-45	1.1900	1.1453	1.1545	1.1545	1.1545	6484	16264	61.487
21	8420		7704		7667	2259	-45	1.2110	1.1611	1.1704	1.1704	1.1704	6551	11446	87.369
22	8570		7828		7791	2341	-45	1.2260	1.1736	1.1829	1.1829	1.1829	6587	9922	100.782
23	8785		8009		7972	2458	-45	1.2500	1.1939	1.2032	1.2032	1.2032	6626	8897	112.401
24	9335		8453		8416	2779	-45	1.3070	1.2404	1.2497	1.2497	1.2497	6734	9546	104.757
25	9445		8537		8500	2849	-45	1.3190	1.2499	1.2592	1.2592	1.2592	6750	8829	113.267
26	9570		8636		8599	2928	-45	1.3320	1.2602	1.2695	1.2695	1.2695	6774	9639	103.741
27	10110		9059		9022	3262	-45	1.3810	1.2980	1.3072	1.3072	1.3072	6902	11206	89.238
28	10600		9446		9409	3564	-45	1.4220	1.3290	1.3383	1.3383	1.3383	7031	12472	80.181
29	11075		9826		9789	3849	-45	1.4510	1.3495	1.3588	1.3588	1.3588	7204	18506	54.036
30	11140		9879		9842	3886	-45	1.4700	1.3664	1.3757	1.3757	1.3757	7154	3135	318.950
31	11720		10375		10338	4185	-45	1.5180	1.4062	1.4155	1.4155	1.4155	7303	12469	80.199
32	12080		10700		10663	4339	-45	1.5450	1.4302	1.4395	1.4395	1.4395	7408	13552	73.791
33	12200		10809		10772	4388	-45	1.5550	1.4392	1.4485	1.4485	1.4485	7437	12048	83.002
34	12650		11224		11187	4563	-45	1.5840	1.4658	1.4751	1.4751	1.4751	7584	15502	64.096

CHAMPLIN PETROLEUM CO.
 OCS-P-0333 NO.1
 SANTA BARBARA CO., CA.

PAGE 1

INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1	2	4.8	4850	4850
2	4	9.7	4850	4850
3	6	14.5	4850	4850
4	8	19.4	4850	4850
5	10	24.2	4850	4850
6	12	29.1	4850	4850
7	14	33.9	4850	4850
8	16	38.8	4850	4850
9	18	43.6	4850	4850
10	20	48.5	4850	4850
11	22	53.3	4850	4850
12	24	58.2	4850	4850
13	26	63.0	4850	4850
14	28	67.9	4850	4850
15	30	72.7	4850	4850
16	32	77.6	4850	4850
17	34	82.4	4850	4850
18	36	87.3	4850	4850
19	38	92.1	4850	4850
20	40	97.0	4850	4850
21	42	101.8	4850	4850
22	44	106.7	4850	4850
23	46	111.5	4850	4850
24	48	116.4	4850	4850
25	50	121.2	4850	4850
26	52	126.1	4850	4850
27	54	130.9	4850	4850
28	56	135.8	4850	4850
29	58	140.6	4850	4850
30	60	145.5	4850	4850
31	62	150.3	4850	4850
32	64	155.2	4850	4850
33	66	160.0	4850	4850
34	68	164.9	4850	4850
35	70	169.7	4850	4850
36	72	174.6	4850	4850
37	74	179.4	4850	4850
38	76	184.3	4850	4850
39	78	189.1	4850	4850
40	80	194.0	4850	4850
41	82	198.8	4850	4850
42	84	203.7	4850	4850
43	86	208.5	4850	4850
44	88	213.4	4850	4850
45	90	218.2	4850	4850
46	92	223.1	4850	4850
47	94	227.9	4850	4850
48	96	232.8	4850	4850
49	98	237.6	4850	4850
50	100	242.5	4850	4850

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
51	102	247.3	4850	4850
52	104	252.2	4850	4850
53	106	257.0	4850	4850
54	108	261.9	4850	4850
55	110	266.7	4850	4850
56	112	271.6	4850	4850
57	114	276.4	4850	4850
58	116	281.3	4850	4850
59	118	286.1	4850	4850
60	120	291.0	4850	4850
61	122	295.8	4850	4850
62	124	300.7	4850	4850
63	126	305.5	4850	4850
64	128	310.4	4850	4850
65	130	315.2	4850	4850
66	132	320.1	4850	4850
67	134	324.9	4850	4850
68	136	329.8	4850	4850
69	138	334.6	4850	4850
70	140	339.5	4850	4850
71	142	344.3	4850	4850
72	144	349.2	4850	4850
73	146	354.0	4850	4850
74	148	358.9	4850	4850
75	150	363.7	4850	4850
76	152	368.6	4850	4850
77	154	373.4	4850	4850
78	156	378.3	4850	4850
79	158	383.1	4850	4850
80	160	388.0	4850	4850
81	162	392.8	4850	4850
82	164	397.7	4850	4850
83	166	402.5	4850	4850
84	168	407.4	4850	4850
85	170	412.2	4850	4850
86	172	417.1	4850	4850
87	174	421.9	4850	4850
88	176	426.8	4850	4850
89	178	431.6	4850	4850
90	180	436.5	4850	4850
91	182	441.3	4850	4850
92	184	446.2	4850	4850
93	186	451.0	4850	4850
94	188	455.9	4850	4850
95	190	460.7	4850	4850
96	192	465.6	4850	4850
97	194	470.4	4850	4850
98	196	475.3	4850	4850
99	198	480.1	4850	4850
100	200	485.0	4850	4850

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
101	202	489.8	4850	4850
102	204	494.7	4850	4850
103	206	499.5	4850	4850
104	208	504.4	4850	4850
105	210	509.2	4850	4850
106	212	514.1	4850	4850
107	214	518.9	4850	4850
108	216	523.8	4850	4850
109	218	528.6	4850	4850
110	220	533.5	4850	4850
111	222	538.3	4850	4850
112	224	543.2	4850	4850
113	226	548.0	4850	4850
114	228	552.9	4850	4850
115	230	557.7	4850	4850
116	232	562.6	4850	4850
117	234	567.4	4850	4850
118	236	572.3	4850	4850
119	238	577.1	4850	4850
120	240	582.0	4850	4850
121	242	586.8	4850	4850
122	244	591.7	4850	4850
123	246	596.5	4850	4850
124	248	601.4	4850	4850
125	250	606.2	4850	4850
126	252	611.1	4850	4850
127	254	615.9	4850	4850
128	256	620.8	4850	4850
129	258	625.6	4850	4850
130	260	630.5	4850	4850
131	262	635.3	4850	4850
132	264	640.2	4850	4850
133	266	645.0	4850	4850
134	268	649.9	4850	4850
135	270	654.7	4850	4850
136	272	659.6	4850	4850
137	274	664.4	4850	4850
138	276	669.3	4850	4850
139	278	674.1	4850	4850
140	280	679.0	4850	4850
141	282	683.8	4850	4850
142	284	688.7	4850	4850
143	286	693.5	4850	4850
144	288	698.4	4850	4850
145	290	703.2	4850	4850
146	292	708.1	4850	4850
147	294	712.9	4850	4850
148	296	717.7	4850	4850
149	298	722.6	4850	4850
150	300	727.4	4850	4850

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
151	302	732.3	4850	4850
152	304	737.1	4850	4850
153	306	742.0	4850	4850
154	308	746.8	4850	4850
155	310	751.7	4850	4850
156	312	756.5	4850	4850
157	314	761.4	4850	4850
158	316	766.2	4850	4850
159	318	771.1	4850	4850
160	320	775.9	4850	4850
161	322	780.8	4850	4850
162	324	785.6	4850	4850
163	326	790.5	4850	4850
164	328	795.3	4850	4850
165	330	800.2	4850	4850
166	332	805.0	4850	4850
167	334	809.9	4850	4850
168	336	814.7	4850	4850
169	338	819.6	4850	4850
170	340	824.4	4850	4850
171	342	829.3	4850	4850
172	344	834.1	4850	4850
173	346	839.0	4850	4850
174	348	843.8	4850	4850
175	350	848.7	4850	4850
176	352	853.5	4850	4850
177	354	858.4	4850	4850
178	356	863.2	4850	4850
179	358	868.1	4850	4850
180	360	872.9	4850	4850
181	362	877.8	4850	4850
182	364	882.6	4850	4850
183	366	887.5	4850	4850
184	368	892.3	4850	4850
185	370	897.2	4850	4850
186	372	902.0	4850	4850
187	374	906.9	4850	4850
188	376	911.7	4850	4850
189	378	916.6	4850	4850
190	380	921.4	4850	4850
191	382	926.3	4850	4850
192	384	931.1	4850	4850
193	386	936.0	4850	4850
194	388	940.8	4850	4850
195	390	945.7	4850	4850
196	392	950.5	4850	4850
197	394	955.4	4850	4850
198	396	960.2	4850	4850
199	398	965.1	4850	4850
200	400	969.9	4850	4850

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
201	402	974.8	4850	4850
202	404	979.6	4850	4850
203	406	984.5	4850	4850
204	408	989.3	4850	4850
205	410	994.2	4850	4850
206	412	999.0	4850	4850
207	414	1003.9	4850	4850
208	416	1008.7	4850	4850
209	418	1013.6	4850	4850
210	420	1018.4	4850	4850
211	422	1023.3	4850	4850
212	424	1028.1	4850	4850
213	426	1033.0	4850	4850
214	428	1037.8	4850	4850
215	430	1042.7	4850	4850
216	432	1047.5	4850	4850
217	434	1052.4	4850	4850
218	436	1057.2	4850	4850
219	438	1062.1	4850	4850
220	440	1066.9	4850	4850
221	442	1071.8	4850	4850
222	444	1076.6	4850	4850
223	446	1081.5	4850	4850
224	448	1086.3	4850	4850
225	450	1091.2	4850	4850
226	452	1096.0	4850	4850
227	454	1100.9	4850	4850
228	456	1105.7	4850	4850
229	458	1110.6	4850	4850
230	460	1115.4	4850	4850
231	462	1120.3	4850	4850
232	464	1125.1	4850	4850
233	466	1130.0	4850	4850
234	468	1134.8	4850	4850
235	470	1139.7	4850	4850
236	472	1144.5	4850	4850
237	474	1149.4	4850	4850
238	476	1154.2	4850	4850
239	478	1159.1	4850	4850
240	480	1163.9	4850	4850
241	482	1168.8	4850	4850
242	484	1173.6	4850	4850
243	486	1178.5	4850	4850
244	488	1183.3	4850	4850
245	490	1188.2	4850	4850
246	492	1193.0	4850	4850
247	494	1197.9	4850	4850
248	496	1202.7	4850	4850
249	498	1207.6	4850	4850
250	500	1212.4	4850	4850

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
251	502	1217.3	4850	4850
252	504	1222.1	4850	4850
253	506	1227.0	4850	4850
254	508	1231.8	4850	4850
255	510	1236.7	4850	4850
256	512	1241.5	4850	4850
257	514	1246.4	4850	4850
258	516	1251.2	4850	4850
259	518	1256.1	4850	4850
260	520	1260.9	4850	4850
261	522	1265.8	4850	4850
262	524	1270.6	4850	4850
263	526	1275.5	4850	4850
264	528	1280.3	4850	4850
265	530	1285.2	4850	4850
266	532	1290.0	4850	4850
267	534	1295.0	5022	4850
268	536	1300.2	5142	4851
269	538	1305.3	5142	4852
270	540	1310.5	5142	4854
271	542	1315.6	5142	4855
272	544	1320.7	5142	4856
273	546	1325.9	5142	4857
274	548	1331.0	5142	4858
275	550	1336.2	5142	4859
276	552	1341.3	5142	4860
277	554	1346.4	5142	4861
278	556	1351.6	5142	4862
279	558	1356.7	5142	4863
280	560	1361.9	5142	4864
281	562	1367.0	5142	4865
282	564	1372.2	5142	4866
283	566	1377.3	5142	4867
284	568	1382.4	5142	4868
285	570	1387.6	5142	4869
286	572	1392.7	5142	4870
287	574	1397.9	5142	4871
288	576	1403.0	5142	4872
289	578	1408.2	5142	4872
290	580	1413.3	5142	4873
291	582	1418.4	5142	4874
292	584	1423.6	5142	4875
293	586	1428.7	5142	4876
294	588	1433.9	5142	4877
295	590	1439.0	5142	4878
296	592	1444.1	5142	4879
297	594	1449.3	5142	4880
298	596	1454.4	5142	4881
299	598	1459.6	5142	4882
300	600	1464.7	5142	4882

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
301	602	1469.9	5142	4883
302	604	1475.0	5142	4884
303	606	1480.1	5142	4885
304	608	1485.3	5142	4886
305	610	1490.4	5142	4887
306	612	1495.6	5142	4887
307	614	1500.7	5142	4888
308	616	1505.8	5142	4889
309	618	1511.0	5142	4890
310	620	1516.1	5142	4891
311	622	1521.3	5142	4892
312	624	1526.4	5142	4892
313	626	1531.6	5142	4893
314	628	1536.7	5142	4894
315	630	1541.8	5142	4895
316	632	1547.0	5142	4896
317	634	1552.1	5142	4896
318	636	1557.3	5142	4897
319	638	1562.4	5142	4898
320	640	1567.5	5142	4899
321	642	1572.7	5142	4899
322	644	1577.8	5142	4900
323	646	1583.0	5142	4901
324	648	1588.1	5142	4902
325	650	1593.3	5142	4902
326	652	1598.4	5142	4903
327	654	1603.5	5142	4904
328	656	1608.7	5142	4905
329	658	1613.8	5142	4905
330	660	1619.0	5142	4906
331	662	1624.1	5142	4907
332	664	1629.2	5142	4907
333	666	1634.4	5142	4908
334	668	1639.5	5142	4909
335	670	1644.7	5142	4909
336	672	1649.8	5142	4910
337	674	1655.0	5142	4911
338	676	1660.1	5142	4912
339	678	1665.2	5142	4912
340	680	1670.4	5142	4913
341	682	1675.5	5142	4914
342	684	1680.7	5142	4914
343	686	1685.8	5142	4915
344	688	1691.0	5142	4916
345	690	1696.1	5142	4916
346	692	1701.2	5142	4917
347	694	1706.4	5142	4918
348	696	1711.5	5142	4918
349	698	1716.7	5142	4919
350	700	1721.8	5142	4919

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
351	702	1726.9	5142	4920
352	704	1732.1	5142	4921
353	706	1737.2	5142	4921
354	708	1742.4	5142	4922
355	710	1747.5	5142	4923
356	712	1752.7	5142	4923
357	714	1757.8	5142	4924
358	716	1762.9	5142	4924
359	718	1768.7	5726	4927
360	720	1774.5	5879	4929
361	722	1780.4	5879	4932
362	724	1786.3	5879	4935
363	726	1792.2	5879	4937
364	728	1798.1	5879	4940
365	730	1803.9	5879	4942
366	732	1809.8	5879	4945
367	734	1815.7	5879	4947
368	736	1821.6	5879	4950
369	738	1827.5	5879	4952
370	740	1833.3	5879	4955
371	742	1839.2	5879	4957
372	744	1845.1	5879	4960
373	746	1851.0	5879	4962
374	748	1856.7	5760	4965
375	750	1862.2	5488	4966
376	752	1867.3	5040	4966
377	754	1872.6	5311	4967
378	756	1878.3	5781	4969
379	758	1884.2	5821	4971
380	760	1890.2	6031	4974
381	762	1895.8	5618	4976
382	764	1901.2	5341	4977
383	766	1906.9	5772	4979
384	768	1912.8	5851	4981
385	770	1918.5	5687	4983
386	772	1924.1	5584	4985
387	774	1929.4	5344	4986
388	776	1935.0	5574	4987
389	778	1940.9	5956	4990
390	780	1946.6	5625	4991
391	782	1952.3	5727	4993
392	784	1958.0	5749	4995
393	786	1963.8	5724	4997
394	788	1969.5	5703	4999
395	790	1975.1	5611	5000
396	792	1980.8	5707	5002
397	794	1986.4	5584	5003
398	796	1991.5	5153	5004
399	798	1996.5	4971	5004
400	800	2001.9	5428	5005

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
401	802	2007.6	5666	5006
402	804	2013.2	5647	5008
403	806	2019.0	5738	5010
404	808	2024.8	5842	5012
405	810	2030.6	5828	5014
406	812	2036.5	5835	5016
407	814	2041.9	5392	5017
408	816	2046.7	4843	5016
409	818	2051.5	4846	5016
410	820	2056.6	5062	5016
411	822	2062.1	5514	5017
412	824	2067.8	5716	5019
413	826	2073.6	5800	5021
414	828	2079.3	5701	5023
415	830	2085.0	5684	5024
416	832	2090.7	5663	5026
417	834	2096.4	5757	5027
418	836	2102.0	5513	5029
419	838	2107.4	5473	5030
420	840	2113.1	5658	5031
421	842	2118.6	5512	5032
422	844	2124.3	5711	5034
423	846	2130.0	5743	5036
424	848	2135.8	5782	5037
425	850	2141.7	5831	5039
426	852	2147.4	5753	5041
427	854	2153.2	5761	5043
428	856	2158.8	5612	5044
429	858	2164.6	5827	5046
430	860	2170.0	5427	5047
431	862	2175.3	5294	5047
432	864	2180.8	5467	5048
433	866	2186.6	5776	5050
434	868	2192.6	5974	5052
435	870	2198.5	5950	5054
436	872	2204.4	5909	5056
437	874	2210.1	5704	5057
438	876	2216.1	6033	5060
439	878	2221.9	5726	5061
440	880	2227.8	5924	5063
441	882	2233.7	5931	5065
442	884	2239.4	5705	5067
443	886	2245.3	5894	5068
444	888	2251.4	6114	5071
445	890	2257.5	6032	5073
446	892	2263.4	5878	5075
447	894	2269.2	5861	5077
448	896	2275.1	5931	5078
449	898	2281.2	6050	5081
450	900	2287.1	5873	5082

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
451	902	2293.1	6063	5085
452	904	2299.1	5924	5086
453	906	2304.8	5745	5088
454	908	2310.7	5939	5090
455	910	2316.7	5960	5092
456	912	2322.5	5853	5093
457	914	2328.4	5869	5095
458	916	2334.3	5916	5097
459	918	2340.2	5856	5098
460	920	2345.9	5743	5100
461	922	2351.7	5805	5101
462	924	2357.5	5790	5103
463	926	2363.2	5714	5104
464	928	2368.8	5589	5105
465	930	2374.8	5941	5107
466	932	2380.6	5844	5109
467	934	2386.5	5912	5110
468	936	2392.4	5914	5112
469	938	2398.4	5952	5114
470	940	2404.3	5914	5116
471	942	2410.2	5875	5117
472	944	2416.0	5843	5119
473	946	2422.0	6012	5121
474	948	2428.1	6031	5123
475	950	2434.1	6067	5124
476	952	2440.2	6023	5126
477	954	2446.2	5997	5128
478	956	2452.2	6019	5130
479	958	2458.2	6032	5132
480	960	2464.2	5978	5134
481	962	2470.2	5975	5135
482	964	2476.1	5965	5137
483	966	2482.1	5941	5139
484	968	2488.1	6060	5141
485	970	2494.4	6237	5143
486	972	2500.4	6066	5145
487	974	2506.2	5783	5146
488	976	2512.0	5748	5147
489	978	2517.8	5819	5149
490	980	2523.6	5862	5150
491	982	2529.6	5917	5152
492	984	2535.6	6029	5154
493	986	2541.7	6073	5156
494	988	2547.7	6014	5157
495	990	2553.8	6121	5159
496	992	2559.9	6075	5161
497	994	2566.0	6168	5163
498	996	2572.3	6232	5165
499	998	2578.5	6262	5167
500	1000	2584.6	6049	5169

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
501	1002	2590.6	5971	5171
502	1004	2596.5	5934	5172
503	1006	2602.6	6113	5174
504	1008	2608.7	6099	5176
505	1010	2614.7	5985	5178
506	1012	2620.7	5995	5179
507	1014	2626.5	5809	5180
508	1016	2632.2	5701	5181
509	1018	2638.1	5947	5183
510	1020	2643.4	5249	5183
511	1022	2648.5	5103	5183
512	1024	2653.6	5128	5183
513	1026	2659.3	5678	5184
514	1028	2665.0	5735	5185
515	1030	2671.1	6048	5187
516	1032	2677.0	5959	5188
517	1034	2683.1	6019	5190
518	1036	2689.1	6008	5191
519	1038	2695.1	5987	5193
520	1040	2701.0	5905	5194
521	1042	2706.8	5892	5195
522	1044	2712.8	5907	5197
523	1046	2718.9	6166	5199
524	1048	2724.8	5920	5200
525	1050	2731.0	6192	5202
526	1052	2737.3	6274	5204
527	1054	2743.5	6215	5206
528	1056	2749.7	6195	5208
529	1058	2756.0	6253	5210
530	1060	2762.2	6216	5212
531	1062	2768.4	6239	5214
532	1064	2774.6	6223	5216
533	1066	2780.9	6214	5217
534	1068	2787.0	6091	5219
535	1070	2793.0	6067	5221
536	1072	2799.1	6068	5222
537	1074	2805.2	6069	5224
538	1076	2811.2	6067	5225
539	1078	2817.3	6064	5227
540	1080	2823.4	6066	5228
541	1082	2829.4	6084	5230
542	1084	2835.6	6117	5232
543	1086	2841.6	6045	5233
544	1088	2847.7	6089	5235
545	1090	2853.5	5788	5236
546	1092	2859.5	5985	5237
547	1094	2865.6	6179	5239
548	1096	2872.0	6322	5241
549	1098	2878.2	6239	5243
550	1100	2884.4	6226	5244

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
551	1102	2890.5	6110	5246
552	1104	2896.6	6023	5247
553	1106	2902.6	6056	5249
554	1108	2908.6	5989	5250
555	1110	2914.5	5904	5251
556	1112	2920.6	6076	5253
557	1114	2926.5	5954	5254
558	1116	2932.8	6214	5256
559	1118	2938.9	6133	5257
560	1120	2945.1	6196	5259
561	1122	2951.3	6224	5261
562	1124	2957.4	6120	5262
563	1126	2963.6	6203	5264
564	1128	2969.7	6093	5265
565	1130	2975.8	6078	5267
566	1132	2981.9	6110	5268
567	1134	2988.0	6087	5270
568	1136	2994.0	5951	5271
569	1138	2999.8	5814	5272
570	1140	3005.5	5738	5273
571	1142	3011.5	5953	5274
572	1144	3017.7	6264	5276
573	1146	3023.9	6169	5277
574	1148	3030.0	6091	5279
575	1150	3036.2	6212	5280
576	1152	3042.4	6243	5282
577	1154	3048.5	6099	5283
578	1156	3054.6	6035	5285
579	1158	3060.7	6155	5286
580	1160	3066.9	6208	5288
581	1162	3073.1	6189	5289
582	1164	3079.3	6198	5291
583	1166	3085.6	6248	5293
584	1168	3091.8	6192	5294
585	1170	3097.9	6101	5295
586	1172	3103.7	5893	5296
587	1174	3109.5	5783	5297
588	1176	3115.5	5938	5298
589	1178	3121.6	6104	5300
590	1180	3127.7	6180	5301
591	1182	3134.0	6216	5303
592	1184	3140.1	6151	5304
593	1186	3146.3	6215	5306
594	1188	3152.6	6299	5307
595	1190	3158.8	6155	5309
596	1192	3164.9	6088	5310
597	1194	3171.1	6198	5312
598	1196	3177.3	6224	5313
599	1198	3183.4	6132	5315
600	1200	3189.5	6105	5316

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
601	1202	3195.6	6117	5317
602	1204	3201.7	6077	5318
603	1206	3208.6	6845	5321
604	1208	3215.6	6992	5324
605	1210	3222.6	6994	5327
606	1212	3229.2	6619	5329
607	1214	3235.4	6253	5330
608	1216	3241.6	6203	5332
609	1218	3247.8	6163	5333
610	1220	3254.0	6168	5334
611	1222	3260.2	6188	5336
612	1224	3266.3	6158	5337
613	1226	3272.5	6189	5338
614	1228	3278.8	6269	5340
615	1230	3285.2	6398	5342
616	1232	3291.0	5856	5343
617	1234	3297.3	6241	5344
618	1236	3303.7	6462	5346
619	1238	3310.2	6433	5348
620	1240	3316.6	6484	5349
621	1242	3323.0	6386	5351
622	1244	3329.6	6566	5353
623	1246	3336.1	6521	5355
624	1248	3342.7	6546	5357
625	1250	3349.0	6374	5358
626	1252	3355.1	6094	5360
627	1254	3361.4	6320	5361
628	1256	3367.8	6373	5363
629	1258	3374.1	6320	5364
630	1260	3380.6	6445	5366
631	1262	3387.0	6402	5368
632	1264	3393.4	6431	5369
633	1266	3399.8	6417	5371
634	1268	3406.1	6301	5372
635	1270	3412.6	6441	5374
636	1272	3419.0	6425	5376
637	1274	3425.4	6389	5377
638	1276	3431.8	6434	5379
639	1278	3438.2	6421	5381
640	1280	3444.7	6453	5382
641	1282	3451.1	6431	5384
642	1284	3457.5	6366	5386
643	1286	3463.9	6360	5387
644	1288	3470.3	6404	5389
645	1290	3476.6	6356	5390
646	1292	3483.0	6340	5392
647	1294	3489.3	6369	5393
648	1296	3495.8	6484	5395
649	1298	3502.3	6485	5396
650	1300	3508.8	6482	5398

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
651	1302	3515.2	6463	5400
652	1304	3521.6	6382	5401
653	1306	3528.0	6349	5403
654	1308	3534.4	6382	5404
655	1310	3540.8	6444	5406
656	1312	3547.2	6373	5407
657	1314	3553.5	6373	5409
658	1316	3559.9	6347	5410
659	1318	3566.3	6390	5412
660	1320	3572.7	6389	5413
661	1322	3579.1	6470	5415
662	1324	3585.6	6478	5416
663	1326	3592.0	6357	5418
664	1328	3598.2	6192	5419
665	1330	3604.4	6188	5420
666	1332	3610.7	6357	5421
667	1334	3617.1	6383	5423
668	1336	3623.5	6358	5424
669	1338	3629.8	6300	5426
670	1340	3636.4	6675	5428
671	1342	3643.1	6627	5429
672	1344	3649.5	6468	5431
673	1346	3656.0	6470	5432
674	1348	3662.5	6549	5434
675	1350	3669.1	6596	5436
676	1352	3675.7	6526	5437
677	1354	3682.1	6466	5439
678	1356	3688.8	6635	5441
679	1358	3695.3	6509	5442
680	1360	3701.7	6468	5444
681	1362	3708.1	6408	5445
682	1364	3714.6	6481	5447
683	1366	3721.1	6476	5448
684	1368	3727.6	6455	5450
685	1370	3734.0	6402	5451
686	1372	3740.4	6401	5452
687	1374	3746.8	6470	5454
688	1376	3753.3	6418	5455
689	1378	3759.7	6439	5457
690	1380	3766.1	6442	5458
691	1382	3772.5	6400	5460
692	1384	3779.0	6451	5461
693	1386	3785.4	6452	5462
694	1388	3791.8	6415	5464
695	1390	3798.3	6431	5465
696	1392	3804.8	6521	5467
697	1394	3811.3	6526	5468
698	1396	3817.8	6515	5470
699	1398	3824.4	6531	5471
700	1400	3830.9	6523	5473

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
701	1402	3837.5	6611	5474
702	1404	3844.1	6579	5476
703	1406	3850.6	6553	5477
704	1408	3857.2	6529	5479
705	1410	3863.7	6566	5480
706	1412	3870.3	6549	5482
707	1414	3876.7	6445	5483
708	1416	3883.3	6565	5485
709	1418	3889.8	6477	5486
710	1420	3896.3	6513	5488
711	1422	3902.8	6561	5489
712	1424	3909.5	6657	5491
713	1426	3916.2	6663	5493
714	1428	3922.6	6448	5494
715	1430	3929.1	6470	5495
716	1432	3935.5	6464	5497
717	1434	3942.0	6491	5498
718	1436	3948.4	6347	5499
719	1438	3954.9	6492	5501
720	1440	3961.4	6550	5502
721	1442	3968.1	6701	5504
722	1444	3974.9	6810	5505
723	1446	3981.2	6292	5507
724	1448	3987.7	6500	5508
725	1450	3994.6	6876	5510
726	1452	4001.4	6760	5512
727	1454	4008.2	6826	5513
728	1456	4014.7	6556	5515
729	1458	4021.3	6549	5516
730	1460	4028.0	6670	5518
731	1462	4034.8	6810	5520
732	1464	4041.7	6934	5521
733	1466	4048.4	6659	5523
734	1468	4055.1	6691	5525
735	1470	4061.8	6712	5526
736	1472	4068.5	6754	5528
737	1474	4075.0	6496	5529
738	1476	4081.5	6501	5531
739	1478	4088.0	6468	5532
740	1480	4094.4	6408	5533
741	1482	4100.3	5867	5533
742	1484	4106.7	6397	5535
743	1486	4113.0	6365	5536
744	1488	4119.8	6765	5537
745	1490	4126.5	6706	5539
746	1492	4133.2	6748	5541
747	1494	4140.1	6844	5542
748	1496	4147.1	6977	5544
749	1498	4153.8	6730	5546
750	1500	4160.6	6798	5547

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
751	1502	4167.5	6884	5549
752	1504	4174.1	6589	5551
753	1506	4180.9	6854	5552
754	1508	4187.8	6849	5554
755	1510	4194.6	6873	5556
756	1512	4201.6	6925	5558
757	1514	4208.4	6838	5559
758	1516	4214.3	5902	5560
759	1518	4220.9	6575	5561
760	1520	4227.6	6742	5563
761	1522	4234.2	6592	5564
762	1524	4240.6	6375	5565
763	1526	4247.1	6466	5566
764	1528	4253.7	6618	5568
765	1530	4260.2	6573	5569
766	1532	4266.8	6503	5570
767	1534	4273.1	6367	5571
768	1536	4279.1	5981	5572
769	1538	4285.6	6531	5573
770	1540	4292.3	6644	5574
771	1542	4299.0	6712	5576
772	1544	4305.9	6902	5578
773	1546	4312.6	6711	5579
774	1548	4319.7	7067	5581
775	1550	4326.1	6474	5582
776	1552	4332.8	6633	5583
777	1554	4339.4	6649	5585
778	1556	4346.0	6595	5586
779	1558	4352.3	6316	5587
780	1560	4359.0	6620	5588
781	1562	4365.7	6731	5590
782	1564	4372.7	6971	5592
783	1566	4379.4	6718	5593
784	1568	4386.1	6763	5595
785	1570	4392.9	6805	5596
786	1572	4399.6	6688	5597
787	1574	4406.4	6803	5599
788	1576	4413.2	6770	5601
789	1578	4420.1	6914	5602
790	1580	4427.1	7005	5604
791	1582	4433.4	6327	5605
792	1584	4440.1	6698	5606
793	1586	4446.9	6772	5608
794	1588	4453.7	6781	5609
795	1590	4460.5	6837	5611
796	1592	4467.4	6909	5612
797	1594	4474.2	6789	5614
798	1596	4481.0	6759	5615
799	1598	4487.7	6712	5617
800	1600	4494.6	6850	5618

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
801	1602	4501.7	7115	5620
802	1604	4508.5	6787	5622
803	1606	4515.2	6749	5623
804	1608	4522.0	6838	5624
805	1610	4528.9	6806	5626
806	1612	4535.7	6897	5627
807	1614	4542.9	7191	5629
808	1616	4549.7	6718	5631
809	1618	4556.5	6855	5632
810	1620	4563.3	6756	5634
811	1622	4569.7	6455	5635
812	1624	4576.5	6743	5636
813	1626	4583.3	6882	5638
814	1628	4590.1	6741	5639
815	1630	4596.9	6839	5640
816	1632	4603.8	6863	5642
817	1634	4610.7	6926	5643
818	1636	4617.5	6821	5645
819	1638	4625.2	7622	5647
820	1640	4632.1	6893	5649
821	1642	4638.8	6762	5650
822	1644	4645.7	6852	5652
823	1646	4652.4	6716	5653
824	1648	4659.1	6762	5654
825	1650	4665.9	6780	5656
826	1652	4672.9	6942	5657
827	1654	4679.4	6541	5658
828	1656	4686.0	6614	5659
829	1658	4692.6	6616	5661
830	1660	4699.4	6721	5662
831	1662	4706.1	6704	5663
832	1664	4712.8	6699	5664
833	1666	4719.5	6706	5666
834	1668	4726.6	7090	5667
835	1670	4733.3	6764	5669
836	1672	4740.1	6737	5670
837	1674	4746.9	6883	5671
838	1676	4753.7	6744	5673
839	1678	4760.5	6822	5674
840	1680	4767.2	6643	5675
841	1682	4774.0	6814	5677
842	1684	4780.6	6629	5678
843	1686	4787.4	6788	5679
844	1688	4794.3	6896	5680
845	1690	4801.1	6869	5682
846	1692	4808.3	7182	5684
847	1694	4815.2	6831	5685
848	1696	4822.1	6911	5686
849	1698	4828.9	6806	5688
850	1700	4835.4	6567	5689

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
851	1702	4842.3	6850	5690
852	1704	4849.1	6797	5691
853	1706	4855.9	6784	5693
854	1708	4862.5	6669	5694
855	1710	4869.5	6909	5695
856	1712	4876.4	6896	5697
857	1714	4883.3	6939	5698
858	1716	4890.1	6842	5699
859	1718	4897.5	7388	5701
860	1720	4904.4	6895	5703
861	1722	4911.3	6929	5704
862	1724	4918.3	6921	5706
863	1726	4925.3	6986	5707
864	1728	4932.0	6795	5708
865	1730	4939.0	6914	5710
866	1732	4945.9	6961	5711
867	1734	4953.0	7111	5713
868	1736	4960.2	7157	5715
869	1738	4967.3	7072	5716
870	1740	4974.2	6938	5717
871	1742	4981.8	7644	5720
872	1744	4989.0	7141	5721
873	1746	4996.1	7114	5723
874	1748	5003.2	7112	5724
875	1750	5010.5	7302	5726
876	1752	5017.7	7147	5728
877	1754	5025.0	7332	5730
878	1756	5032.1	7116	5731
879	1758	5038.5	6378	5732
880	1760	5045.3	6865	5733
881	1762	5052.7	7358	5735
882	1764	5060.1	7367	5737
883	1766	5067.6	7532	5739
884	1768	5075.2	7602	5741
885	1770	5082.8	7601	5743
886	1772	5090.6	7764	5746
887	1774	5098.3	7756	5748
888	1776	5106.1	7799	5750
889	1778	5113.7	7604	5752
890	1780	5121.5	7788	5755
891	1782	5129.0	7520	5756
892	1784	5136.9	7845	5759
893	1786	5144.8	7964	5761
894	1788	5152.6	7750	5764
895	1790	5160.4	7767	5766
896	1792	5168.2	7802	5768
897	1794	5175.7	7510	5770
898	1796	5183.2	7516	5772
899	1798	5191.1	7873	5774
900	1800	5198.7	7647	5776

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
901	1802	5206.1	7345	5778
902	1804	5213.5	7458	5780
903	1806	5220.8	7257	5782
904	1808	5228.0	7242	5783
905	1810	5235.3	7250	5785
906	1812	5242.4	7157	5786
907	1814	5249.6	7182	5788
908	1816	5256.9	7280	5790
909	1818	5264.3	7387	5791
910	1820	5272.1	7826	5794
911	1822	5279.5	7404	5795
912	1824	5287.3	7754	5797
913	1826	5295.9	8640	5801
914	1828	5303.4	7501	5802
915	1830	5312.0	8636	5805
916	1832	5319.5	7515	5807
917	1834	5327.0	7443	5809
918	1836	5334.4	7417	5811
919	1838	5341.9	7455	5813
920	1840	5349.9	8043	5815
921	1842	5357.6	7718	5817
922	1844	5364.5	6901	5818
923	1846	5372.0	7477	5820
924	1848	5379.3	7307	5822
925	1850	5386.6	7283	5823
926	1852	5393.9	7315	5825
927	1854	5401.3	7353	5827
928	1856	5408.6	7310	5828
929	1858	5416.0	7475	5830
930	1860	5423.4	7392	5832
931	1862	5430.9	7471	5833
932	1864	5438.4	7480	5835
933	1866	5445.9	7499	5837
934	1868	5453.4	7487	5839
935	1870	5461.0	7619	5841
936	1872	5468.5	7490	5842
937	1874	5476.0	7536	5844
938	1876	5483.6	7617	5846
939	1878	5491.2	7550	5848
940	1880	5499.1	7959	5850
941	1882	5506.7	7586	5852
942	1884	5514.3	7548	5854
943	1886	5521.9	7592	5856
944	1888	5529.4	7491	5857
945	1890	5537.2	7879	5860
946	1892	5543.9	6645	5860
947	1894	5550.7	6830	5861
948	1896	5558.4	7674	5863
949	1898	5566.5	8141	5866
950	1900	5574.5	7930	5868

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
951	1902	5582.3	7812	5870
952	1904	5590.1	7860	5872
953	1906	5597.9	7816	5874
954	1908	5606.1	8161	5876
955	1910	5614.2	8081	5879
956	1912	5621.9	7745	5881
957	1914	5629.7	7784	5883
958	1916	5637.4	7703	5885
959	1918	5645.1	7703	5886
960	1920	5652.9	7733	5888
961	1922	5660.5	7667	5890
962	1924	5668.2	7666	5892
963	1926	5676.3	8081	5894
964	1928	5684.5	8236	5897
965	1930	5692.1	7630	5899
966	1932	5699.9	7809	5901
967	1934	5707.7	7784	5903
968	1936	5715.3	7589	5904
969	1938	5723.1	7810	5906
970	1940	5730.9	7746	5908
971	1942	5738.5	7586	5910
972	1944	5746.1	7595	5912
973	1946	5753.7	7616	5913
974	1948	5762.1	8378	5916
975	1950	5769.6	7560	5918
976	1952	5777.1	7495	5919
977	1954	5784.6	7475	5921
978	1956	5792.1	7498	5922
979	1958	5799.7	7601	5924
980	1960	5807.2	7502	5926
981	1962	5814.8	7579	5927
982	1964	5822.5	7788	5929
983	1966	5830.1	7541	5931
984	1968	5837.8	7662	5933
985	1970	5845.4	7599	5934
986	1972	5852.9	7519	5936
987	1974	5860.8	7964	5938
988	1976	5868.4	7550	5940
989	1978	5876.0	7617	5941
990	1980	5883.9	7903	5943
991	1982	5891.7	7827	5945
992	1984	5899.6	7870	5947
993	1986	5907.3	7741	5949
994	1988	5915.1	7720	5951
995	1990	5922.7	7595	5952
996	1992	5930.4	7771	5954
997	1994	5937.9	7507	5956
998	1996	5945.8	7824	5958
999	1998	5953.8	8008	5960
1000	2000	5961.5	7720	5961

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1001	2002	5969.7	8170	5964
1002	2004	5977.3	7680	5965
1003	2006	5985.2	7884	5967
1004	2008	5993.0	7793	5969
1005	2010	6000.6	7572	5971
1006	2012	6008.2	7607	5972
1007	2014	6015.8	7620	5974
1008	2016	6024.0	8233	5976
1009	2018	6031.6	7564	5978
1010	2020	6039.4	7817	5980
1011	2022	6047.1	7675	5981
1012	2024	6054.9	7766	5983
1013	2026	6062.5	7657	5985
1014	2028	6070.3	7805	5987
1015	2030	6078.2	7883	5988
1016	2032	6085.9	7730	5990
1017	2034	6093.6	7644	5992
1018	2036	6101.3	7740	5993
1019	2038	6109.2	7836	5995
1020	2040	6117.0	7793	5997
1021	2042	6124.9	7962	5999
1022	2044	6132.7	7807	6001
1023	2046	6140.4	7693	6002
1024	2048	6148.0	7627	6004
1025	2050	6155.7	7689	6006
1026	2052	6163.4	7655	6007
1027	2054	6171.0	7630	6009
1028	2056	6178.6	7623	6010
1029	2058	6186.3	7630	6012
1030	2060	6193.8	7552	6013
1031	2062	6201.6	7799	6015
1032	2064	6209.4	7745	6017
1033	2066	6217.0	7678	6018
1034	2068	6224.8	7722	6020
1035	2070	6232.6	7798	6022
1036	2072	6239.9	7376	6023
1037	2074	6248.1	8178	6025
1038	2076	6255.6	7472	6027
1039	2078	6263.4	7853	6028
1040	2080	6270.9	7463	6030
1041	2082	6278.7	7761	6031
1042	2084	6286.4	7762	6033
1043	2086	6294.6	8204	6035
1044	2088	6302.9	8238	6037
1045	2090	6310.5	7612	6039
1046	2092	6318.0	7534	6040
1047	2094	6325.8	7818	6042
1048	2096	6333.4	7522	6043
1049	2098	6340.9	7551	6045
1050	2100	6348.9	8030	6047

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1051	2102	6356.8	7812	6048
1052	2104	6365.1	8369	6050
1053	2106	6372.9	7826	6052
1054	2108	6381.1	8127	6054
1055	2110	6389.5	8428	6056
1056	2112	6398.1	8628	6059
1057	2114	6406.1	7935	6061
1058	2116	6414.2	8129	6063
1059	2118	6422.4	8187	6065
1060	2120	6431.3	8911	6067
1061	2122	6439.6	8266	6069
1062	2124	6448.2	8684	6072
1063	2126	6457.0	8770	6074
1064	2128	6465.9	8856	6077
1065	2130	6474.3	8471	6079
1066	2132	6482.8	8497	6081
1067	2134	6491.2	8357	6084
1068	2136	6499.8	8626	6086
1069	2138	6509.2	9403	6089
1070	2140	6518.6	9351	6092
1071	2142	6527.1	8564	6094
1072	2144	6536.5	9395	6098
1073	2146	6545.3	8775	6100
1074	2148	6554.2	8901	6103
1075	2150	6563.2	8985	6105
1076	2152	6571.8	8597	6108
1077	2154	6580.5	8667	6110
1078	2156	6589.5	9018	6113
1079	2158	6598.4	8941	6115
1080	2160	6607.7	9245	6118
1081	2162	6618.3	10614	6122
1082	2164	6628.2	9887	6126
1083	2166	6638.7	10484	6130
1084	2168	6649.8	11182	6135
1085	2170	6660.2	10413	6138
1086	2172	6670.9	10675	6143
1087	2174	6682.5	11588	6148
1088	2176	6694.3	11749	6153
1089	2178	6705.9	11612	6158
1090	2180	6716.5	10650	6162
1091	2182	6727.8	11326	6167
1092	2184	6738.2	10335	6170
1093	2186	6748.9	10711	6175
1094	2188	6759.8	10943	6179
1095	2190	6772.2	12380	6185
1096	2192	6782.7	10443	6189
1097	2194	6793.7	11036	6193
1098	2196	6804.5	10772	6197
1099	2198	6815.3	10820	6201
1100	2200	6827.6	12297	6207

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1101	2202	6838.4	10792	6211
1102	2204	6849.5	11161	6216
1103	2206	6860.5	10963	6220
1104	2208	6870.9	10430	6224
1105	2210	6880.2	9320	6226
1106	2212	6891.4	11186	6231
1107	2214	6902.1	10617	6235
1108	2216	6913.0	10955	6239
1109	2218	6923.0	10035	6243
1110	2220	6933.5	10413	6246
1111	2222	6944.4	10979	6251
1112	2224	6955.6	11181	6255
1113	2226	6966.9	11272	6260
1114	2228	6980.0	13100	6266
1115	2230	6990.6	10655	6270
1116	2232	7003.5	12881	6276
1117	2234	7018.0	14436	6283
1118	2236	7033.1	15153	6291
1119	2238	7047.8	14732	6298
1120	2240	7062.9	15076	6306
1121	2242	7076.2	13264	6312
1122	2244	7090.1	13964	6319
1123	2246	7102.5	12350	6325
1124	2248	7117.7	15168	6332
1125	2250	7130.5	12800	6338
1126	2252	7143.9	13431	6344
1127	2254	7157.4	13543	6351
1128	2256	7171.7	14227	6358
1129	2258	7183.8	12155	6363
1130	2260	7195.9	12121	6368
1131	2262	7208.7	12779	6374
1132	2264	7218.9	10184	6377
1133	2266	7231.1	12159	6382
1134	2268	7242.7	11598	6387
1135	2270	7254.6	11897	6392
1136	2272	7266.1	11569	6396
1137	2274	7277.5	11393	6401
1138	2276	7290.5	12987	6406
1139	2278	7301.9	11386	6411
1140	2280	7315.0	13110	6417
1141	2282	7327.0	12004	6422
1142	2284	7339.4	12343	6427
1143	2286	7350.3	10953	6431
1144	2288	7361.3	10992	6435
1145	2290	7372.8	11544	6439
1146	2292	7384.3	11452	6444
1147	2294	7396.2	11953	6448
1148	2296	7407.9	11643	6453
1149	2298	7420.7	12839	6458
1150	2300	7433.6	12868	6464

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1151	2302	7446.9	13261	6470
1152	2304	7459.9	13059	6476
1153	2306	7473.2	13319	6482
1154	2308	7484.8	11569	6486
1155	2310	7496.0	11149	6490
1156	2312	7507.2	11242	6494
1157	2314	7519.3	12066	6499
1158	2316	7530.7	11469	6503
1159	2318	7542.7	11932	6508
1160	2320	7553.9	11242	6512
1161	2322	7564.3	10440	6515
1162	2324	7575.7	11333	6520
1163	2326	7586.6	10883	6523
1164	2328	7596.3	9757	6526
1165	2330	7606.3	10000	6529
1166	2332	7616.4	10064	6532
1167	2334	7627.3	10960	6536
1168	2336	7638.2	10875	6540
1169	2338	7650.0	11740	6544
1170	2340	7661.6	11654	6548
1171	2342	7671.9	10293	6552
1172	2344	7681.0	9091	6554
1173	2346	7690.7	9734	6556
1174	2348	7700.6	9834	6559
1175	2350	7710.7	10141	6562
1176	2352	7720.8	10112	6565
1177	2354	7731.0	10186	6568
1178	2356	7741.6	10567	6572
1179	2358	7752.4	10810	6575
1180	2360	7762.6	10255	6579
1181	2362	7772.4	9810	6581
1182	2364	7783.1	10650	6585
1183	2366	7794.2	11060	6588
1184	2368	7803.8	9614	6591
1185	2370	7813.1	9349	6593
1186	2372	7822.6	9469	6596
1187	2374	7832.9	10283	6599
1188	2376	7842.5	9626	6601
1189	2378	7851.8	9344	6604
1190	2380	7861.8	9959	6607
1191	2382	7871.7	9931	6609
1192	2384	7881.7	10000	6612
1193	2386	7891.4	9641	6615
1194	2388	7901.2	9800	6617
1195	2390	7910.5	9377	6620
1196	2392	7919.5	8936	6622
1197	2394	7928.8	9315	6624
1198	2396	7937.8	9032	6626
1199	2398	7947.2	9409	6628
1200	2400	7956.1	8820	6630

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1201	2402	7965.4	9329	6632
1202	2404	7974.1	8727	6634
1203	2406	7983.9	9826	6637
1204	2408	7993.5	9548	6639
1205	2410	8002.8	9345	6641
1206	2412	8012.1	9226	6643
1207	2414	8021.4	9371	6646
1208	2416	8031.3	9822	6648
1209	2418	8041.1	9815	6651
1210	2420	8050.4	9295	6653
1211	2422	8059.9	9519	6656
1212	2424	8069.4	9472	6658
1213	2426	8078.5	9180	6660
1214	2428	8088.1	9520	6662
1215	2430	8097.2	9172	6664
1216	2432	8106.3	9084	6666
1217	2434	8115.2	8904	6668
1218	2436	8124.9	9681	6671
1219	2438	8133.7	8799	6672
1220	2440	8142.2	8460	6674
1221	2442	8150.8	8624	6675
1222	2444	8160.3	9502	6678
1223	2446	8169.1	8826	6680
1224	2448	8179.0	9918	6682
1225	2450	8189.0	10008	6685
1226	2452	8198.4	9420	6687
1227	2454	8209.2	10740	6690
1228	2456	8219.4	10170	6693
1229	2458	8229.2	9853	6696
1230	2460	8238.8	9601	6698
1231	2462	8249.0	10214	6701
1232	2464	8259.0	9957	6704
1233	2466	8268.9	9921	6706
1234	2468	8278.7	9780	6709
1235	2470	8288.3	9660	6711
1236	2472	8297.8	9427	6713
1237	2474	8306.9	9103	6715
1238	2476	8316.0	9152	6717
1239	2478	8325.7	9682	6720
1240	2480	8336.0	10258	6723
1241	2482	8346.6	10631	6726
1242	2484	8356.4	9795	6728
1243	2486	8366.5	10070	6731
1244	2488	8377.0	10536	6734
1245	2490	8386.8	9752	6736
1246	2492	8396.8	10044	6739
1247	2494	8407.5	10680	6742
1248	2496	8417.6	10134	6745
1249	2498	8427.2	9546	6747
1250	2500	8436.2	9064	6749

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1251	2502	8444.1	7873	6750
1252	2504	8452.5	8437	6751
1253	2506	8460.6	8039	6752
1254	2508	8468.0	7448	6753
1255	2510	8475.8	7805	6754
1256	2512	8483.8	8015	6755
1257	2514	8492.8	8957	6756
1258	2516	8501.5	8736	6758
1259	2518	8511.1	9541	6760
1260	2520	8520.6	9498	6762
1261	2522	8530.1	9566	6765
1262	2524	8539.4	9222	6767
1263	2526	8548.7	9323	6769
1264	2528	8557.8	9168	6770
1265	2530	8567.1	9270	6772
1266	2532	8576.4	9248	6774
1267	2534	8585.7	9363	6776
1268	2536	8595.1	9420	6779
1269	2538	8605.1	9980	6781
1270	2540	8615.8	10656	6784
1271	2542	8627.3	11520	6788
1272	2544	8638.6	11302	6791
1273	2546	8649.5	10920	6795
1274	2548	8660.5	10987	6798
1275	2550	8670.9	10395	6801
1276	2552	8681.2	10310	6803
1277	2554	8692.6	11347	6807
1278	2556	8704.5	11973	6811
1279	2558	8716.1	11567	6815
1280	2560	8726.5	10379	6818
1281	2562	8737.1	10633	6821
1282	2564	8748.0	10844	6824
1283	2566	8758.9	10953	6827
1284	2568	8769.7	10737	6830
1285	2570	8780.9	11281	6833
1286	2572	8792.6	11676	6837
1287	2574	8803.6	10943	6840
1288	2576	8814.6	11029	6844
1289	2578	8826.1	11532	6847
1290	2580	8836.6	10500	6850
1291	2582	8847.0	10377	6853
1292	2584	8858.1	11092	6856
1293	2586	8869.3	11236	6859
1294	2588	8880.6	11254	6863
1295	2590	8891.5	10974	6866
1296	2592	8902.7	11174	6869
1297	2594	8913.9	11182	6873
1298	2596	8924.3	10382	6875
1299	2598	8935.4	11128	6879
1300	2600	8946.8	11435	6882

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1301	2602	8957.9	11083	6885
1302	2604	8969.2	11305	6889
1303	2606	8980.1	10835	6892
1304	2608	8991.0	10962	6895
1305	2610	9002.4	11416	6898
1306	2612	9013.6	11198	6902
1307	2614	9024.9	11278	6905
1308	2616	9037.6	12689	6909
1309	2618	9049.4	11825	6913
1310	2620	9061.4	11969	6917
1311	2622	9073.2	11745	6921
1312	2624	9085.1	11902	6925
1313	2626	9096.9	11800	6928
1314	2628	9109.2	12364	6932
1315	2630	9121.6	12384	6937
1316	2632	9133.9	12299	6941
1317	2634	9146.2	12267	6945
1318	2636	9158.3	12146	6949
1319	2638	9169.6	11317	6952
1320	2640	9181.6	12008	6956
1321	2642	9194.3	12678	6960
1322	2644	9206.1	11778	6964
1323	2646	9218.0	11902	6967
1324	2648	9230.5	12458	6972
1325	2650	9242.8	12395	6976
1326	2652	9255.6	12755	6980
1327	2654	9267.5	11916	6984
1328	2656	9279.4	11921	6988
1329	2658	9291.0	11553	6991
1330	2660	9303.3	12339	6995
1331	2662	9316.2	12880	6999
1332	2664	9329.2	13013	7004
1333	2666	9342.5	13292	7009
1334	2668	9355.7	13139	7013
1335	2670	9368.0	12352	7017
1336	2672	9379.4	11406	7021
1337	2674	9391.4	12010	7024
1338	2676	9404.0	12571	7028
1339	2678	9416.3	12332	7032
1340	2680	9428.8	12484	7036
1341	2682	9440.9	12109	7040
1342	2684	9453.4	12498	7044
1343	2686	9465.6	12186	7048
1344	2688	9478.1	12516	7052
1345	2690	9490.4	12309	7056
1346	2692	9502.6	12157	7060
1347	2694	9514.4	11838	7063
1348	2696	9527.3	12908	7068
1349	2698	9540.1	12756	7072
1350	2700	9552.7	12634	7076

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1351	2702	9564.8	12115	7080
1352	2704	9576.3	11474	7083
1353	2706	9588.2	11886	7087
1354	2708	9600.8	12621	7091
1355	2710	9613.7	12918	7095
1356	2712	9626.1	12319	7099
1357	2714	9638.8	12766	7103
1358	2716	9650.9	12085	7107
1359	2718	9663.6	12699	7111
1360	2720	9675.5	11862	7114
1361	2722	9686.6	11095	7117
1362	2724	9698.1	11587	7121
1363	2726	9710.0	11859	7124
1364	2728	9721.7	11733	7127
1365	2730	9733.4	11700	7131
1366	2732	9745.2	11778	7134
1367	2734	9757.2	11976	7138
1368	2736	9769.0	11842	7141
1369	2738	9780.8	11729	7144
1370	2740	9792.3	11519	7148
1371	2742	9803.1	10803	7150
1372	2744	9813.8	10733	7153
1373	2746	9824.1	10323	7155
1374	2748	9834.5	10391	7158
1375	2750	9845.8	11300	7161
1376	2752	9857.7	11895	7164
1377	2754	9869.3	11620	7167
1378	2756	9881.1	11750	7171
1379	2758	9892.4	11340	7174
1380	2760	9903.7	11271	7177
1381	2762	9915.2	11506	7180
1382	2764	9927.1	11849	7183
1383	2766	9939.0	11930	7187
1384	2768	9951.7	12683	7191
1385	2770	9964.6	12922	7195
1386	2772	9976.3	11708	7198
1387	2774	9987.7	11412	7201
1388	2776	9999.4	11708	7204
1389	2778	10011.4	11988	7208
1390	2780	10023.0	11554	7211
1391	2782	10034.4	11473	7214
1392	2784	10046.4	11998	7217
1393	2786	10058.2	11794	7221
1394	2788	10069.9	11660	7224
1395	2790	10081.1	11251	7227
1396	2792	10092.8	11701	7230
1397	2794	10104.9	12041	7233
1398	2796	10117.2	12350	7237
1399	2798	10129.3	12041	7240
1400	2800	10141.5	12238	7244

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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1401	2802	10153.9	12424	7248
1402	2804	10166.7	12747	7252
1403	2806	10178.9	12182	7255
1404	2808	10192.3	13456	7259
1405	2810	10205.8	13442	7264
1406	2812	10219.2	13482	7268
1407	2814	10232.1	12905	7272
1408	2816	10244.4	12284	7276
1409	2818	10256.7	12302	7279
1410	2820	10269.9	13208	7284
1411	2822	10283.2	13244	7288
1412	2824	10296.6	13418	7292
1413	2826	10310.1	13526	7297
1414	2828	10323.5	13351	7301
1415	2830	10336.5	12978	7305
1416	2832	10350.1	13620	7309
1417	2834	10364.3	14252	7314
1418	2836	10378.1	13779	7319
1419	2838	10392.5	14402	7324
1420	2840	10406.2	13674	7328
1421	2842	10420.6	14392	7333
1422	2844	10434.1	13550	7338
1423	2846	10447.4	13276	7342
1424	2848	10461.0	13574	7346
1425	2850	10475.1	14116	7351
1426	2852	10488.2	13130	7355
1427	2854	10502.2	14005	7360
1428	2856	10515.9	13715	7364
1429	2858	10529.6	13612	7368
1430	2860	10543.4	13886	7373
1431	2862	10556.8	13337	7377
1432	2864	10569.7	12952	7381
1433	2866	10583.1	13340	7385
1434	2868	10596.1	13023	7389
1435	2870	10610.5	14428	7394
1436	2872	10624.1	13598	7398
1437	2874	10638.1	14021	7403
1438	2876	10652.7	14547	7408
1439	2878	10666.4	13705	7412
1440	2880	10679.6	13180	7416
1441	2882	10692.4	12805	7420
1442	2884	10704.6	12226	7423
1443	2886	10716.9	12328	7427
1444	2888	10729.3	12400	7430
1445	2890	10741.6	12277	7434
1446	2892	10754.3	12648	7437
1447	2894	10767.1	12799	7441
1448	2896	10780.6	13538	7445
1449	2898	10794.5	13877	7450
1450	2900	10808.5	14068	7454

CHAMPLIN PETROLEUM CO.
 OCS-P-0333 NO.1
 SANTA BARBARA CO., CA.

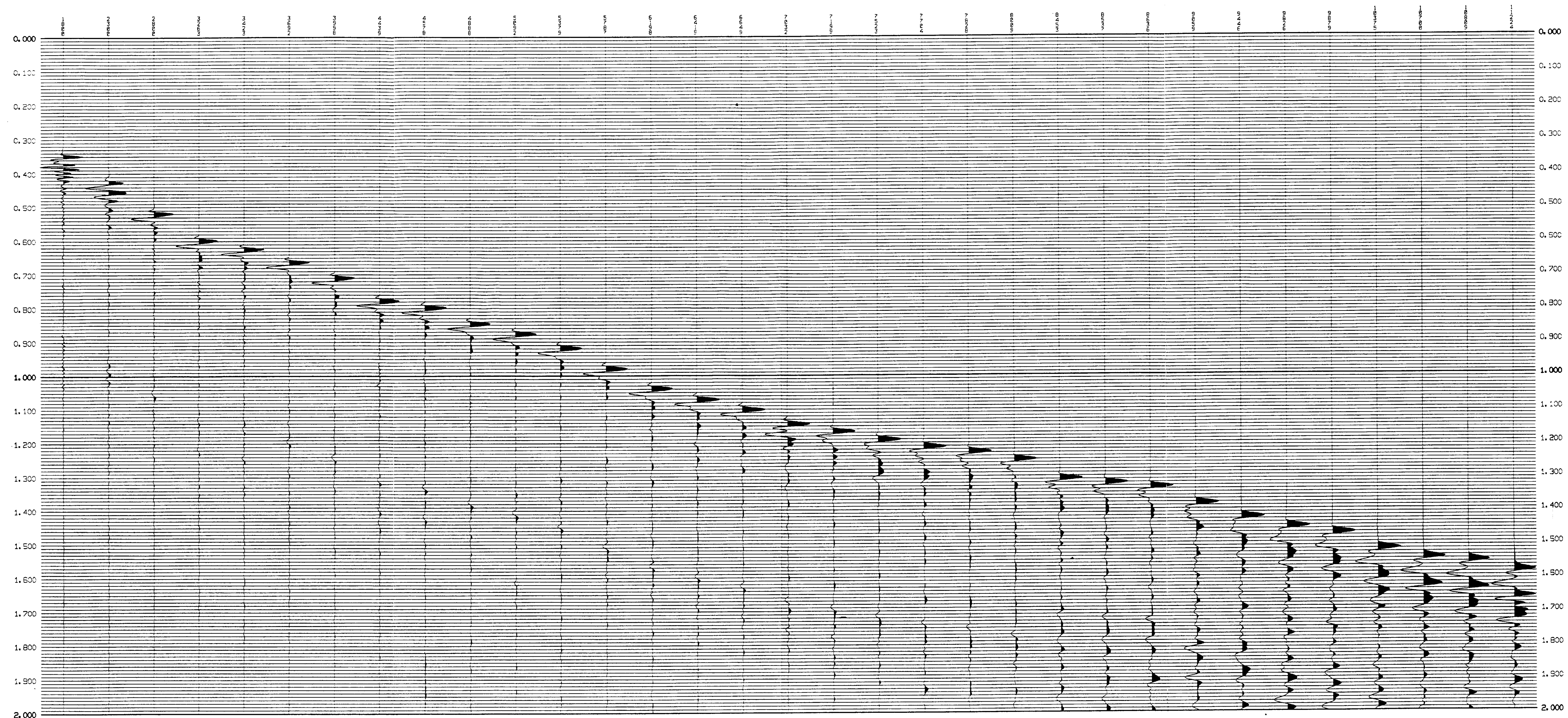
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INTEGRATED ONE-WAY TIME (MS)	TWO-WAY TIME (MS)	DEPTH BELOW DATUM (FEET)	INTERVAL VELOCITY (FEET/SEC)	AVERAGE VELOCITY (FEET/SEC)
1451	2902	10822.6	14098	7459
1452	2904	10836.6	13992	7463
1453	2906	10850.3	13673	7468
1454	2908	10864.0	13674	7472
1455	2910	10877.8	13846	7476
1456	2912	10891.8	14012	7481
1457	2914	10906.9	15088	7486
1458	2916	10921.6	14649	7491
1459	2918	10936.0	14423	7496
1460	2920	10951.2	15166	7501
1461	2922	10966.4	15254	7506
1462	2924	10982.0	15557	7512
1463	2926	10997.1	15175	7517
1464	2928	11012.4	15278	7522
1465	2930	11027.9	15496	7528
1466	2932	11043.3	15336	7533
1467	2934	11058.8	15573	7538
1468	2936	11074.3	15425	7544
1469	2938	11089.7	15450	7549
1470	2940	11105.4	15725	7555
1471	2942	11121.7	16240	7561
1472	2944	11136.9	15241	7566
1473	2946	11152.9	15996	7572
1474	2948	11168.8	15922	7577
1475	2950	11185.1	16278	7583



CHAMPLIN PETROLEUM COMPANY
 OCS-P-0333 No. 1
 OFFSHORE, SANTA BARBARA, CALIFORNIA

ELEV. 37 ft. K.B.		ELEV. DAT. SEA LEVEL	T.D. 11258 ft.	DATE Sept. 23, 1983	
DEPTH BELOW		ITEM	LOG Tgd	GEO. Tgd	DIFF.
K.B.	DATUM				
2800	2763	GEOPHONE LEVEL	.5301	.5281	+ .0020
3263	3226	" "	.6055	.6071	- .0016
3423	3386	" "	.6308	.6321	- .0013
3692	3655	" "	.6728	.6712	+ .0016
3998	3961	" "	.7199	.7182	+ .0017
4439	4402	" "	.7864	.7859	+ .0005
4578	4541	" "	.8067	.8065	+ .0002
4888	4851	" "	.8523	.8520	+ .0003
5092	5055	" "	.8813	.8820	- .0007
5379	5342	" "	.9190	.9194	- .0004
5787	5750	" "	.9725	.9741	- .0016
6198	6161	" "	1.0257	1.0256	+ .0001
6419	6382	" "	1.0541	1.0540	+ .0001
6649	6612	" "	1.0804	1.0810	- .0006
7032	6995	" "	1.1153	1.1158	- .0005
7523	7486	" "	1.1541	1.1545	- .0004
7704	7667	" "	1.1705	1.1704	+ .0001
7828	7791	" "	1.1827	1.1829	- .0002
8009	7972	" "	1.2018	1.2032	- .0014
8453	8416	" "	1.2478	1.2497	- .0019
8537	8500	" "	1.2578	1.2592	- .0014
8636	8599	" "	1.2684	1.2695	- .0011
9059	9022	" "	1.3067	1.3072	- .0005
9446	9409	" "	1.3384	1.3383	+ .0001
9879	9842	" "	1.3747	1.3757	- .0010



FIRST ARRIVALS

CHAMPLIN PETROLEUM CO.

WELL: OCS-P-0322 NO. 1
 AREA: OFFSHORE CALIFORNIA
 LOCATION: X=720, 656Y=809, 035
 DATE RECORDED: 09/23/83 DATUM: SEA LEVEL
 DATE PROCESSED: 10/06/83 VE: 4850 FT./SEC.
 K.B.: 37 FT.

SEISMOGRAPH SERVICE CORPORATION
 VELOCITY AND SPECIAL PROJECTS DIVISION
 4380 S. SYRACUSE ST., SUITE 400
 DENVER, COLORADO 80237

RECORDING PARAMETERS

INSTRUMENT TYPE	IDPC-1100
SAMPLE RATE	1 MSEC
RECORD LENGTH	5 SEC.
ENERGY SOURCE	AIRGUN
AIRGUN DEPTH	-35 FT.
AIRGUN SIZE	40-200 CU. IN.
SOURCE OFFSET	70 FT.
DEPTHS RECORDED	11224 TO 1300 FT. K.B.
RECORDED BY	VELOCITY AND SPECIAL PROJECTS DIV.

PROCESSING SEQUENCE

1 DEMULTIPLEX	1 MSEC. SAMPLE RATE
2 DEBUBBLE	
3 FILTER	5-10-90-95 BANDPASS

DISPLAY PARAMETERS

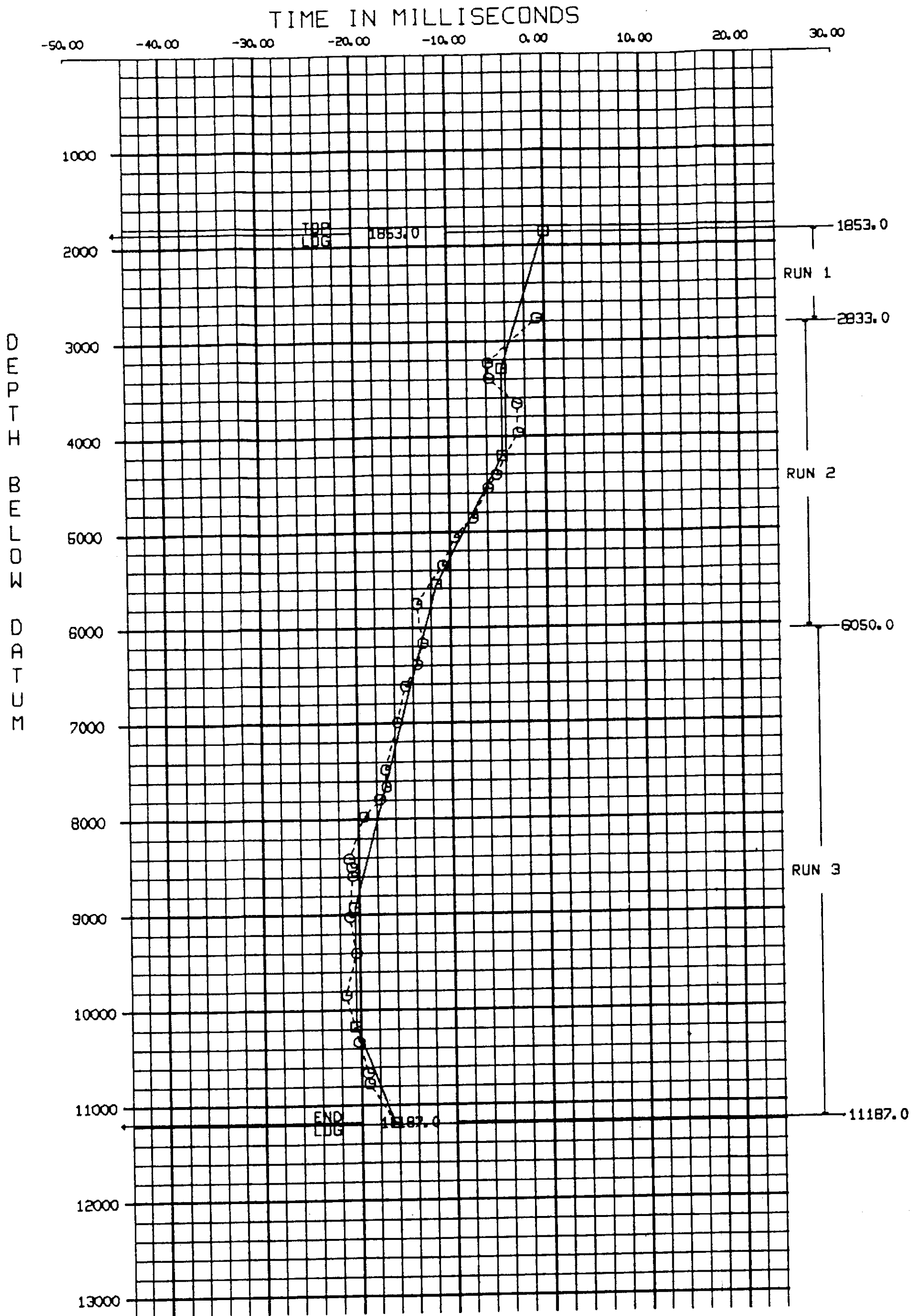
TRACES/INCH	1
INCHES/SEC.	7.5
POLARITY	NORMAL
GAIN SETTING	NORMALIZE

DEVIATION PLOT

CHAMPLIN PETROLEUM COMPANY
OCS-P-0333 NO. 1
OFFSHORE CALIFORNIA

LEGEND ⊙ LOG TIME-GEOPHONE TIME
⊠ ADJUSTMENT POINT

ELEV. K.B. = 37 FT.
ELEV. DATUM: SEA LEVEL



CALIBRATED
SONIC LOG
USEC/FT

TIME-DEPTH AND VELOCITY CURVES
CHAMPLIN PETROLEUM COMPANY
OCS-P-0333 NO. 1, OFFSHORE CALIFORNIA

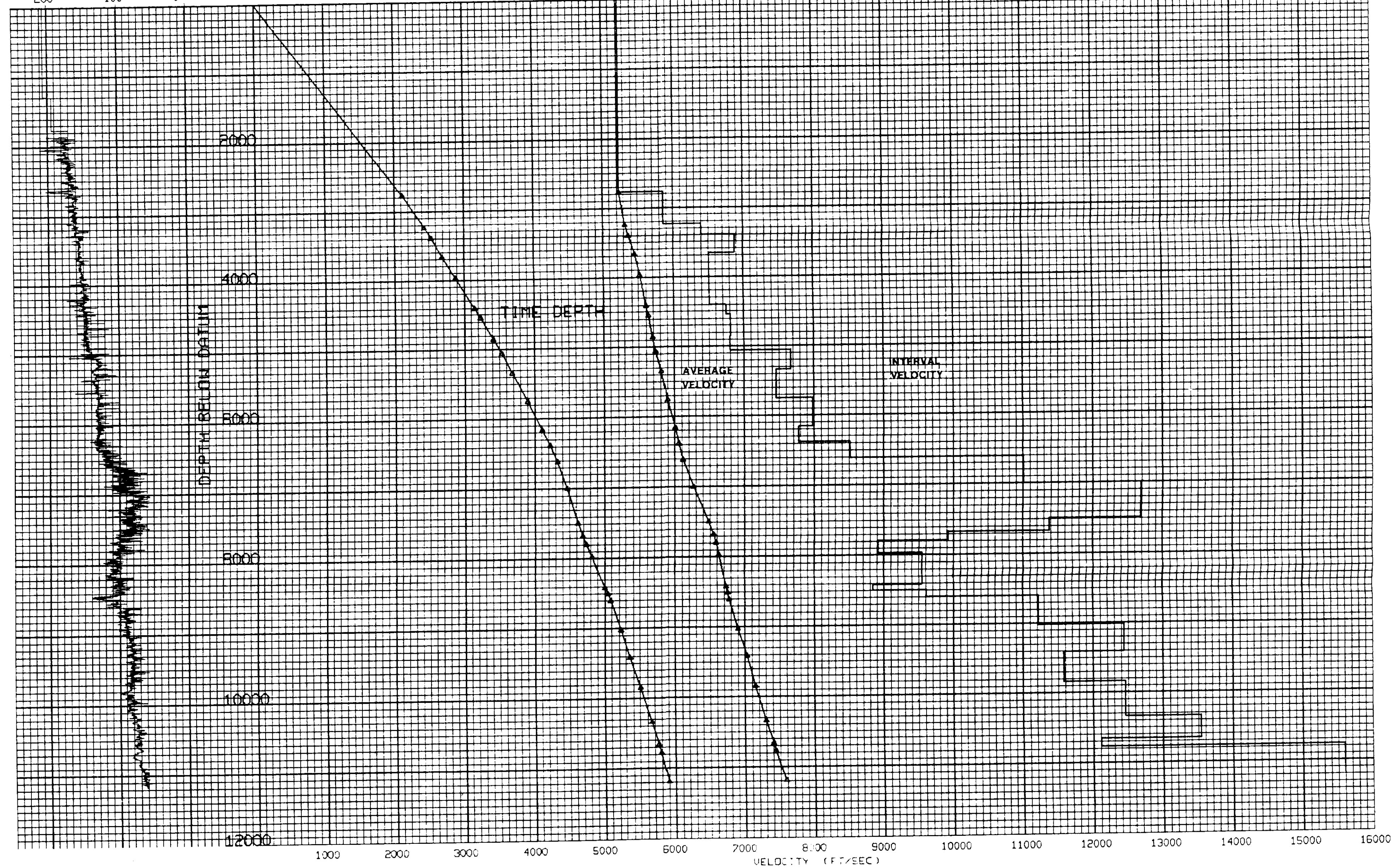
TIME (SECONDS)

200

100

0

0.125 0.250 0.375 0.500 0.625 0.750 0.875 1.000 1.125 1.250 1.375 1.500 1.625 1.750 1.875 2.000 2.125 2.250 2.375 2.500 2.625 2.750 2.875 3.000 3.125 3.250 3.375 3.500 3.625 3.750 3.875 4.000

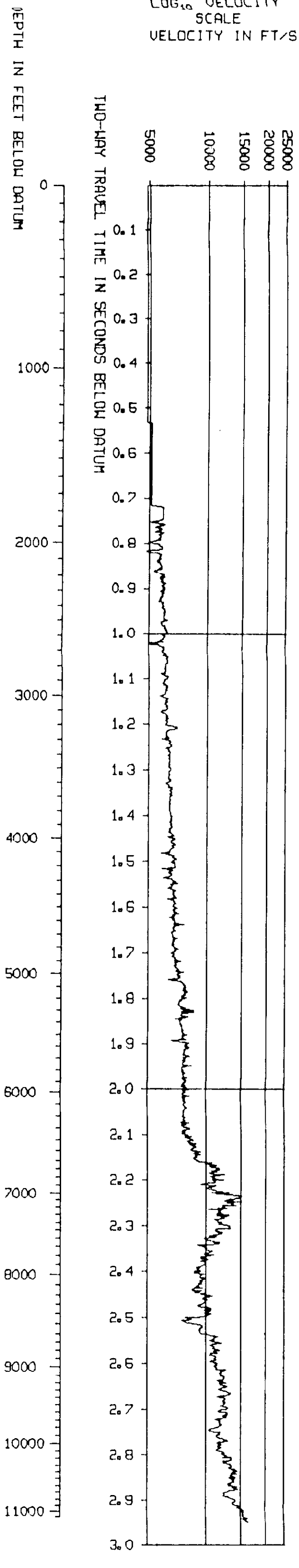


12000

1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000 13000 14000 15000 16000

VELOCITY (FT/SEC)

TWO-WAY TRAVEL TIME LOG
 COMPANY: CHAMPLIN PETROLEUM CO.
 WELL: OCS-P-0333 NO. 1
 TIME SCALE: 1 S = 5.00 INS



TWO-WAY TRAVEL TIME LOG
 COMPANY: CHAMPLIN PETROLEUM CO.
 WELL: OCS-P-0333 NO. 1
 TIME SCALE: 1 S = 7.50 INS

