

ATTACHMENT TO WCR
HELIOS-1
(W787)

W 787
PHILLIPS AUSTRALIAN OIL COMPANY
HELIOS 1
Geoservices Final Well Report
82/08A
General
ADDENDUM 2

C O N T E N T S

GENERAL

- General Well Data
- Well Summary
- Days versus Depth Plot
- Mud Record
- Final Well Geometry
- Casing Lists

Record of Operations

- Phase Summaries
- Daily Well Record

Overpressure Survey

- Summary
- D exponent Plot (1/10000)
- D exponent Plot (2/000)
- Leak Off Test Results
- Temperature Plot

Real Time Depth Plot

- Depth Plot reduced to A4

Geology

- Lithology Plot (1/10000)
- Masterlog

GENERAL

- General Well Data
- Well Summary
- Days versus Depth Plot
- Bit Record
- Mud Record
- Final Well Geometry
- Casing Lists

PHILLIPS Aust. Oil Co.

HELIOS # 1

Location

Lat 41 40' .836"
Long 148 16' 34.146"

State : VICTOFIA

Country : AUSTRALIA

District : Gippsland Bassin (offshore)

Block : VIC P18

Water depth (MSL): 86.85 m

Rig

Diamond M Marine Co.
Diamond M Epcch
Semi-submersible type platform
Elevation KB: 22.25 m above MSL

Logging

GEOSERVICES TDC ON-LINE

Total Depth 3500m

Spudded on 28 .th October 1982

Reached TD on 6 .th December 1982

GEOSERVICES TDC.

PHILLIPS Aust. Oil Co
HELIOS # 1

WELL SUMMARY

HELIOS # 1 was the first vertical exploration well drilled on Permit Area VIC P/18, Gippsland basin, Victoria, Australia.

The exact location was North-East part of permit VIC P/18, at shot point 490 on seismic line GP 81-63.

The well was drilled using the semi-submersible unit Diamond "M" Epoch. The depth of water was 109.1m.

The primary objective was the Eocene and Paleocene section of the Latrobe group. The location was high in both two-way time and depth on the top of Latrobe unconformity surface and was in a near optimum position to assess the potential of intra-Latrobe horizons. A secondary objective was the Upper Cretaceous section.

HELIOS # 1 was spudded on October 28th 1982 and reached TD of 3500m on December 6th 1982, 40 days drilling. The hole was drilled with seawater to 353.9m, then with a seawater-gel type mud to 1341m where the mud was switched to a Baracarb-brine mud to 3000m. The last section from 3000m to 3500m was drilled with a KCL polymer mud. A total of 21 bit runs were used to drill the well.

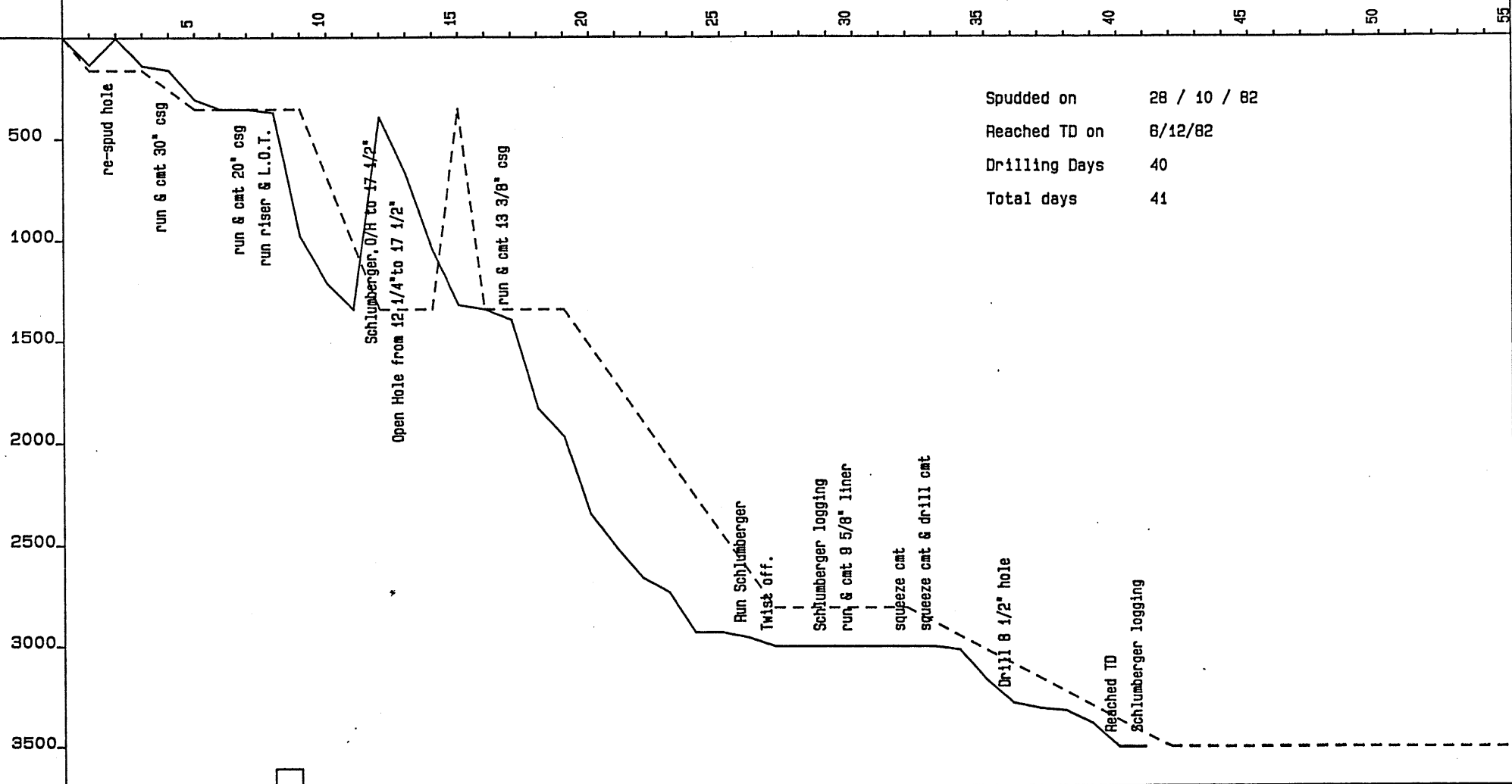
No overpressure was detected. From little to insignificant percentage of gas were recorded. Nevertheless, a DST was performed to test the Flounder formation.

The well was plugged on _____ and abandoned on _____.

PHILLIPS Aust. Co. - HELIOS # 1

Drilled Curve ———
Prognosis - - - - -

OCTOBER 28 29 30 31 NOVEMBER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 DECEMBER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21



Spudded on 28 / 10 / 82
Reached TD on 8/12/82
Drilling Days 40
Total days 41



Daily Metrage

Geoservices : off line

Geoservices overseas S.A.

ZERO

PHILLIPS Aust. Oil Co.

HELIOS # 1

BIT RECORD

NUMBER	TYPE	*SIZE	*DEPTH*	RUN	*FLOW*	PP	*MW	*BOTTOM*	ROTARY*	JETS/TFA	*WOB*	RPM*	WEAR	*ROP*	HYD	POWER	*BIT*	COST*						
*	*	IN	M.	*GPM	psi	*	*HOURS	HOURS	*1	*2	*3	*4	* lbs	*T*B	G	* M/hr	*TTL	*BIT	*/sqi	EFF	*y	*S/M		
* RR1	* OSC 3AJ+OH	* 38.00	109*	50*	957*	700*	8.8*	17.50*	17.50*	38*	38*	0*	2000*	126*	0*	0.00*	2.86*	*	37*	0.03*	9.50*	3386*		
* 2*	SMITH SDS	* 12.25	159*	194*	842*	891*	8.8*	7.43*	2.42*	32*	32*	32*	0*	3000*	91*	0*	0.00*	80.17*	*	50*	0.34*	11.49*	476*	
* RR1	* OSC 3AJ	* 26.00	159*	194*	871*	1263*	8.8*	12.30*	5.13*	28*	28*	28*	0*	5000*	97*	0*	0.00*	37.82*	*	95*	0.14*	14.80*	702*	
* RR2	* SMITH SDS	* 12.25	354*	843*	707*	2428*	9.1*	34.50*	21.26*	15*	15*	15*	0*	15000*	103*	3*	3*	0.00*	39.65*	*	638*	4.25*	63.68*	369*
* 3*	SMITH SDS	* 12.25	1197*	145*	687*	2397*	9.0*	8.36*	5.37*	15*	15*	15*	0*	39000*	102*	2*	2*	0.00*	27.00*	*	579*	3.86*	60.23*	796*
* UR1	* SDS+SERVCO	* 17.50	354*	295*	949*	1794*	9.0*	12.14*	5.24*	18*	18*	32*	0*	6000*	109*	2*	4*	0.00*	56.30*	*	249*	0.81*	25.03*	505*
* UR2	* SDS+SERVCO	* 17.50	649*	335*	932*	1528*	9.0*	15.35*	9.58*	18*	32*	32*	0*	15000*	108*	2*	4*	0.00*	34.97*	*	117*	0.38*	14.08*	520*
* UR3	* SDS+SERVCO	* 17.50	949*	317*	907*	1680*	9.2*	16.43*	12.30*	18*	32*	32*	0*	14000*	106*	2*	8*	0.00*	25.77*	*	110*	0.36*	12.40*	576*
* UR4	* SDS+SERVCO	* 17.50	1266*	76*	900*	1751*	9.2*	10.13*	5.58*	18*	32*	32*	0*	16000*	112*	2*	3*	0.00*	13.62*	*	108*	0.35*	11.71*	1750*
* RR3	* SDS	* 12.25	1341*	489*	643*	2428*	9.1*	28.35*	18.54*	14*	14*	14*	0*	40000*	111*	5*	3*	0.00*	26.38*	*	632*	4.21*	69.41*	650*
* 4*	REED HS51J	* 12.25	1830*	96*	653*	2874*	9.3*	14.18*	7.30*	14*	14*	14*	0*	36000*	95*	1*	1*	0.00*	13.15*	*	677*	4.51*	61.80*	1821*
* 5*	SMITH SDS	* 12.25	1927*	560*	614*	2771*	9.5*	33.50*	20.54*	14*	14*	14*	0*	35000*	112*	2*	4*	0.00*	27.26*	*	575*	3.83*	57.89*	574*
* 6*	SMITH SDGH	* 12.25	2487*	203*	619*	2806*	9.8*	32.50*	25.20*	14*	14*	14*	0*	44000*	113*	7*	6*	2.00*	8.06*	*	607*	4.05*	59.94*	1546*
* RR4	* REED HS51J	* 12.25	2687*	242*	600*	2824*	9.8*	28.30*	22.45*	14*	14*	14*	0*	40000*	91*	1*	3*	0.00*	10.78*	*	553*	3.69*	55.96*	1181*
* 7*	SMITH F3	* 12.25	2925*	76*	610*	2798*	9.8*	18.12*	9.36*	15*	15*	14*	0*	41000*	60*	5*	2*	0.00*	8.12*	*	482*	3.21*	48.36*	2816*
* 8*	SMITH F3	* 8.50	3000*	18*	442*	2649*	9.3*	14.19*	2.30*	11*	11*	11*	0*	28000*	60*	2*	2*	0.00*	7.83*	*	551*	7.62*	80.61*	9946*
* 9*	SMITH F3	* 8.50	3018*	263*	479*	2509*	9.2*	43.42*	38.60*	12*	12*	12*	0*	34000*	61*	3*	3*	0.13*	6.81*	*	490*	6.78*	69.81*	1586*
* 10*	SMITH FDGH	* 8.50	3281*	38*	465*	2608*	9.2*	17.10*	15.15*	12*	12*	12*	0*	34000*	68*	8*	3*	0.13*	2.51*	*	448*	6.20*	63.30*	5450*
* 11*	SMITH F2	* 8.50	3318*	182*	459*	2534*	9.1*	26.60*	22.50*	12*	12*	12*	0*	35000*	65*	3*	4*	0.13*	8.09*	*	426*	5.90*	62.78*	1694*

REMARKS

RR1 : Bit 26" + OH 36"
 #2 : 12 1/4" Pilot hole
 RR1 : Reaming 12 1/4" hole
 RR2 : 12 1/4" Pilot hole
 #3 : 12 1/4" Pilot hole
 UR1 : Reaming 12 1/4" hole
 UR2 : Reaming 12 1/4" hole
 UR3 : Reaming 12 1/4" hole
 UR4 : Reaming 12 1/4" hole
 RR3 : Drilled cmt+shoe
 #4 : Unsuitable
 #6 : gauge .25(1/4)
 Drilled cmt+shoe/wash out
 #10 : Unsuitable

 P...LLIPS Aust. Pet HE...OS # 1 MUD REPOF
 *** *****

DEPTH m	WEIGHT ppg	FV	PV	YP	Gels	CAKE		ALKALINITY			Cl- ppm	OIL %	Ca++ ppm	Ttl Cost dollars	N	K	
						WL cc	thks /32	pH	fil	mud							
368.0	8.70	35	6	5	5	15	14.0	0	9.0	0.1	0.2	15000	0.0	600	41332	0.9997	0.0118
489.0	9.00	41	7	5	2	7	15.8	1	10.0	0.3	0.4	18000	0.0	240	50387	0.7653	0.0846
975.0	9.10	40	6	6	2	6	11.0	1	11.0	0.8	1.5	17000	0.0	80	50387	0.6779	0.1459
1124.0	9.10	40	6	7	2	8	13.0	1	10.5	0.7	1.8	18000	0.0	120	52908	0.6279	0.2192
1211.0	9.00	38	5	6	2	6	14.0	1	10.0	0.5	1.1	18000	0.0	120	52908	0.6373	0.1692
1249.0	9.00	39	9	7	2	6	13.0	1	10.0	0.4	1.1	18000	0.0	120	58262	0.7160	0.1610
1341.0	9.05	40	10	8	4	12	14.0	1	10.5	0.5	1.3	17000	0.0	200	58262	0.7774	0.1098
502.0	9.00	40	10	7	4	12	11.2	1	10.5	0.8	1.3	15000	0.0	160	61411	0.8229	0.0768
673.0	9.00	39	8	11	5	14	14.2	1	10.5	0.8	1.5	14500	0.0	160	61411	0.6519	0.2402
1025.0	9.10	40	6	7	4	13	14.6	1	10.0	0.3	0.4	14000	0.0	200	67726	0.7368	0.0909
1320.0	9.10	38	6	7	3	12	12.8	1	10.0	0.4	0.3	14500	0.0	200	75040	0.6779	0.1459
1341.0	9.00	40	8	10	4	13	12.4	1	10.5	0.4	0.6	14000	0.0	200	76333	0.6519	0.2402
1420.0	8.90	46	12	14	5	17	8.2	1	10.0	0.3	0.6	61000	0.0	1200	99717	0.6519	0.3603
1516.0	8.90	44	10	13	5	15	8.4	1	10.5	0.4	0.9	61000	0.0	1600	99717	0.6373	0.3383
1828.0	9.10	40	11	11	4	12	7.8	0	9.5	0.3	0.5	49000	0.0	1300	107144	0.6879	0.2467
1969.0	9.30	41	9	10	3	10	10.0	1	10.0	0.3	0.5	49000	0.0	1300	115135	0.6437	0.2889
2093.0	9.40	39	7	9	3	10	11.7	1	10.0	0.3	0.5	49000	0.0	1300	115136	0.6213	0.2699
2344.0	9.44	39	10	8	3	10	14.5	1	9.5	0.3	0.5	42000	0.0	1100	120015	0.7368	0.1516
2513.0	9.60	42	11	13	5	16	9.8	1	10.0	0.3	0.6	53000	0.0	1200	128713	0.6588	0.3123
2662.0	9.80	41	11	11	4	13	10.8	1	9.5	0.3	0.7	65000	0.0	1600	139926	0.6879	0.2467
2733.0	9.90	44	20	15	6	21	10.9	1	10.0	0.3	0.4	61000	0.0	1100	143005	0.7565	0.2591
2929.0	9.80	41	11	14	5	14	10.7	1	10.0	0.3	0.3	56000	0.0	1100	156914	0.6321	0.3882
2980.0	10.00	40	9	9	3	5	12.4	1	9.0	0.1	0.0	61000	0.0	6500	165338	0.6779	0.2188
3011.0	9.20	38	9	8	2	3	11.7	1	9.0	0.1	0.0	50000	0.0	4000	187382	0.6779	0.2188
3022.0	9.20	40	9	9	2	4	9.9	1	9.6	0.1	0.0	46500	0.0	2680	188751	0.6437	0.2889
3100.0	9.20	40	11	11	3	4	8.0	1	8.0	0.1	0.0	47000	0.0	2480	188751	0.6588	0.3123
3193.0	9.20	39	11	11	2	4	7.5	1	8.5	0.1	0.0	47500	0.0	3120	193925	0.6321	0.3882
3279.0	9.30	42	14	15	2	4	6.5	1	8.3	0.0	0.0	48000	0.0	3200	194371	0.6025	0.6303
3315.0	9.10	41	13	12	2	3	7.3	1	8.5	0.1	0.0	45500	0.0	2240	199814	0.6462	0.4089
3319.0	9.20	40	13	15	2	3	6.2	1	8.3	0.0	0.0	46000	0.0	2560	201978	0.5848	0.6778
3400.0	9.20	41	14	16	2	3	6.3	1	8.5	0.0	0.0	43000	0.0	2160	202364	0.5848	0.7299
3500.0	9.15	40	15	15	2	4	6.0	1	9.5	0.1	0.0	43000	0.0	2160	202364	0.6187	0.5907

Elevation KB 22.3 m above MSL
Sea bed at 86.9 m below MSL

Hole 36"
at 159.4 m

Hole 26"
at 353.6 m

30" Casing shoe at 159.4 m

20" Casing shoe at 340.7 m

Hole 17" 1/2
at 1341.0 m

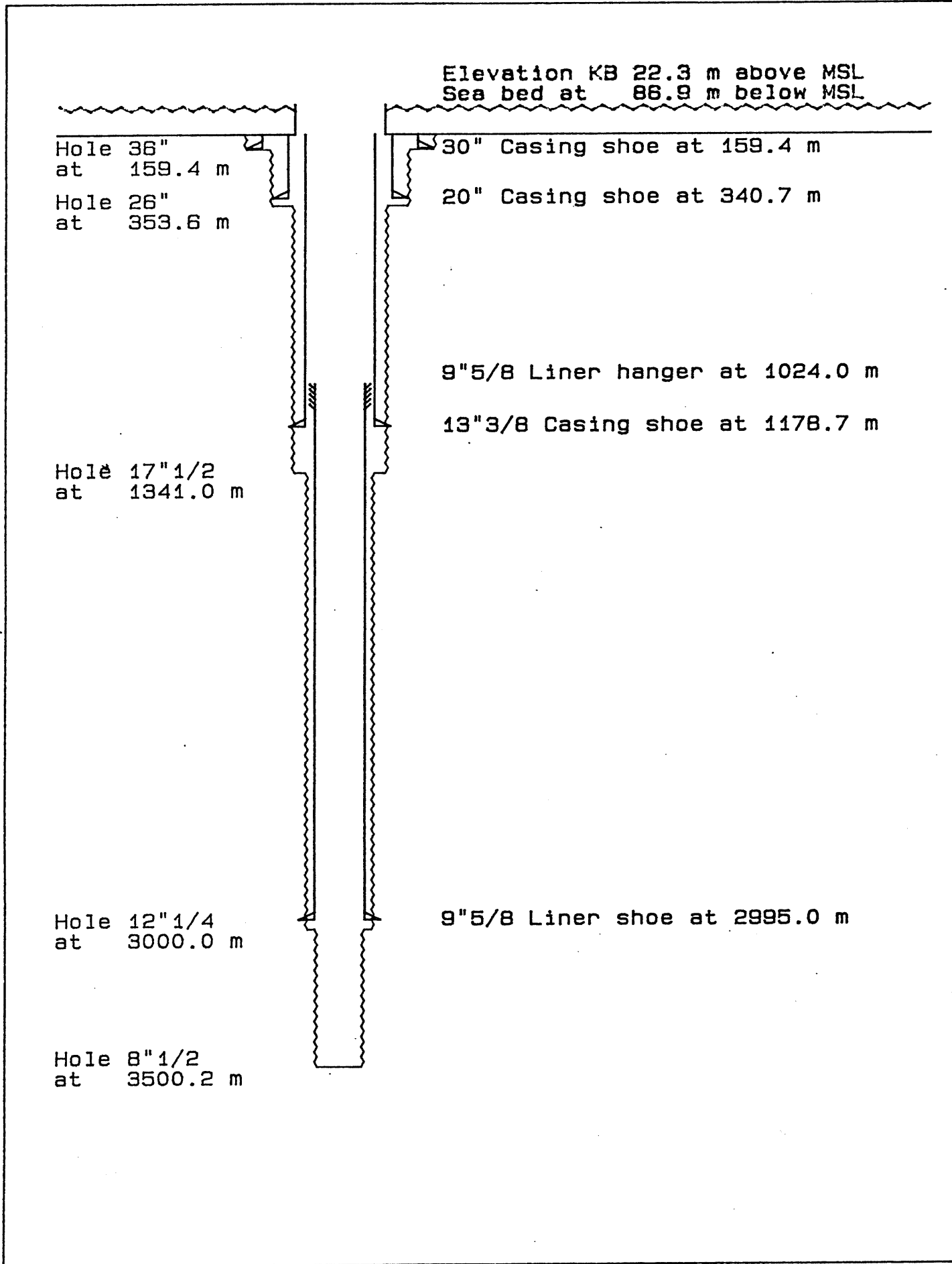
9" 5/8 Liner hanger at 1024.0 m

13" 3/8 Casing shoe at 1178.7 m

Hole 12" 1/4
at 3000.0 m

9" 5/8 Liner shoe at 2995.0 m

Hole 8" 1/2
at 3500.2 m



GEO SERVICES T.D.C

PHILLIPS Aust. Pet

HELIOS # 1

03/11/1982

CASING LIST

CASING SIZE: 20 TYPE: JV/LW WEIGHT(lbs/ft): 133

CASING LENGTH: 769.80
SHOE DEPTH : 1117.44

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*****
* Jt # * LENGTH * TOTAL LENGTH * Depth From KB *      Remarks      *
*****
*      * 2.11 *      2.11      * 1115.33 * *Csg Shoe      *
*      * 32.95 *     35.06      * 1082.38 * *Shoe Joint     *
*      * 2.17 *     37.23      * 1080.21 * *Float Collar  *
*      * 4.60 *     41.83      * 1075.61 * *Pup Joint     *
*  1 * 38.92 *     80.75      * 1036.69 * *              *
*  2 * 39.05 *    119.80      *  997.64 * *              *
*  3 * 39.05 *    158.85      *  958.59 * *              *
*  4 * 39.08 *    197.93      *  919.51 * *              *
*  5 * 39.04 *    236.97      *  880.47 * *              *
*  6 * 39.10 *    276.07      *  841.37 * *              *
*  7 * 39.13 *    315.20      *  802.24 * *              *
*  8 * 39.06 *    354.26      *  763.18 * *              *
*  9 * 38.91 *    393.17      *  724.27 * *              *
* 10 * 39.04 *    432.21      *  685.23 * *              *
* 11 * 39.07 *    471.28      *  646.16 * *              *
* 12 * 39.05 *    510.33      *  607.11 * *              *
* 13 * 38.88 *    549.21      *  568.23 * *              *
* 14 * 39.07 *    588.28      *  529.16 * *              *
* 15 * 38.94 *    627.22      *  490.22 * *              *
* 16 * 38.93 *    666.15      *  451.29 * *              *
* 17 * 39.07 *    705.22      *  412.22 * *              *
*      * 38.58 *    743.80      *  373.64 * *X-over Jt     *
*      * 26.00 *    769.80      *  347.64 * *Well Head     *
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GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

12/11/82

CASING LIST

CASING SIZE: 13 3/8

TYPE: N-80 Buttress

WEIGHT(lbs/ft): 72

CASING LENGTH: 3503.41

SHOE DEPTH : 3867.00

* Jt #	* LENGTH	* TOTAL LENGTH	* Depth From KB	* Remarks	*****	
*	2.07	2.07	3864.93	*Casing shoe	*	*
*	38.67	40.74	3826.26	*Shoe joint	*	*
*	1.72	42.46	3824.54	*Float collar	*	*
1	38.55	81.01	3785.99	*Centralizer	*	*
2	38.78	119.79	3747.21	*	*	*
3	38.70	158.49	3708.51	*centralizer	*	*
4	39.07	197.56	3669.44	*	*	*
5	38.47	236.03	3630.97	*centralizer	*	*
6	38.73	274.76	3592.24	*	*	*
7	38.22	312.98	3554.02	*centralizer	*	*
8	38.10	351.08	3515.92	*	*	*
9	37.41	388.49	3478.51	*	*	*
10	37.88	426.37	3440.63	*	*	*
11	38.54	464.91	3402.09	*	*	*
12	38.15	503.06	3363.94	*	*	*
13	38.59	541.65	3325.35	*	*	*
14	38.33	579.98	3287.02	*	*	*
15	38.89	618.87	3248.13	*	*	*
16	38.67	657.54	3209.46	*	*	*
17	39.05	696.59	3170.41	*	*	*
18	37.98	734.57	3132.43	*	*	*
19	38.67	773.24	3093.76	*	*	*
20	38.67	811.91	3055.09	*	*	*
21	38.78	850.69	3016.31	*	*	*
22	38.63	889.32	2977.68	*	*	*
23	38.41	927.73	2939.27	*	*	*
24	38.58	966.31	2900.69	*	*	*
25	38.81	1005.12	2861.88	*	*	*
26	38.33	1043.45	2823.55	*	*	*
27	38.70	1082.15	2784.85	*	*	*
28	37.83	1119.98	2747.02	*	*	*
29	37.97	1157.95	2709.05	*	*	*
30	39.07	1197.02	2669.98	*	*	*
31	38.40	1235.42	2631.58	*	*	*
32	37.75	1273.17	2593.83	*	*	*
33	38.63	1311.80	2555.20	*	*	*
34	38.42	1350.22	2516.78	*	*	*
35	38.40	1388.62	2478.38	*	*	*
36	38.23	1426.85	2440.15	*	*	*
37	38.39	1465.24	2401.76	*	*	*

GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

12/11/82

CASING LIST

CASING SIZE: 13 3/8

TYPE: N-80 Buttress

WEIGHT(lbs/ft): 72

CASING LENGTH: 3503.41

SHOE DEPTH : 3867.00

* Jt #	* LENGTH	* TOTAL LENGTH	* Depth From KB	*	Remarks	*

* 38	* 38.41	* 1503.65	* 2363.35	*		*
* 39	* 38.79	* 1542.44	* 2324.56	*		*
* 40	* 37.66	* 1580.10	* 2286.90	*		*
* 41	* 39.10	* 1619.20	* 2247.80	*		*
* 42	* 38.34	* 1657.54	* 2209.46	*		*
* 43	* 38.22	* 1695.76	* 2171.24	*		*
* 44	* 37.75	* 1733.51	* 2133.49	*		*
* 45	* 38.31	* 1771.82	* 2095.18	*		*
* 46	* 38.26	* 1810.08	* 2056.92	*		*
* 47	* 38.29	* 1848.37	* 2018.63	*		*
* 48	* 39.03	* 1887.40	* 1979.60	*		*
* 49	* 37.04	* 1924.44	* 1942.56	*		*
* 50	* 38.44	* 1962.88	* 1904.12	*		*
* 51	* 39.09	* 2001.97	* 1865.03	*		*
* 52	* 38.79	* 2040.76	* 1826.24	*		*
* 53	* 38.41	* 2079.17	* 1787.83	*		*
* 54	* 38.97	* 2118.14	* 1748.86	*		*
* 55	* 38.58	* 2156.72	* 1710.28	*		*
* 56	* 38.19	* 2194.91	* 1672.09	*		*
* 57	* 38.05	* 2232.96	* 1634.04	*		*
* 58	* 38.30	* 2271.26	* 1595.74	*		*
* 59	* 38.72	* 2309.98	* 1557.02	*		*
* 60	* 38.59	* 2348.57	* 1518.43	*		*
* 61	* 39.21	* 2387.78	* 1479.22	*		*
* 62	* 38.48	* 2426.26	* 1440.74	*		*
* 63	* 38.73	* 2464.99	* 1402.01	*		*
* 64	* 38.71	* 2503.70	* 1363.30	*		*
* 65	* 38.21	* 2541.91	* 1325.09	*		*
* 66	* 38.53	* 2580.44	* 1286.56	*		*
* 67	* 38.36	* 2618.80	* 1248.20	*		*
* 68	* 39.17	* 2657.97	* 1209.03	*		*
* 69	* 39.19	* 2697.16	* 1169.84	*		*
* 70	* 38.43	* 2735.59	* 1131.41	*		*
* 71	* 38.34	* 2773.93	* 1093.07	*		*
* 72	* 38.91	* 2812.84	* 1054.16	*		*
* 73	* 38.26	* 2851.10	* 1015.90	*		*
* 74	* 38.33	* 2889.43	* 977.57	*		*
* 75	* 37.12	* 2926.55	* 940.45	*		*
* 76	* 38.18	* 2964.73	* 902.27	*		*
* 77	* 38.27	* 3003.00	* 864.00	*		*

GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

12/11/82

CASING LIST

CASING SIZE: 13 3/8

TYPE: N-80 Buttress

WEIGHT(lbs/ft): 72

CASING LENGTH: 3503.41

SHOE DEPTH : 3867.00

```
*****
* Jt # * LENGTH * TOTAL LENGTH * Depth From KB *      Remarks      *
*****
* 78 * 38.72 * 3041.72 * 825.28 *
* 79 * 38.20 * 3079.92 * 787.08 *
* 80 * 37.93 * 3117.85 * 749.15 *
* 81 * 38.38 * 3156.23 * 710.77 *
* 82 * 39.13 * 3195.36 * 671.64 *
* 83 * 38.39 * 3233.75 * 633.25 *
* 84 * 38.48 * 3272.23 * 594.77 *centralizer *
* 85 * 38.57 * 3310.80 * 556.20 *centralizer *
* 86 * 38.08 * 3348.88 * 518.12 *
* 87 * 39.02 * 3387.90 * 479.10 *
* 88 * 38.81 * 3426.71 * 440.29 *
* 89 * 38.09 * 3464.80 * 402.20 *
* 90 * 38.61 * 3503.41 * 363.59 *
*****
```

GEO SERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

27/11/82

CASING LIST

CASING SIZE: 9 5/8

TYPE: S-95/L-80

WEIGHT(lbs/ft): 47

CASING LENGTH: 6466.15

SHOE DEPTH : 9826.00

* Jt #	* LENGTH	* TOTAL LENGTH	* Depth From KB	* Remarks
*	3.07	3.07	9822.93	*Casing shoe
*	0.85	3.92	9822.08	*Float collar
1	41.81	45.73	9780.27	*
2	43.13	88.86	9737.14	*centralizer
3	42.04	130.90	9695.10	*
4	43.73	174.63	9651.37	*centralizer
5	45.52	220.15	9605.85	*
6	47.83	267.98	9558.02	*centralizer
7	45.32	313.30	9512.70	*
8	42.47	355.77	9470.23	*centralizer
9	46.22	401.99	9424.01	*
10	46.14	448.13	9377.87	*centralizer
11	45.98	494.11	9331.89	*
12	44.52	538.63	9287.37	*centralizer
13	46.81	585.44	9240.56	*
14	45.53	630.97	9195.03	*centralizer
15	42.98	673.95	9152.05	*
16	39.17	713.12	9112.88	*centralizer
17	44.66	757.78	9068.22	*
18	41.55	799.33	9026.67	*centralizer
19	42.83	842.16	8983.84	*
20	45.74	887.90	8938.10	*centralizer
21	41.02	928.92	8897.08	*
22	45.89	974.81	8851.19	*centralizer
23	43.88	1018.69	8807.31	*
24	46.49	1065.18	8760.82	*centralizer
25	43.23	1108.41	8717.59	*
26	42.06	1150.47	8675.53	*centralizer
27	42.98	1193.45	8632.55	*
28	42.45	1235.90	8590.10	*
29	43.49	1279.39	8546.61	*
30	40.57	1319.96	8506.04	*
31	43.69	1363.65	8462.35	*
32	41.02	1404.67	8421.33	*
33	45.91	1450.58	8375.42	*
34	41.17	1491.75	8334.25	*
35	43.10	1534.85	8291.15	*
36	43.50	1578.35	8247.65	*
37	41.02	1619.37	8206.63	*
38	45.20	1664.57	8161.43	*

GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

27/11/82

CASING LIST

CASING SIZE: 9 5/8 TYPE: S-95/L-80 WEIGHT(lbs/ft): 47

CASING LENGTH: 6466.15
SHOE DEPTH : 9826.00

* Jt #	* LENGTH	* TOTAL LENGTH	* Depth From KB	*	Remarks	*

* 39	* 42.17	* 1706.74	* 8119.26	*		*
* 40	* 45.95	* 1752.69	* 8073.31	*		*
* 41	* 42.05	* 1794.74	* 8031.26	*		*
* 42	* 42.64	* 1837.38	* 7988.62	*		*
* 43	* 41.70	* 1879.08	* 7946.92	*		*
* 44	* 46.20	* 1925.28	* 7900.72	*		*
* 45	* 42.58	* 1967.86	* 7858.14	*		*
* 46	* 46.27	* 2014.13	* 7811.87	*		*
* 47	* 44.73	* 2058.86	* 7767.14	*		*
* 48	* 44.48	* 2103.34	* 7722.66	*		*
* 49	* 45.89	* 2149.23	* 7676.77	*		*
* 50	* 42.07	* 2191.30	* 7634.70	*		*
* 51	* 42.91	* 2234.21	* 7591.79	*		*
* 52	* 41.22	* 2275.43	* 7550.57	*		*
* 53	* 46.34	* 2321.77	* 7504.23	*		*
* 54	* 41.41	* 2363.18	* 7462.82	*		*
* 55	* 43.44	* 2406.62	* 7419.38	*		*
* 56	* 41.02	* 2447.64	* 7378.36	*		*
* 57	* 35.79	* 2483.43	* 7342.57	*		*
* 58	* 46.70	* 2530.13	* 7295.87	*		*
* 59	* 42.31	* 2572.44	* 7253.56	*		*
* 60	* 40.93	* 2613.37	* 7212.63	*		*
* 61	* 38.51	* 2651.88	* 7174.12	*		*
* 62	* 39.12	* 2691.00	* 7135.00	*		*
* 63	* 37.90	* 2728.90	* 7097.10	*		*
* 64	* 38.51	* 2767.41	* 7058.59	*		*
* 65	* 38.45	* 2805.86	* 7020.14	*		*
* 66	* 38.57	* 2844.43	* 6981.57	*		*
* 67	* 38.75	* 2883.18	* 6942.82	*		*
* 68	* 37.87	* 2921.05	* 6904.95	*		*
* 69	* 37.53	* 2958.58	* 6867.42	*		*
* 70	* 38.48	* 2997.06	* 6828.94	*		*
* 71	* 38.27	* 3035.33	* 6790.67	*		*
* 72	* 37.64	* 3072.97	* 6753.03	*		*
* 73	* 39.18	* 3112.15	* 6713.85	*		*
* 74	* 39.17	* 3151.32	* 6674.68	*		*
* 75	* 38.64	* 3189.96	* 6636.04	*		*
* 76	* 38.97	* 3228.93	* 6597.07	*		*
* 77	* 37.90	* 3266.83	* 6559.17	*		*
* 78	* 38.17	* 3305.00	* 6521.00	*		*

GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

27/11/82

CASING LIST

CASING SIZE: 9 5/8

TYPE: S-95/L-80

WEIGHT(lbs/ft): 47

CASING LENGTH: 6466.15

SHOE DEPTH : 9826.00

* Jt # *	* LENGTH *	* TOTAL LENGTH *	* Depth From KB *	* Remarks *
* 79 *	* 39.10 *	* 3344.10 *	* 6481.90 *	
* 80 *	* 37.36 *	* 3381.46 *	* 6444.54 *	
* 81 *	* 37.92 *	* 3419.38 *	* 6406.62 *	
* 82 *	* 37.76 *	* 3457.14 *	* 6368.86 *	
* 83 *	* 36.91 *	* 3494.05 *	* 6331.95 *	
* 84 *	* 38.65 *	* 3532.70 *	* 6293.30 *	
* 85 *	* 37.65 *	* 3570.35 *	* 6255.65 *	
* 86 *	* 39.45 *	* 3609.80 *	* 6216.20 *	
* 87 *	* 39.04 *	* 3648.84 *	* 6177.16 *	
* 88 *	* 38.89 *	* 3687.73 *	* 6138.27 *	
* 89 *	* 37.61 *	* 3725.34 *	* 6100.66 *	
* 90 *	* 38.87 *	* 3764.21 *	* 6061.79 *	
* 91 *	* 39.33 *	* 3803.54 *	* 6022.46 *	
* 92 *	* 38.85 *	* 3842.39 *	* 5983.61 *	
* 93 *	* 37.79 *	* 3880.18 *	* 5945.82 *	
* 94 *	* 37.43 *	* 3917.61 *	* 5908.39 *	
* 95 *	* 37.61 *	* 3955.22 *	* 5870.78 *	
* 96 *	* 38.87 *	* 3994.09 *	* 5831.91 *	
* 97 *	* 37.65 *	* 4031.74 *	* 5794.26 *	
* 98 *	* 37.86 *	* 4069.60 *	* 5756.40 *	
* 99 *	* 36.99 *	* 4106.59 *	* 5719.41 *	
* 100 *	* 36.98 *	* 4143.57 *	* 5682.43 *	
* 101 *	* 38.10 *	* 4181.67 *	* 5644.33 *	
* 102 *	* 38.42 *	* 4220.09 *	* 5605.91 *	
* 103 *	* 38.29 *	* 4258.38 *	* 5567.62 *	
* 104 *	* 38.88 *	* 4297.26 *	* 5528.74 *	
* 105 *	* 38.42 *	* 4335.68 *	* 5490.32 *	
* 106 *	* 39.00 *	* 4374.68 *	* 5451.32 *	
* 107 *	* 38.42 *	* 4413.10 *	* 5412.90 *	
* 108 *	* 38.38 *	* 4451.48 *	* 5374.52 *	
* 109 *	* 38.76 *	* 4490.24 *	* 5335.76 *	
* 110 *	* 38.78 *	* 4529.02 *	* 5296.98 *	
* 111 *	* 38.80 *	* 4567.82 *	* 5258.18 *	
* 112 *	* 38.80 *	* 4606.62 *	* 5219.38 *	
* 113 *	* 35.77 *	* 4642.39 *	* 5183.61 *	
* 114 *	* 38.13 *	* 4680.52 *	* 5145.48 *	
* 115 *	* 38.41 *	* 4718.93 *	* 5107.07 *	
* 116 *	* 38.98 *	* 4757.91 *	* 5068.09 *	
* 117 *	* 39.38 *	* 4797.29 *	* 5028.71 *	
* 118 *	* 38.36 *	* 4835.65 *	* 4990.35 *	

GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

27/11/82

CASING LIST

CASING SIZE: 9 5/8

TYPE: S-95/L-80

WEIGHT(lbs/ft): 47

CASING LENGTH: 6466.15

SHOE DEPTH : 9826.00

```
*****
* Jt # * LENGTH * TOTAL LENGTH * Depth From KB *      Remarks      *
*****
* 119 * 37.64 * 4873.29 * 4952.71 *
* 120 * 37.79 * 4911.08 * 4914.92 *
* 121 * 39.50 * 4950.58 * 4875.42 *
* 122 * 38.87 * 4989.45 * 4836.55 *
* 123 * 37.85 * 5027.30 * 4798.70 *
* 124 * 38.27 * 5065.57 * 4760.43 *
* 125 * 38.25 * 5103.82 * 4722.18 *
* 126 * 38.19 * 5142.01 * 4683.99 *
* 127 * 38.98 * 5180.99 * 4645.01 *
* 128 * 38.60 * 5219.59 * 4606.41 *
* 129 * 38.95 * 5258.54 * 4567.46 *
* 130 * 38.90 * 5297.44 * 4528.56 *
* 131 * 38.78 * 5336.22 * 4489.78 *
* 132 * 38.73 * 5374.95 * 4451.05 *
* 133 * 38.12 * 5413.07 * 4412.93 *
* 134 * 39.18 * 5452.25 * 4373.75 *
* 135 * 39.12 * 5491.37 * 4334.63 *
* 136 * 38.70 * 5530.07 * 4295.93 *
* 137 * 37.94 * 5568.01 * 4257.99 *
* 138 * 37.36 * 5605.37 * 4220.63 *
* 139 * 36.00 * 5641.37 * 4184.63 *
* 140 * 39.48 * 5680.85 * 4145.15 *
* 141 * 37.39 * 5718.24 * 4107.76 *
* 142 * 38.62 * 5756.86 * 4069.14 *
* 143 * 38.18 * 5795.04 * 4030.96 *
* 144 * 38.55 * 5833.59 * 3992.41 *
* 145 * 38.66 * 5872.25 * 3953.75 *
* 146 * 37.68 * 5909.93 * 3916.07 *
* 147 * 38.31 * 5948.24 * 3877.76 *
* 148 * 39.10 * 5987.34 * 3838.66 *
* 149 * 37.99 * 6025.33 * 3800.67 *
* 150 * 38.08 * 6063.41 * 3762.59 *
* 151 * 37.76 * 6101.17 * 3724.83 *
* 152 * 37.57 * 6138.74 * 3687.26 *
* 153 * 38.98 * 6177.72 * 3648.28 *
* 154 * 39.05 * 6216.77 * 3609.23 *
* 155 * 37.20 * 6253.97 * 3572.03 *
* 156 * 37.21 * 6291.18 * 3534.82 *
* 157 * 38.38 * 6329.56 * 3496.44 *
* 158 * 37.48 * 6367.04 * 3458.96 *
```

GEOSERVICES T.D.C

PHILLIPS Aust. Pet.

HELIOS # 1

27/11/82

CASING LIST

CASING SIZE: 9 5/8 TYPE: S-95/L-80 WEIGHT(lbs/ft): 47

CASING LENGTH: 6466.15

SHOE DEPTH : 9826.00

```
*****
* Jt # * LENGTH * TOTAL LENGTH * Depth From KB *      Remarks      *
*****
* 159 * 37.48 * 6404.52 * 3421.48 *      *
* 160 * 38.97 * 6443.49 * 3382.51 *      *
* 161 * 6.73 * 6450.22 * 3375.78 * Hanger jt *
* 162 * 10.23 * 6460.45 * 3365.55 * Extension jt *
* 163 * 5.70 * 6466.15 * 3359.85 * Tie-back *
*****
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RECORD OF OPERATIONS

- Phase Summaries
- Daily Well Diary

Phase Summaries

GEOSERVICES TDC.

PHILLIPS AUSTRALIA OIL COMPANY.

HELIOS #1

36" PHASE REPORT

SUMMARY

After positioning the rig, sea bottom was tagged at 108m and a 36" hole was drilled with bit RR1 HTC OSC 3AJ, 26", no jets, and a hole opener of 36". The drill string was struck at 140m. After having worked the string free, the rig was moved 11.9m South and a new hole was drilled. Again, stuck pipe occurred at 144m. Attempts to drill ahead resulted failed, despite efficient cleaning of the hole.

The rig was moved again to its final location: Lat 41 deg 40' Long 148 deg 16' 34.146, heading 234 deg.

A 36" hole was drilled down to 135m where again the drill string got stuck. Reaming was performed from 119m to 137m and drilling resumed. At 140m, stuck again. Eventually, the depth of 159m was reached and the hole was cleaned. 1 hour was allowed to let the sediments settle and the hole to heal, before running back in the hole to check if there was any fill-in. Then the 30" casing was run and cemented.

Survey showed: at 119.5m : ½ deg
at 143.9m : 1 deg
at 159m : 0 deg

WOB/RPM/ROP PRACTICE

Bit RR1, 26" = OH,36" drilled from 109.1m to 159.4m in 3h46 giving an average ROP of 4.5 mn/m. Bottom time was 17h51, giving an average ROP of 21 mn/m. WOB was 0 to 2.5 klbs RPM 126.

HYDRAULICS

This phase was drilled without riser and with seawater. High viscosity mud pills were spotted to clean the hole and to work the drill string free when stuck. At 159.4m, two slugs of 200 bbls of high viscosity mud were pumped.

CASING

Casing used : Type 1" wall, 30" OD, 310 lbs/ft.

Casing Tally :

2.20 casing shoe
38.98 Shoe joint
39.74 jts
39.76 jts
39.75 jts
12.43 well head
TOTAL 172.86 m.

CEMENTATION

Pre-flush type : sea water 10 bbls.

Lead slurry : 1000 sacks class G at 10.04 ppg
mixed with seawater 178.5 bbls

Additives : 1 % CaCl

Tail slurry : nil

Displacement : 15 bbls of sea water

Estimated top of good cement : sea floor

The procedure for the cementation was as follow :

Date : 1/11/82

23h30 : Start mixing at 13.3 ppg

00h08 : Finished mixing at 13.9 ppg

00h10 : Start displacement

Remarks : Plugged suction on cement pump after mixing 300 sacks.
Circulate cement and start over. Cementer unable to get weight up to
desired weight of 15.8 ppg. Left 20 feet of cement in 30" casing.

GEOSERVICES TDC.

PHILLIPS Aust. Oil Co
HELIOS # 1

26" PHASE REPORT

SUMMARY

Attempts to land the pin connector failed. This section was then drilled without riser. A 12 1/4" pilot hole was drilled from 159.4m to 353.9m. The bit used was a SMITH SDS, with no jets. Survey taken at 248.7m showed 1/2 deg deviation. At 353.7m : 1 deg. The hole was opened to 26" using bit RR1, OSC 3AJ, 3*28/32 jets. At 353.6m a survey showed 1/2 deg. deviation. After cleaning the hole, the 20" casing was run and cemented.

WOB/RPM/ROP PRACTICE

The 12 1/4" hole was drilled with one bit: Bit # 2, SMITH SDS, no jets. An average WOB of 3.2 klbs and RPM 90 were used. It took 2h42 to drilled down to 353.7m, average ROP being .83 mn/m. Bottom time was 7h43; Average ROP versus bottom time was 2.38 mn/m.

Enlarging 12 1/4" hole to 17 1/2" was performed by bit RR1 in 5h13 (drilling time). Average ROP=1.61 mn/m. Bottom time was 12h31 giving an average ROP of 3.86 mn/m. Average WOB over the run : 4.8 klbs RPM : 96.

HYDRAULICS

No riser was used to drill this phase. Drilling fluid was seawater. Average flow rates over the run were 842 gpm for 12 1/4" pilot hole and 870 gpm for reaming. 20 bbls of High viscosity pill were pumped every 3 joints.

CASING

Casing used : 20" OD, type JV/LW, grade X56, 133 #/ft
see enclosed Casing tally

CEMENTATION

Pre-flush : sea water 600 bbls

Lead slurry : 1500 sacks of class G cement at 13.1 ppg
mixed with drill water

Additives : 10.8 gals/sack : 2.5 % pre hydrated gel water

Tail slurry : 500 sacks of class G cement at 15.8 ppg.
mixed with seawater.

Displacement : 245 bbls drill water

Estimated top of good cement : surface

The procedure for the cementation was as follow :

Date : 3/11/82

17h35 : Start mixing at 13.4 ppg.

18h40 : Finished mixing at 15.8 ppg.

18h45 : Start displacement.

19h02 : Finished displacement.

Remarks : Observed returns at seabed.

GEOSERVICES TDC.

PHILLIPS AUSTRALIA OIL COMPANY

HELIOS # 1

17 ½" PHASE REPORT

SUMMARY

After testing BOP's, cement and float collar were drilled out. 3 metres of hole were drilled and a leak off test performed (see paragraph LOT).

A 12 ¼" pilot hole was drilled from 353m to 1341m ; 2 bits were used. Deviation survey showed ; at 608m ; ¼ deg. ; at 894m ; 3/4 deg at 1196m ; 1/2 deg.

A circulation, bottoms up, was made then followed by a short trip to condition the hole for electric logging. Schlumberger logs consisted of Dual induction, sonic, SGT, DIT, SLT and 51 SWC.

The hole was enlarged to 17 ½" by using bit RR#2 and an under-reamer. The under-reamers arms were changed 3 times (4 runs). After conditioning the mud and cleaning the hole, the 13 3/8" casing was run and cemented. Casing shoe at 1178.66m

WOB/RPM/ROP PRACTICE

This phase was completed with 2 bits and 4 runs with a Servco under-reamer.

BIT RR#2, SMITH SDS, 12 ¼", 3*15/32 jets, drilled from 353.7m to 1196.5m in 21h26 giving an average ROP of 1.53 mn/m. Bottom time was 34h53, thus reducing the ROP to 2.48mn/m. Average RPM over the run was 103. Average WOB over the run was 15.5 klbs, but from 353m to 572m, the WOB had an average value between 5 and 8 klbs. From 572m, this value increased to 20 klbs. Due to this increase, the ROP went from 1-2 mn/m down to .4-.8 mn/m, then slowly, went back to 1.5-3 mn/m. An increase of ROP, above 3 mn/m was noticed from 1179m The bit pulled out. Bit wear ; T3, B3, in gauge.

BIT # 3, SMITH SDS, 12 1/4", 3*15/32 jets, drilled from 1196.5m to 1341.5m in 5h37, giving an average ROP of 2.32mn/m. Versus bottom time (8h36) the ROP was 3.56mn/m. The average WOB over the run was 38 klbs, but it has to be noted that it increased steadily from 20 klbs to 40-50 klbs, at the end of the run. Average RPM was 102. Bit wear : T2, B2, in gauge.

The 12 1/4" hole was enlarged to 17 1/2", with an under-reamer SERVCO.

RUN # 1 : It took 5h24 to ream from 353m to 648.8m; POP : 1.1 mn/m. Versus bottom time (12.14), the ROP was 2.49 mn/m. The average WOB was 6 klbs, RPM 110.

RUN # 2 : From 648.8m to 983.5m. This section was reamed in 9h58, giving an average ROP of 1.8 mn/m. Versus bottom time (15h35), the ROP was 2.8 mn/m. The average WOB over the run was 15 klbs, RPM 108. The POP decreasing, the under-reamer was pulled out and the arms changed.

RUN # 3 : From 983.5m to 1265.7m. This section was reamed in 12h03 : ROP : 2.28 mn/m. Bottom time was 16h43 giving an ROP, versus total time, of 3.16 mn/m. The average WOB was 14.5 klbs, RPM 106. The torque started to increase from 1166m. It showed a few sharp peaks from 1210m. The under-reamer was pulled out and the arms changed. Bearing wear : 8.

RUN # 3 : From 1265.7m to 1341.5m. It took 5h59 to ream this part of the hole. ROP : 4.74 mn/m. A bottom time of 10h13 gave a ROP of 3.1mn/m. The average WOB was 16 klbs, RPM 112.

HYDRAULICS

The mud used for the 17 1/2" phase was : seawater gel type, with a mud weight ranging from 8.9 to 9.2 ppg max.

Hydraulics (cont)

12 1/4" Pilot hole:

The two bits used had 3*15/32 jets. The average flow rate applied was 700 gpm for the 2 runs. The bit hydraulic horsepower resulting was 5.52 hp/sq.in for bit RR#2 and 5.01 hp/sq.in for bit # 3. The hydraulic horsepower ratio being respectively :66.2% and 65 %.

Hole Openning:

Except for the run # 1, where 2*18+1*32/32 jets were used, the jets were 1*18+2*32/32. The figures were as follows:

Run # 1 : average flow 950 gpm; HP ratio 27%; Bit HHP 1.04 /sq in
Run # 2 : Average flow 932 gpm; HP ratio 14%; Bit HHP .49 /sq in
Run # 3 : Average 907gpm; HP ratio 13%; Bit HHP .46 /sq in
Run # 4 : Average flow 900 gpm; HP ratio 14%; Bit HHP .45/sq in

The horsepower ratio for the run # 1, was too high. The under-reamer piston requires an important share of the total hydraulic power.

CASING

Casing used : Type N-80 Buttress, 13 3/8" OD, 72#/ft.
see enclosed casing tally.

Remarks:

16 3/4"*13 3/8" casing hanger : 10.80ft

13 3/8" casing hanger at 353.35ft

Centralizer position :

Directly above shoe

Top of joint # 1,3,5,7,9,84,85

Internal diameter of casing : 12.347

Casing shoe at 1178.66m as it was not possible to run in deeper.

CEMENTATION

Pre-flush type : seawater 25 bbls

Lead slurry : 1100 sacks of class G cement at 12.4 ppg
mixed with drill water.

Additives : 2.5 % prehydrated gel at 2.1 lbs/10 gal of water.
1.48 % CFR2L at 5.48 gal/10 bbls of water.

Tail slurry : 500 sacks of class G cement at 14.5 ppg.
mixed with drill water.

Additives : .06 % HR6L; .05 gal /10 bbls of water.

Displaced with 520 bbls of drill mud.

A plug was bumped.

Estimated top of good cement : 617 ft RKB

Pressure plug bumped : 2500 psi held for 10 mn.

The procedure for the cementation was as follows :

Date : 12-13/11/82

22h55 : Btm plug away; Volume water : 15 bbls.

23h15 : Start mixing at 12.8 ppg.

00h15 : Finished mixing at 14.5 ppg.

00h15 : Top plug away; pressure required : 3600 psi.

00h30 : Start displacement.

01h05 : Bumped plug; barrels bled back : 0bbls.

EAK-OFF TEST

3 meters of formation were drilled below the 20" casing shoe set at 340.6m. A leak-off test was then made. Actually two trials were performed. The pump rate used was .5 bbls/mn. Seawater was used (dens.=8.6ppg) The intake pressure for the first trial was 75 psi and 80 psi for the second, which gives respectively 9.88 ppg and 9.98 ppg equivalent mud weight for the fracture gradient at this depth. An average value of 9.93 ppg was taken. (see LOT graph).

GEOSERVICES TDC.

PHILLIPS Aust. Oil Co
HELIOS # 1

12 1/4" PHASE REPORT

SUMMARY

After drilling out the casing shoe, a leak off test was performed, which gave a formation fracture gradient of 14.8 ppg. Drilling was then resumed.

Drilling proceeded from 1341m to 2928m using 6 bits. A trip was then made to log the hole. Logs run were LDT-CNL-GR, DIL-SLS-NGT-HDT; A velocity survey was run and sidewall cores were also taken.

During this section, considerable overpull was encountered when tripping out of the hole. Initially, this overpull was minor, a 5 klbs. However, it increased to 40/120 klbs and drag of 30/50 klbs was encountered running in. It was sometimes necessary to ream to bottom when running in the hole.

After the logging run, drilling was resumed. Very high torque was encountered. At 3000m, the drill string twisted off, torque being in excess of 6000 ftlbs, a normal range being 1800-2500 ftlbs. Two fishing trips were made, both successful.

After a trip to condition the hole, another logging run was made, using DIL-SLS-GR, LDT, 30 side wall cores were shot, 27 recovered.

Another trip was made to condition the hole and mill junk prior to running a liner. 9 5/8" casing was run as a liner, the hanger was set at 1024m and the shoe at 2996m. Hole fill prevented setting the casing on bottom.

Deviation surveys were as follows:

1649m : 3/4 deg.	1830m : 1/2 deg.	1927m : misfire
2134m : 1/2 deg.	2438m : 2 deg.	2487m : 1 deg.
2662m : 1/2 deg.	2691m : 1/2 deg.	2929m : 1 deg.

WOB/RPM/ROP PRACTICE

BIT 3RR, SMITH SDS, 3*14/32 Jets:

drilled from 1341m to 1830m, at an average ROP of 2.3 mn/m. Average WOB was 39.7 klbs, RPM 110, flow rate 640 gpm. No significant problems were encountered with this bit. T5, B3, G0.

BIT # 4 REED HS 51J, 3*14/32 Jets:

Drilled from 1830m to 1926m at an average ROP of 4.7 mn/m, WOB 35.6 klbs, RPM 95, flow rate 650 gpm. Although the ROP was by no means poor, this bit was pulled prematurely because of slow progress. It was in fact unsuitable for the claystone in which it was run. T1, B1, G0.

BIT # 5, SMITH SDS, 3*14/32 Jets:

Drilled from 1926m to 2487m, a total of 569m, at an average of 2.2mn/m, WOB 37 klbs, RPM 112, flow rate 615 gpm. A very economical bit run, the bit being very suitable for the formation. T2, B4, G0.

BIT # 6, SMITH SDGH, 3*14/32 Jets:

Drilled from 2487m to 2687m at an average ROP of 7.6 mn/m, WOB 44 klbs, RPM 113, flow rate 620 gpm. ROP was markedly lower on this bit run. T7, B6, G 1/4.

BIT # 4RR, REED HS51J, 3*14/32 Jets:

Drilled from 2687m to 2929m at an average ROP of 5.7 mn/m, WOB 40 klbs, RPM 91, flow rate 600 gpm. This time the bit was more suited to the formations and made relatively good progress. T1, B3, G0.

BIT # 7, SMITH F3, 3*14/32 Jets:

Drilled from 2929m to 3000m at an average ROP of 7.6 mn/m; very high torque was encountered and the drill string twisted off. WOB 41 klbs, RPM 60, flow rate 610 gpm. T5, B2, G0.

HYDRAULICS

General hydraulic practice was to use a Baracarb-brine mud with PV=12/14, YP=12/14, (10sec) gel 4/7, with a flow rate of 600-620 gpm and 3*14 jets. This yielded Bit hydraulic Horsepower ratio of 50-60 percent, slightly below the theoretical optimum. However, in view of the relatively high ROPs and the reputation of the area for fast drilling, it is reasonable to look for improved cuttings transport rather than optimum bit hydraulics. In general laminar flow was maintained throughout the hole. However, when the PV and YP were less than 11, turbulent flow tended to set in. Another problem was the mud weight. Since the local formation pressure gradient is 8.6 ppg, a mud weight of 9.8 ppg is excessive unless justified by other factors. In this case, tight hole problems probably justified the use of relatively high mud weights.

CASING

60 joints of 9 5/8" , type S-95 casing and 100 joints of 9 5/8" type L-80 casing were run. The shoe was set at 2994.9m; Hanger at 1024m. (see casing tally).

Location of the 15 centralizers: 2992, 2982.4, 2956, 2930, 2901.4, 2874.8, 2846.5, 2819.1, 2790.7, 2766, 2739.5, 2712.4, 2686.2, 2658.4, 2632.5 meters

CEMENTATION

1200 sacks of class G cement were used.

Pre-flush type: 50 bbls of fresh water.

Lead slurry: 1200 sacks of class G cement at 12.8 ppg.

Mixed with drillwater

Additives: 2.5 % prehydrated gel.

.5 % CFR-2

.06 % HR-6L

No tail slurry.

Displacement: 507 bbls of drill mud.

Estimated top of good cement: 1570m

CEMENTATION (Cont)

Estimated top of contaminated cement:1554.5m

No plug bumped.

The procedure for the cementation was as follows:

Date:27/11/82

22h35 : start mixing at 12.8ppg

23h45 : finished mixing at 12.8 ppg

23h53 : Top plug away.

23h55 : start displacement.

24h50 : end displacement.Barrels bled back:0 bbl.

Remarks:

After having pumped 1200 sacks of lead slurry,the job was then aborted due to contaminated cement.It is estimated that 1-3 bbls of bad cement were pumped and underdisplaced by 10 bbls to insure good cement around the shoe.No neat cement was pumped.

LEAK-OFF TEST

A leak off test was made at the 13 3/8" casing shoe:1178.6m.A pump rate of .6 bbls per minute was used.After pumping 9 bbls,the pressure reached 1500 psi.When system closed,pressure bled to 1190 psi in 15 mn.The system was opened;it flowed back 5.25 bbls.

A pressure of 1240 psi was taken as surface pressure;Added to a 1729 psi due to a 8.6 ppg mud hydrostatic column,that gave an equivalent mud weight of 14.8 ppg for the fracture gradient.

GEOSEPVICES TDC.

PHILLIPS Aust. Oil Co
HELIOS # 1

8 1/2" PHASE

SUMMARY

After having squeeze cement to improve the cementation of the 9 5/8" liner, the casing shoe was drilled out and a LCT was performed which gave a formation fracture gradient of 14.48 ppg.

Drilling was then resumed. 4 bits were used to drill from 3000m to 3500m. The hole was circulated, bottom's up, and a wiper trip performed prior to run Schlumberger tools. Log runs were :

1st run: DIL, SLS, GR; 2nd run: LDT-CNL-GR; 3rd run: HDT. 2 CST were made; 30 out of 50 shots were recovered. A velocity survey was run.

The Flounder formation was tested.

Deviation surveys were as follows:

3127m : 1 1/2 deg. ; 3280m : 2 deg. ; 3500m : 1 1/4 deg.

WOB/RPM/ROP PRACTICE

BIT # 8, SMITH F3, 3*11/32 Jets:

Tagged cement at 1025m, then drilled cement to 1033m; cement was again drilled from 2760m down to the float collar. After having drilled out float collar and performed a LOT, bit # 8 drilled from 3000m to 3017m. Time to drill this 17 m was 2.03h, giving an average ROP of 6.95mn/m. Versus bottom time (14.19h) the ROP was 48.5 mn/m. Average WOB, RPM, flow over the run were: 28 klbs, 60,442 gpm. Due to a wash out, the bit was pulled T2, B2, G0.

BIT # 9, SMITH F3, 3*12/32 Jets:

Drilled from 3017m to 3280m, a run of 263m, in 38.06 h, average ROP being 8.69 mn/m. Bottom time of 43.42h gave a ROP of 9.97mn/m. The WOB was 34.4 klbs, RPM 61, flow rate 479 gpm. From 3230m down to 3500m, intervals of very slow drilling (>30 mn/m) led to the bit being pulled out. T3, B3, G1/8.

BIT # 10, SMITH FDGH, 3*12/32 Jets:

Drilled from 3280m to 3318m in 15h15, giving an ROP of 24.09mn/m. The bottom time was 17.01h. WOB, FPM, flow used were 33.7klbs, 68,465 gpm average over the run. This bit turned out to be unsuitable for the kind of formation drilled; It had to be pulled out. T8, B3, G1/8.

BIT # 11, SMITH F2, 3*12/32 Jets:

Drilled from 3318m down to TD 3500m in 22.05h, ROP: 7.3 mn/m. Bottom time 26.06h, ROP versus BT: 8.6 mn/m. The average drilling parameters were WOB: 34.5klbs, RPM: 65, flow rate: 459gpm. T3, B4, G1/8.

HYDRAULICS

A KCL polymere mud with a mud weight=9.1/9.3 ppg, PV=9/15, YP:8/15, Gel(10s)=2/3 was used for this phase. The hydraulics requirements were to obtain a pressure as close as possible to 2800-3000 psi, but trying to have a laminar flow in the section of open hole-drill pipe. Actually, the pressure, except for the bit # 8 was lower, 2500-2600 psi, enabling an improvement of the hydraulics.

Bit # 8 had 3*11/32 jets. the flow used was 442 gpm (average), yielding a bit hydraulic horsepower (HHP) ratio of 76.3% which is higher than the optimum. Flow in the annulus was turbulent. Considering these factors, 3 jets of 12 were used for the following bits.

Bit # 9 had 3*12/32 Jets, and the average flow rate over the run was 479 gpm. The resulting HHP ratio was 66.7%, HHP per sq. inch 8.6. The flow type in the annulus was laminar, except of course in the DC-open hole section. Hydraulics for this bit were good.

Bit # 10 had 3*12/32 Jets; a flow rate of 465 gpm was used. This yielded bit HHP ratio of 65.36% but a turbulent flow in the annulus (DP-hole). This bit was unsuitable for the kind of formation encountered.

Bit # 11 had also 3*12/32 jets but a flow rate of 450-460 gpm resulting in a bit HHP ratio of 62.9% slightly below the optimum, but a laminar type flow which helped in not provoking any important wash out, important factor in view of the electric logging of the hole.

LEAK-OFF TEST

A LOT was performed at the 9 5/8" Liner shoe, 2995m. The mud weight used was 9.2 ppg. The pressure recorded 2700 psi which gave an equivalent mud weight fracture gradient of 14.48 ppg.

Well Diary

GEOSEPVICES T.D.C

PHILLIPS Aust. Oil Co

HELIOS # 1

DIARY

DAY # 1 - 28/10/82

Waiting on weather. Position rig; test anchors. Start mixing spudding mud. Position rig on location. RIH with BHA+26" Bit HTC OSC 3AJ + 36" H/O (PR#1). Tag bottom at 108.2m RKB. Water depth: 85.95m. Drilling from 108 to 132.6m.

DAY # 2 - 29/10/82

Drilling 36" hole from 132.6 to 141.7m. Pipe stuck at 140.2m. Flush with gel mud and pump 40 bbls pill then 2 bbls every 30 mn. Work pipe free. POOH and observe with sub. Stab into hole and ream from 123 to 141.7m. Stuck pipe. Same procedure as before. Work pipe free. Pull out and pick up jars and move rig 39' (11.9m) South.

RIH and tag bottom at 109m (87m = water depth). Drill from 109 to 126m. Survey at 126m: 2 deg. Drill from 126 to 135m; Pump pill at 135m. High viscosity pill at 135m; Survey at 135m: 1 3/4 deg.

Drilling from 135m. Tight spot at 138m. Pump 40 bbls pill. Tight spot at 141m. Pump pill. Stuck pipe at 144m. Work free. Wash, ream and pump 40 bbls pill. Overpull: 140000 lbs. Survey at 138m: 1 3/4 deg. as can't get on bottom.

Pipe stuck after survey at 129m. Work free. Pump 40 bbls Hi-vi pill. Wash and ream back to 144m. Drilling from 144m to 148m. Pipe stuck at 143m. Work pipe and pump 40 bbls.

DAY # 3 - 30/10/82

Pipe stuck. Work pipe free. Drill from 147m to 153m. Ream tight spot at 144/147m. Drill from 153m to 158.8m. Circulation hole clean. Survey at 152.4m : 2 1/2 deg.

Stuck at 149m after trying to POOH. Work free. Ream back in hole from 149 to 158.8m. Circulate hole clean, spot Hi-vi pill. Flush hole. Pipe stuck. Spot 40 bbls pill + work pipe + pump 2 bbls at 30 mn intervals. Work pipe and jarring at 147m. Free with 350 klbs overpull. POOH. Run Solus camera to observe.

Move rig to 41 deg. 40'.836 (Lat); 148 deg 16' 34.156" (Long).
Heading : 234 Deg.

RIH and tag bottom at 109.1m. Drill from 109m to 126m. Ream from 112m to 126m. Spot 40 bbls pill and survey at 119.5m : 1/2 deg.

Drill from 126 to 137m; Spot 30 bbls pill. Stuck pipe at 135m. Pull + jar pipe, pumping 100 bbls pill. (overpull : 450 klbs)

DAY # 4 - 31/10/82

Work pipe free. Ream from 119.5 to 137.2m. Drill 137.2 to 140.2m. Flush hole with Hi-vis pill. Pipe stuck at 140.2m. Spot pill and work pipe free. Ream. Stuck pipe at 138.7m. Spot pill and work pipe free. Ream. Flush hole clean. Survey at 143.9m : no picture. Wash to bottom (15' pill). Survey at 143.3m : 1 deg. Drill down to 158.8m. Flush hole. Circulate hole clean; spot 200 bbls Hi-vis mud. Survey at 158.8m : 0 deg. Spot 200 bbls of 12.16 ppg mud. Pull up to 110.3m. Wait for sediments to settle.

RIH pumping 12 ppg mud and ream. POOH.

Rig up to run 30" casing. Pick up casing. Run 30" casing and tag at 114.3m. Wash down casing. Casing shoe set at 159.4m. Circulation for 1/2h. Cement 30" casing.

DAY # 5 - 1/11/82

Release cementing tool. POOH and lay down running tool and stinger. RIH to land pin connector; land pin connector. Riser too short. Lay down slip joint, pick up 15' riser. Pick up slip joint; Hook up tensionner lines. Attempt to land pin connector: would not zero over well head. Lay down slip joint and riser. Nipple down and lay down slip joint. Pull up pin connector.

Pick up BHA + Bit Smith SDS 12 1/4" (Bit # 2), no jets. Run Solus to stab in hole.

Drill from 153m; Drill cement and shoe. Drill 12 1/4" pilot hole from 159.4 to 248m. Pump 20 bbls Hi-vis pill every 3 joints. Survey at 248.4m 1/2 deg. Drill from 248 to 305.1m.

DAY # 6 - 2/11/82

Drill ahead from 305 to 353.7m. Circulate hole clean and drop survey : 1 deg. POOH bit # 2. RIH with bit RR#1 26", 3*28/32 jets. Stab at 153m. Drill out cement and shoe and then open 12 1/4" hole to 26" hole. Drill from 159 to 204m. Flush hole with 20 bbls Hi-vis pill each 3 joints. Leaking kelly hose Nipple. Pull up into casing and change kelly hoses. RIH and open hole from 204 to 353.6m. Circulate with seawater. Spot 500 bbls Hi-vis pill. Survey at 353.6m : 1/2 deg. POOH back to shoe. RIH and tag bridge at 222m. Ream from 213 to 246m.

DAY # 7 - 3/11/82

Continue reaming from 246 to 353m (hole filling in). Flush hole with 20 bbls hi-vis pill each 3 joints. Circulate and flush hole clean. Pump 550 bbls pill of 10 ppg mud. Pull up to 146m and wait 1 hr for hole to heal. RIH to check up if fill. Circulation at TD and displace 200 bbls 10 ppg mud with seawater. POOH. Rig up to run 20" casing. Run 20" casing. Test cement lines to 2000 psi. Cement 20" casing. Release 20" running tool and POOH and lay down running tool. Run in riser and stack.

DAY # 8 - 4/11/82

Test BOP's. Run stack. Test choke and kill line (5000 psi). Pick up and nipple up slip joint, latch stack and test pull to 25 klbs. Test BOP's.

Make up BHA and RIH with Bit RR2, Smith SDS, 3*15/32 jets. Rig up diverter and test. Drill out cement, float, shoe, rat hole. Drill 3m hole from 353.7 to 356.6m. Circulate to clean and heal hole. Rig up to leak off test. Leak off test: Intake pressure: Trial # 1: 75 psi; Trial # 2: 80 psi; Average equivalent Mud weight: 9.9 ppg.

Drill ahead from 357 to 369m.

DAY # 9 - 5/11/82

Drill ahead from 369 to 608m. Survey at 608m : 1/4 deg. Drill from 608 to 893.7m. Circulate prior to survey. Drop survey and POOH to 20" casing shoe. Recover survey : 3/4 deg. RIH; no fill. Drill 12 1/4" pilot hole from 893.7 to 975.9m.

DAY # 10 - 6/11/82

Drill ahead from 976m to 1196m. Pump slug and drop survey. POOH. Recover survey : 1/2 deg.

RIH with bit # 3, SMITH SDS, 3*15/32 jets. Drill 12 1/4" pilot hole from 1196 to 1209m. Main rig generator failed. Circulate slowly and make repairs. POOH to casing shoe. Generator repairs underway.

DAY # 11 - 7/11/82

Continue to work on generators. Circulation bottoms up at shoe for 2 hours to clean hole.

RIH and drill from 1209m to 1341m.

DAY # 12 - 8/11/82

Circulate and condition mud. Short trip. Drop survey; POOH. Rig up Schlumberger . Schlumberger logs: Induction+sonic+SGT+DIT+SLT and 51 SWC. Rig down Schlumberger. RIH with new BHA + bit RR2 + Under-reamer Servco. Open 12 1/4" hole to 17 1/2" from 321m to 391m.

DAY # 13 - 9/11/82

Open 12 1/4" hole to 17 1/2" with Servco under-reamer. Circulate hole and pump slug. POOH to change UR'arms. Stand of Drill collars dropped across derrick. Retrieving collars. Repair work on crown block, and drill lines. Cut and slip drill line. Make up BHA, change UR'arms and RIH to resume reaming at 648m. Reaming ahead. Trip gas: 1% Cl.

DAY # 14 - 10/11/82

Open 12 1/4" hole to 17 1/2" from 672m to 968m. Drop of pressure after connection (1750 psi to 1550 psi). POOH to change UR'arms. RIH. Open hole from 968m to 1042m. Trip gas: 1.25 % Cl.

DAY # 15 - 11/11/82

Opening 12 1/4" hole to 17 1/2" from 1042m to 1265m. Pump slug and POOH to change UR'arms. RIH. Resume hole opening from 1265m. Trip gas : 2.2 % Cl.

Overpulling at 1295m (max : 50 klbs). Circulation off bottom. Resume hole opening from 1295m to 1320m.

DAY # 16 - 12/11/82

Opening hole from 1320m to 1341m. Circulate and condition hole. Slug pipe and POOH. Rig up 13 3/8" surface equipment. Pick up and RIH 13 3/8" casing. POOH 10 joints. Rig up cement head and cement 13 3/8" casing. Casing shoe at 1178.66m.

DAY # 17-13/11/82

Displace cement 4152 stks. POOH, back out running tool. RIH to flush out well head for 15mins. Pick up seal assembly and running Set seal assembly, test rams and valves to 5000psi, annular BOP to 2500psi. POOH with seal assembly. Test surface equipment. Pick up BHA and RIH. Pick up kelly and displace mud with seawater. Drill out float collar and shoe, circulate prior to Leak Off Test. L.O.T. result 14.8 ppg MW equivalent. RIH to 1341m and drill ahead displacing seawater with mud whilst drilling.

DAY # 18-14/11/82

Drill 12 1/4" hole from 1393m to 1830m. Pump slug, drop survey, POOH at 1830m to change bit.

DAY # 19-15/11/82

Continue POOH, change bits and clean out junk basket. RIH with Bit # 4, drill ahead from 1830m. Continue drilling ahead to 1927m. Pump slug, drop survey, POOH. Overpull of 5000lbs from 1927 to 1785m. Change bit, BHA and RIH. Drill ahead from 1927m to 1969m.

DAY # 20-16/11/82

Drill ahead from 1969m to 2345m. Circulate 15 minutes, run survey; - 1/2 degree. Drill ahead to 2325m. Rig up circulating head and circulate whilst changing out swivel packing. Drill ahead to 2344m. Flow check, pump slug, POOH to 1882m, overpull 40-120000 lbs from 2344m to 1882m. Circulate at 1882m.

DAY # 21-17/11/82

RIH to 2336m, wash and ream to bottom. Drill ahead from 2344m to 2438m, survey (2deg), continue to 2487m. Circulate at 2487m, drop survey (1deg), flow check, pump slug, POOH. Overpull 40-125000 lbs from 2487m to 2111m. Make up new bit, change stabilizer blades and lay down junk sub. RIH, ream from 2472m to 2487m. Drill ahead from 2487m to 2513m.

DAY # 22 18/11/82

Drill ahead from 2509-2600m. Circulate drilling break at 2600m. Drill from 2600-2637m. POOH, lay down 12 joints of drill pipe, pull up to 2415m drag 30-35000lbs. RIH back down to 2637m, no fill. Drill from 2637-2667m.

DAY # 23 19/11/82

Drill from 2662-2690, circulate hole clean at 2690m. Drop survey flow check pump slug and POOH. Flow check at shoe and BOPs. Overpull 30-40000lbs for 10 stands. Pick up new bit and BHA, RIH to 1118m. Slip and cut line (39m). Pick up and lay down drill pipe. RIH to 2674 Ream to bottom and drill ahead to 2690m.

DAY # 24 20/11/82

Drill from 2733-2873m. Increase in torque and ROP at 2873m. Drill from 2873 to 2929, drop survey tool, slug pipe, check for flow and POOH.

DAY # 25 21/11/82

POOH to casing, recover survey, RIH to 2831. Pick up kelly and wash and ream from 2831m to 2929m. Circulate hole clean, Trip Gas = 1.25%. Flow check, pump slug, POOH, work tight spot. Overpull between 2907 and 2865 120000lbs. Pump slug, POOH tight hole from 2836-2666m. Chain out, flow check at shoe and BOPs. POOH, rig up Schlumberger. Run LDT-CNL-GR, DIL-SLS-NGT, HDT.

DAY # 26 22/11/82

Finish HDT, rig up and run velocity survey. Lay down Velocity Survey and run in with Side Wall Core gun 21 shots recovered, 30 misfires. RIH with 30 shot SWC gun, 30 fires 27 recovered 3 lost. Pick up bit, junk sub, BHA, RIH. Drag of 50-100000 lbs from 2700-2870m. Pick up kelly, work pipe free and ream from 2870-2929m. Drill ahead from 2929 to 2955m.

DAY 27 23/11/82

Drill ahead from 2956m. Oil added to mud. Torque in excess of 2500 ft/lbs. At 3000m drill string twists off; torque in excess of 6000 ft/lbs. POOH to RIH with fishing tool, recover 101m of drill pipe. Pick up 3 x 7 3/4" drill collars, bumper sub and over-shot with spiral grapple. RIH screw into fish, pull free and POOH. RIH with over-shot, screw into fish at 545.6m, pull free; 100000lbs over-pull. Circulate at 545.6m, slug pipe and chain out of hole. Lay down tool. POOH, break down drill pipe and BHA.

DAY 28 24/11/82

POOH service break drill pipe, laying down bent and over torqued DP. POOH BHA, lay down top stabilizer, change blades on near bit and 30ft stabilizer. Attempt to unplug blocked drill collar. RIH strapping pipe.

DAY 29 25/11/82

Circulate hole clean at 2817m. Flow check, pump slug, RIH to 3000 Circulate hole clean. Pump slug, flow check, POOH. Lay down bumper sub out of derrick. Rig up Schlumberger run DLL-SLS-GR, IFT, SWC; 30 shots 27 recovered. Make up bit, junk sub, RIH. Ream from 2990 to 3000m mill on junk. Circulate and condition mud.

DAY 30 26/11/82

Circulate hole clean at 3000m. Flow check, pump slug drop rabbit and POOH. Rig up to run 9 5/8" casing. Pick up shoe, make up float and run casing. Make up casing hanger, fill casing. Repair leak on adapter sleeve. Run in with 12 stds DP, fill casing, make up bumper sub in string. RIH with casing filling every 12 stds. Rig up circulating head, and wash down casing. Release ball and injection stem leaking; repair. Set liner at 1024m. Release from liner, condition hole to cement. Test Chicksan lines to 2000psi and cement.

DAY # 31 - 27/11/82

Displace DP and liner with mud, bump dart with 2000 psi and displace with 4120 strokes. POOH landing string; RIH with test plug. Test BOP's at 5000 psi.

Make up BHA; RIH; Tag liner at 1024m. Circulation and make slug. Slug pipe; POOH.

Make up 8 1/2" bit and BHA: 6 1/4" DC. RIH to 914m. Slip and cut 140ft of drill line. RIH.

DAY # 32 - 28/11/82

RIH and tag cement at 2761m. Flow check; POOH. RIH to 1006m. Set cement plug from 1006 to 795m. POOH 12 stands to 675m. Close Rams and squeeze cement. Hold pressure and wait on cement. Open pipe rams and circulate bottoms up at 675m. POOH.

RIH; Ream cement from 960m to 1025m. Circulate at 1025m.

DAY # 33 - 29/11/82

POOH after slug and flow check at 1006m. Rig up cement head and circulate at 1006m. Set plug from 1006m to 879m. POOH 8 stands to 785m. Squeeze cement. Wait on cement. Press test plug to 1500 psi: OK. POOH.

RIH with BHA and DP and tag cement at 1025m. Drill cement from 1025m to 1026m. Close hydrill and press up to 3300 psi. POOH. RIH and retrieve 13 3/8 wear bushing and set 9 5/8. Make up 8 1/2" bit, BHA. Pick up 6 1/4" jars. RIH and tag cement at 1026m. Drill cement from 1025m to 1033m. Finish RIH with DP.

DAY # 34 - 30/11/82

RIH with DP and 8 1/2" bit and tag cement at 2760m. Drill cement from 2760m to 2966.9m. Drill float collar at 2966.9m and rat hole. Drill formation. LOT after having circulate hole clean. (Equi. MW=14.5 ppg). Drill ahead from 3000m.

POOH at 3017.7m. Look for wash out (NB stab and DC). Make up new BHA. RIH.

DAY # 35 - 1/12/82

Continue RIH with bit # 9 (SMITH F3). Ream from liner shoe to TD. Drill ahead from 3017m. At 3033m, Kelly saver wash out. Drilling break at 3054m: flow check. Drilled to 3128m. POOH 5 stands for wiper trip. RIH, no fill. Drill ahead from 3128m to 3165m.

DAY # 36 - 2/12/82

Drill from 3165m to 3279m. POOH after survey (2 deg). Lay down 42 joints S 135 DP. POOH

DAY # 37 - 3/12/82

POOH. RIH with grade E DP. No fill. Drill from 3279m to 3281m. POOH. RIH with new bit and BHA. Drill from 3281m to 3306m.

DAY # 38 - 4/12/82

Drill from 3306m to 3319m. Survey. Check flow. POOH. RIH with new bit (bit # 11). Cut drill line. Ream from 3032m to 3046m.

DAY # 39 - 5/12/82

Ream from 3046m to 3064m. Reaming under gage. POOH. Lay down 2 stabs. Change bit. RIH. Drill from 3319m to 3381m.

DAY # 40 - 6/12/82

Drill ahead from 3380m to 3500m, TD. Circulate bottom's up. Pump slug, POOH to 9 5/8" shoe: wiper trip. RIH to TD. Circulate at 3500m. POOH.

DAY # 41 - 7/12/82

POOH. Rig up Schlumberger. Schlumberger logging: DIL-SLS-GR 1st run. LDT-CNL-GR 2nd run, HDT 3rd run; 2 runs CST. Velocity survey.

DAY # 42 - 8/12/92

Schlumberger logging. Rig down Schlumberger. RIH to condition hole prior to run DST tools.

End of diary as GEOSERVICES crew off the rig on 9/12/82.

OVERPRESSURE SURVEY

- Summary
- D Exponent Plot (1/10000)
- D Exponent Plot (1/2000)
- Leak Off Test Results
- Temperature Plot

OVERPRESSURE
SURVEY

GEOSEVICES TDC.

PHILLIPS Aust. Oil Co
HELIOS # 1

OVERPRESSURE SURVEY
D-EXP/GAS

SUMMARY

The D-exponent was run continuously to detect abnormal pressure and also for correlation with the seismic survey.

The top section, from 360m to 1200m, lies mainly in the Gippsland limestone, a poorly consolidated formation. In this section, the D-exponent is of limited validity. Towards the base of this section, the D-exponent stabilizes. The top of the Lakes Entrance formation is marked by a rightward movement of the D-exp., followed by a series of left-right movements which may correlate with the interbedded marl/limestone series. There is a sharp transition between 1430m and 1440m; The D-exp. moves sharply leftwards at this point. However, this movement is not an indication of abnormal pressure, it appears to reflect a change in the drillability of the formation. Between 1500m and 1920m there are a number of minor correlations with minor reflectors.

Between 1830m and 1926m, there is an anomaly due to the use of a REED HS51J bit which was unsuitable for the soft claystone.

From 1930m (another minor reflector) to 2160m, the D-exp. moves leftward, this at the time, was interpreted as abnormal pressure. Indeed, since it comes just above an unconformity this would be a very reasonable assumption. However, no additional evidence of abnormal pressure was found.

The top of the Flounder formation is marked by a sharp rightward shift in the D-exp. The DCS then steadies and follows the trend. At 2487m there is a sharp rightward shift in the DCS. However, since this coincides with a bit change, it is probably related to this bit change.

Immediately above the Latrobe, at the base of the Flounder, a thin sandstone stands out very sharply. The top of the Latrobe itself is marked by a much smaller leftward movement. At 2687m, there is another

shift caused by a bit change. The DCS remains close to the trend throughout the Latrobe. At 2900m there is a sharp shift rightward, at the top of the Upper Paleocene sand body, this coincides with another major reflector.

From 3000m down to TD 3500m, the DCS shows an alternation of peaks rightward and leftward due to the interbedded layers of sandstone, siltstone, claystone. At the Upper Cretaceous top, there is no obvious show on the D-exp. curve. A slight trend leftward can be noticed from around 3400m; this might be due to the better performance of the bit used, an insert Smith F2.

It should be noted that changing bit types, especially from a milled tooth to an insert bit, can drastically alter the D-exponent, making interpretation difficult.

GAS

Gippsland limestone:

Only small amount of connection gas were observed in the Gippsland limestone, principally in the sections 600-700m and 790-850m and again twice between 900 and 950m. This gas occurs mainly in the sections of interbedded limestone/marl. From 1050 to 1260m there are only rare peaks of connection gas. No background gas was observed in this section. Since small amounts of gas known to be present in this formation and there is no abnormal pressure, this gas is not significant.

Lakes Entrance:

Background gas of 1-3% between 1340 and 1670m, reaching a peak of 3.5% between 1600m and 1650m. Thereafter the gas tails off to .5% as the formation became more argillaceous. The level increased again slightly between 1950 and 2100m.

Flounder:

Gas levels remained between 0.5-1.5% throughout the formation. However, traces of C2 were detected in the trip gas from 2487m

Gurnard:

Between 2565m and 2595m, traces of C2 and C3. Also weak shows at 2565-75m.

Latrobe:

No significant shows occurred in the Latrobe in spite of the fact that this was the primary target zone. Gas remained between .5-1.5%.

Upper Paleocene:

Again very low gas levels. However, although this is a sandstone, the high clay content means a very low permeability, thus low gas readings are to be expected.

Lower Paleocene and Upper Cretaceous:

Insignificant gas levels were recorded in the Lower Paleocene and the Upper Cretaceous which was the secondary target. The same remark as before can apply for these formations.

When considering the low gas readings in the hole, it must be remembered that the formation pressure in the basin is taken as 8.6ppg. For most of the well, the mud weight was between 9.2-9.4 ppg, and towards the end of the 12 1/4" section, 9.8 to 10 ppg. This didn't help in obtaining large amounts of gas.

PE604128

This is an enclosure indicator page.
The enclosure PE604128 is enclosed within the
container PE903201 at this location in this
document.

The enclosure PE604128 has the following characteristics:

ITEM_BARCODE = PE604128
CONTAINER_BARCODE = PE903201
NAME = Helios 1 "d" Exponent verses Porosity
BASIN =

GIPPSLAND

PERMIT = VIC/P18
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Helios 1 "d" Exponent verses
Porosity. From Addendum 2 of WCR volume
1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
W_NO = W787
WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)

PE604129

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NAME = Helios 1 "d" Exponent verses Porosity
BASIN =

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(Inserted by DNRE - Vic Govt Mines Dept)

PE604130

This is an enclosure indicator page.
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document.

The enclosure PE604130 has the following characteristics:

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CONTAINER_BARCODE = PE903201
NAME = Helios 1 "d" Exponent verses Porosity
BASIN =

GIPPSLAND

PERMIT = VIC/P18
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Helios 1 "d" Exponent verses
Porosity. From Addendum 2 of WCR volume
1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
W_NO = W787
WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)

PE604131

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document.

The enclosure PE604131 has the following characteristics:

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CONTAINER_BARCODE = PE903201
NAME = Helios 1 "d" Exponent verses Porosity
BASIN =

GIPPSLAND

PERMIT = VIC/P18
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Helios 1 "d" Exponent verses
Porosity. From Addendum 2 of WCR volume
1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
W_NO = W787
WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)

PE604132

This is an enclosure indicator page.
The enclosure PE604132 is enclosed within the
container PE903201 at this location in this
document.

The enclosure PE604132 has the following characteristics:

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CONTAINER_BARCODE = PE903201
NAME = Helios 1 "d" Exponent verses Porosity
BASIN =

GIPPSLAND

PERMIT = VIC/P18
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Helios 1 "d" Exponent verses
Porosity. From Addendum 2 of WCR volume
1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
W_NO = W787
WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)

PE604133

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BASIN =

GIPPSLAND

PERMIT = VIC/P18
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Helios 1 "d" Exponent verses
Porosity. From Addendum 2 of WCR volume
1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
W_NO = W787
WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)

PE604134

This is an enclosure indicator page.
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container PE903201 at this location in this
document.

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BASIN =

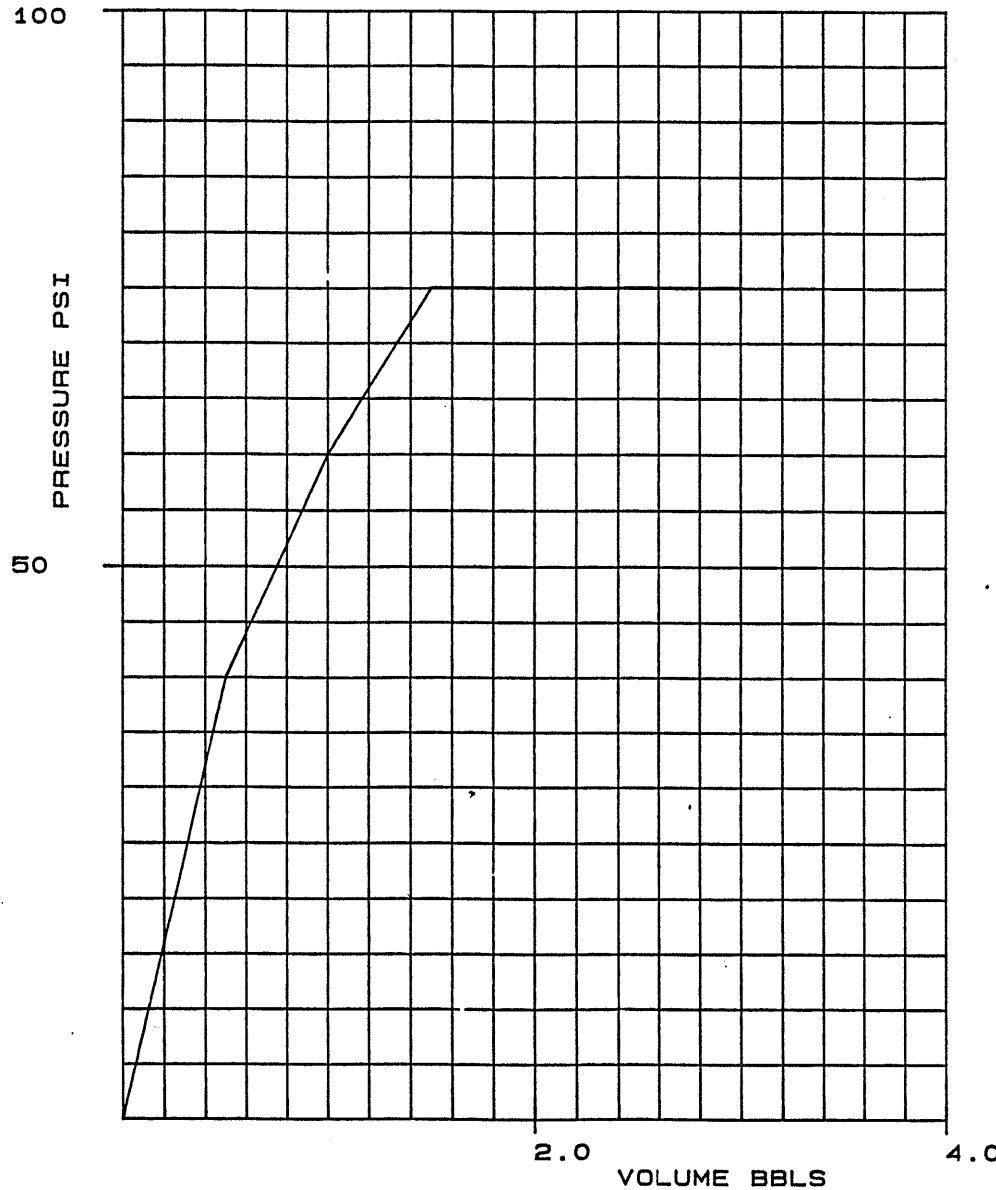
GIPPSLAND

PERMIT = VIC/P18
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Helios 1 "d" Exponent verses
Porosity. From Addendum 2 of WCR volume
1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
W_NO = W787
WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)

WELL NAME: HELIOS # 1

LEAK OFF TEST 20.00 CASING



VOLUME	PRESSURE
0.50	40
1.00	60
1.50	75
2.00	75
2.50	75
3.00	75

CASING SHOE TVD

- 1117 FT

DEPTH TESTED TVD

- 1170 FT

MUD WEIGHT

- 8.6 PPG

PUMP PRESSURE AT LEAK OFF

- 75 PSI

BOTTOM HOLE PRESSURE

- 598.22 PSI

FRACTURE GRADIENT

- 9.83 PPG

MATRIX STRESS

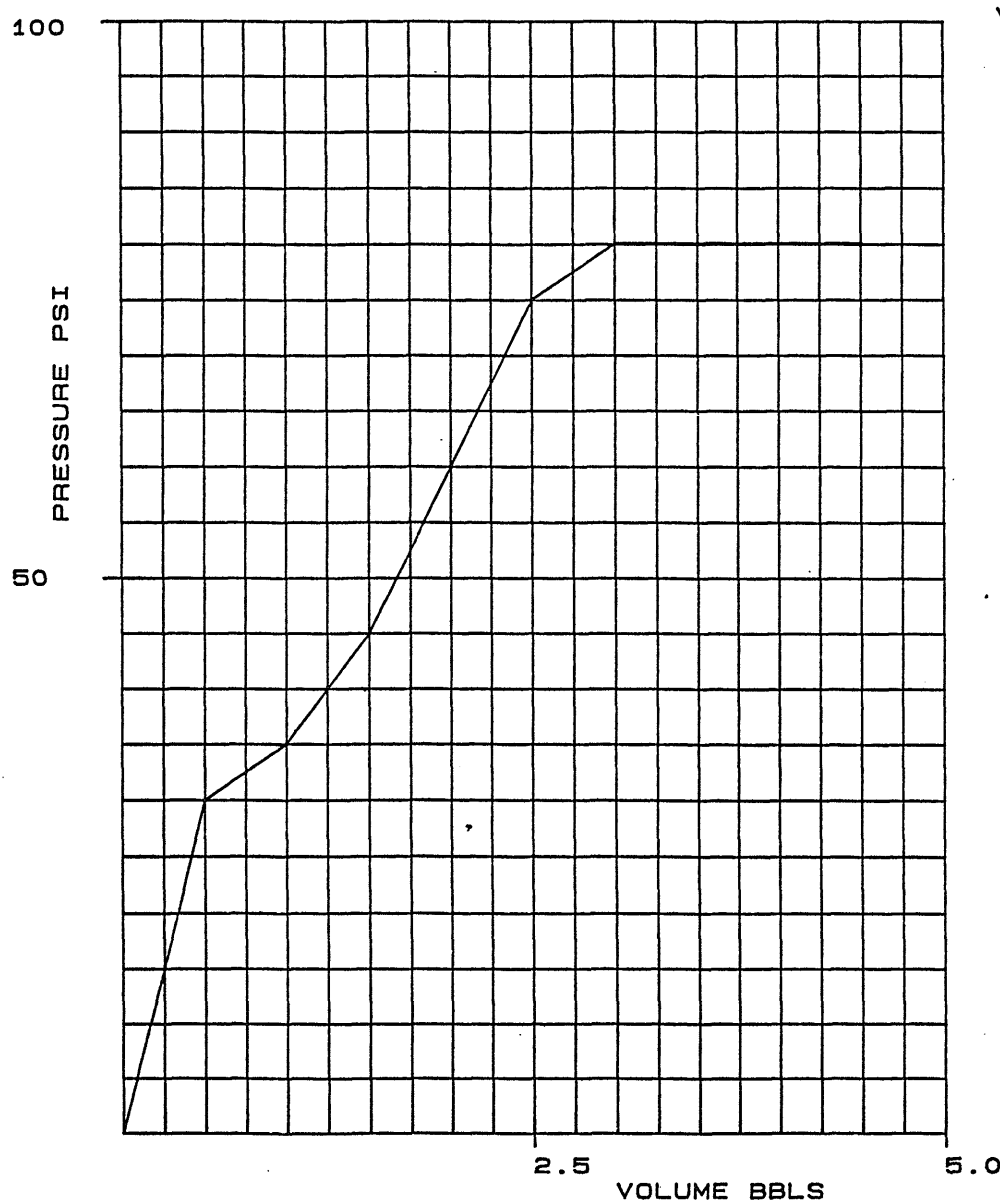
- 0.155

POISSONS RATIO

- 0.134

WELL NAME: HELIOS # 1

LEAK OFF TEST 20.00 CASING



VOLUME	PRESSURE
0.50	30
1.00	35
1.50	45
2.00	60
2.50	75
3.00	80
3.50	80
4.00	80
4.50	80

CASING SHOE TVD

- 1117 FT

DEPTH TESTED TVD

- 1170 FT

MUD WEIGHT

- 8.6 PPG

PUMP PRESSURE AT LEAK OFF

- 80 PSI

BOTTOM HOLE PRESSURE

- 603.22 PSI

FRACTURE GRADIENT

- 9.91 PPG

MATRIX STRESS

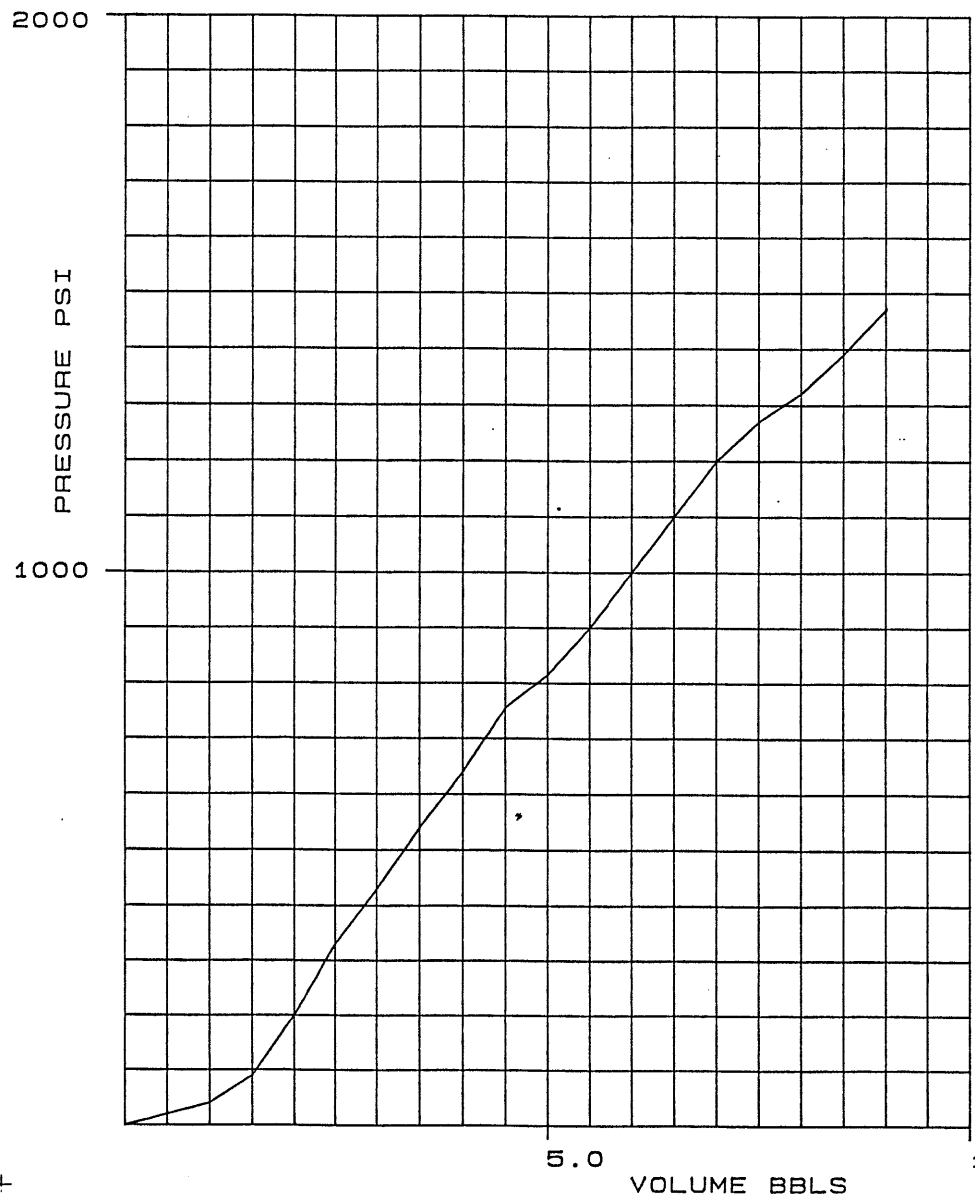
- 0.165

POISSONS RATIO

- 0.142

WELL NAME: HELIOS # 1

LEAK OFF TEST 13.38 CASING



VOLUME	PRESSURE	CASING SHOE TVD
1.00	40	= 3867 FT
1.50	90	
2.00	200	DEPTH TESTED TVD
2.50	330	
3.00	430	= 3867 FT
3.50	540	
4.00	640	MUD WEIGHT
4.50	755	
5.00	815	= 8.6 PPG
5.50	900	
6.00	1000	PUMP PRESSURE AT LEAK OFF
6.50	1100	
7.00	1200	= 1240 PSI
7.50	1270	
8.00	1320	
8.50	1390	
9.00	1470	

BOTTOM HOLE PRESSURE
= 2969.32 PSI

FRACTURE GRADIENT
= 14.77 PPG

MATRIX STRESS
= 0.720

POISSONS RATIO
= 0.419

PHILLIPS Aust. Pet. HELIOS # 1

TEMPERATURE REPORT

Delta T

Flowline Temperature In & Out

Temperature Gradient
(deg.C / 100 m)

-5 0 +5

50 100 150 200 250 300 350 400 450 Deg. Farenheit

20 40 60 80 100 120 140 160 180 200 220 240 Deg. Celcius

1 2 3 4 5

Estimated BHT from E-logs
195 Deg.F at 3500 m

640

980

1320

1660

2000

2340

2680

3020

3360

3700

+

REAL TIME DEPTH PLOT

- Depth Plot reduced to A4

REAL TIME DEPTH
PLOT

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

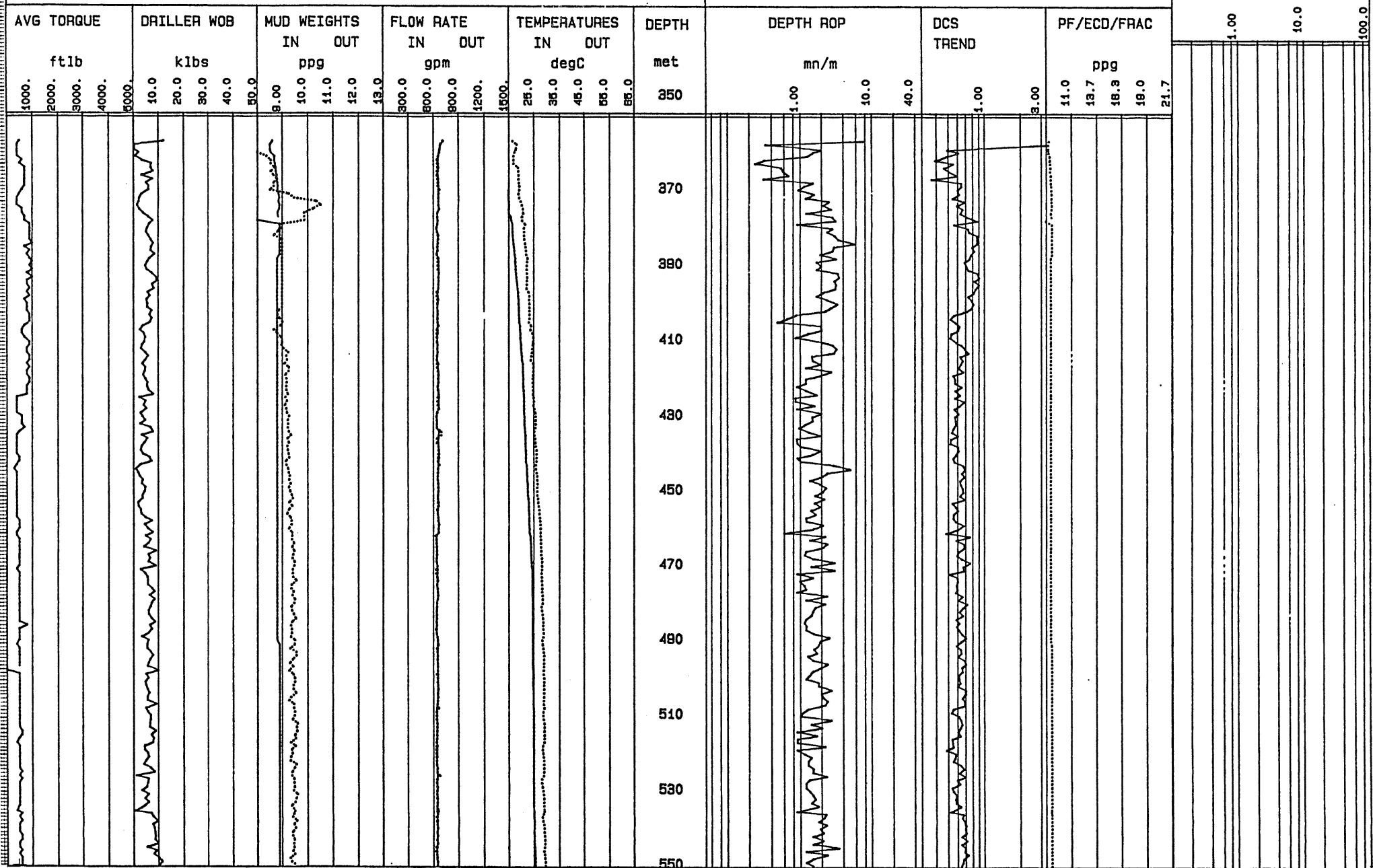
SCALE 1/ 1000

4/ 11/ 82

BIT # RR2 SDS 12 1/4"

HELIOS # 1

TOTAL GAS



ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

5/ 11/ 82

BIT # RR2 SDS 12 1/4"

HELIOS # 1

TOTAL GAS

%

1.00
10.0
100.0

AVG TORQUE ftlb	DRILLER WOB kibs	MUD WEIGHTS				FLOW RATE		TEMPERATURES		DEPTH met	DEPTH ROP			DCS TREND	PF/ECD/FRAC			
		IN	OUT	IN	OUT	IN	OUT	IN	OUT		mn/m					ppg		
1000. 2000. 3000. 4000. 5000.	10.0 20.0 30.0 40.0 50.0	8.00 10.0 11.0 12.0 13.0				300.0 800.0 800.0 1200. 1500.		25.0 35.0 45.0 55.0 65.0		550 570 590 810 830 850 870 890 710 730 750	1.00 10.0 40.0		1.00 3.00	11.0 13.7 18.8 18.0 21.7				

Geoservices overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

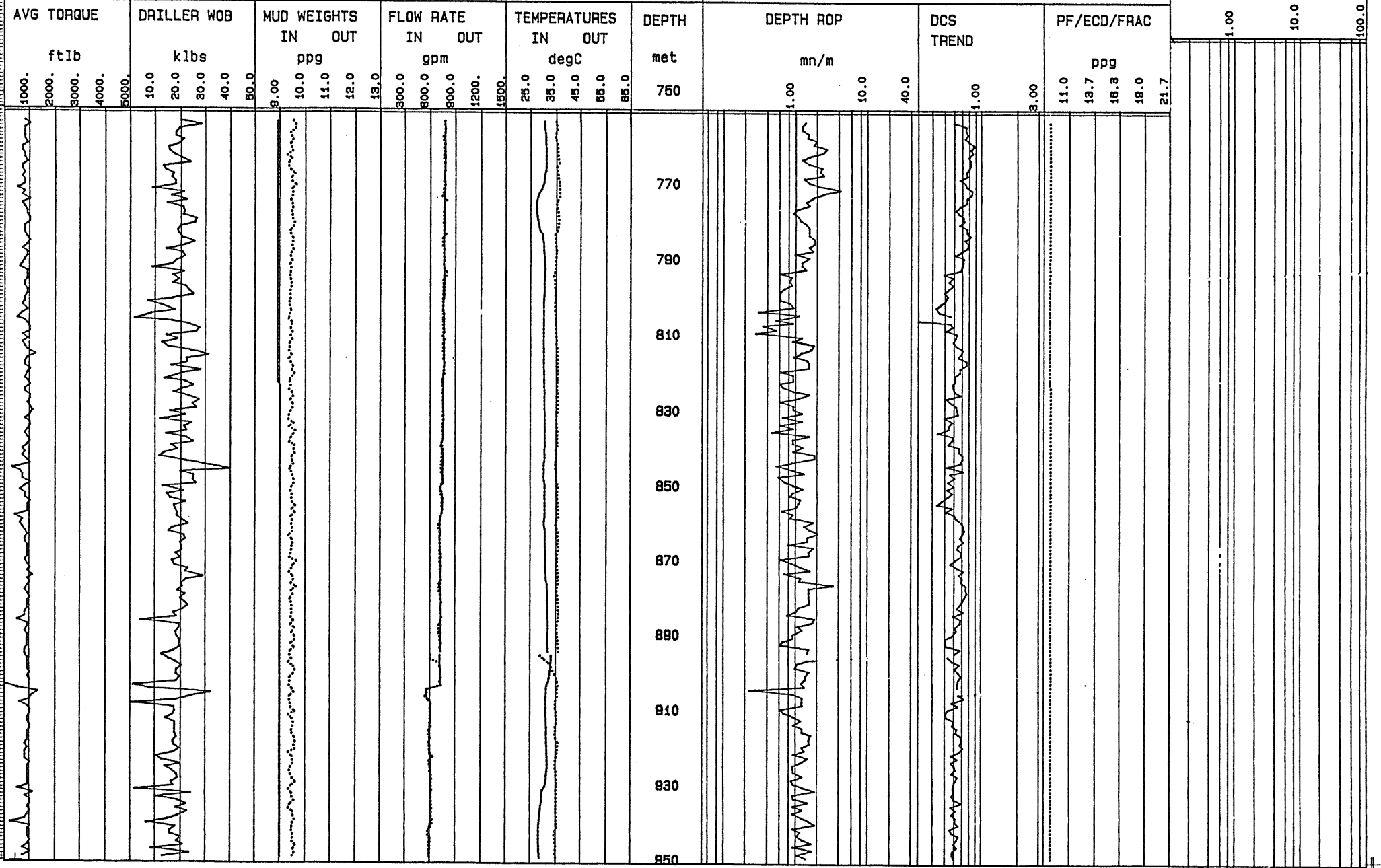
SCALE 1/ 1000

TOTAL GAS

%

1.00 10.0 100.0

5/ 11/ 82 BIT # RR2 SDS 12 1/4" HELIOS # 1



ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

x

5/ 11/ 82		BIT # RR2		SDS 12 1/4"		HELIOS # 1																																
AVG TORQUE		DRILLER WOB		MUD WEIGHTS		FLOW RATE		TEMPERATURES		DEPTH		DEPTH ROP		DCS TREND		PF/ECD/FAC		TOTAL GAS																				
ftlb		klbs		ppg		gpm		degC		met		mn/m				ppg		1.00		10.0																		
1000.	2000.	3000.	4000.	5000.	10.0	20.0	30.0	40.0	50.0	9.00	10.0	11.0	12.0	13.0	300.0	800.0	900.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	850	1.00	10.0	40.0	1.00	3.00	11.0	13.7	16.3	18.0	21.7	1.00	10.0	100.0
<p>870</p> <p>880</p> <p>1010</p> <p>1030</p> <p>1050</p> <p>1070</p> <p>1080</p> <p>1110</p> <p>1130</p> <p>1150</p>																																						

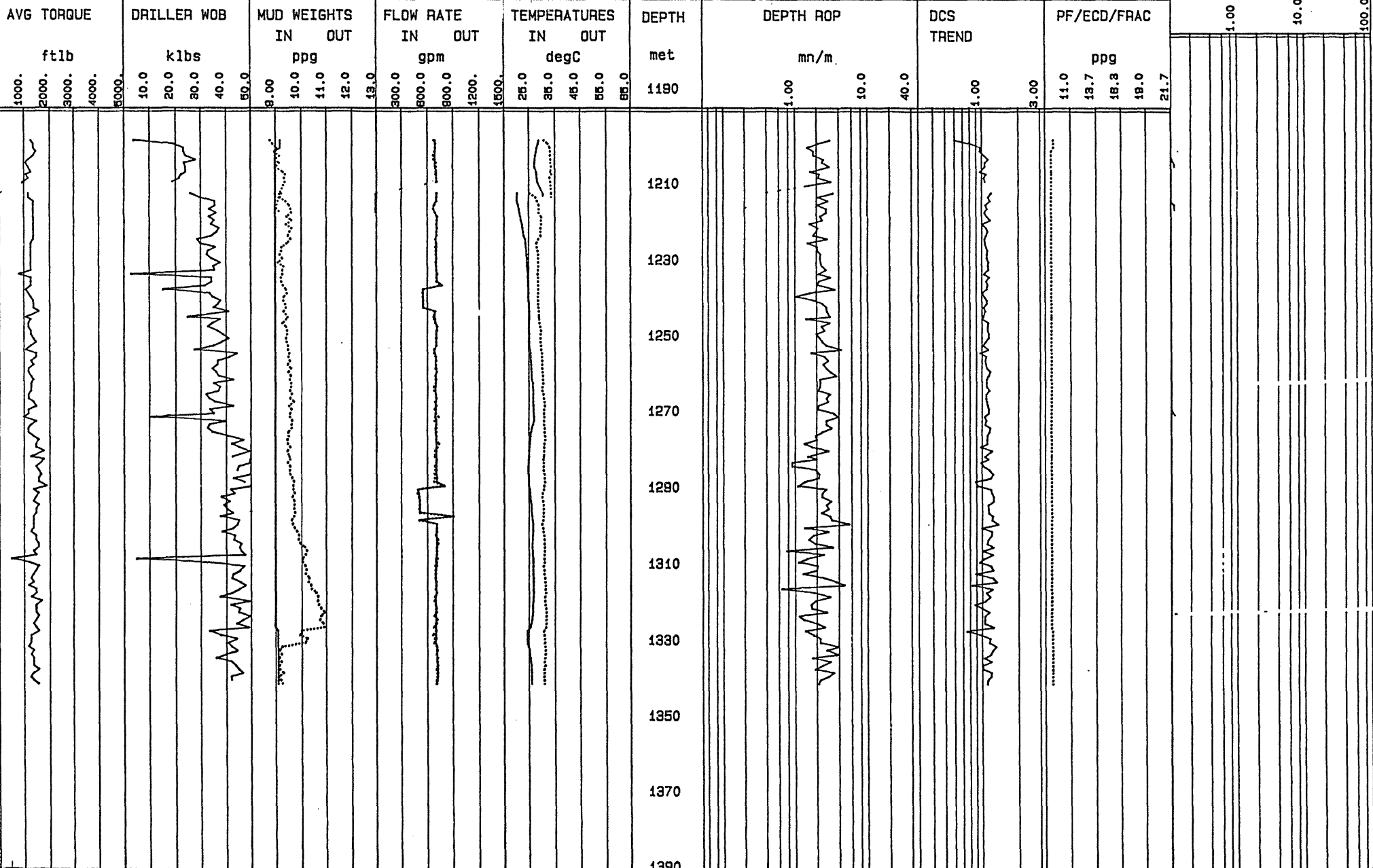
GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

6/ 11/ 82 BIT # 3 SMITH SDS 12 1/4" HELIOS # 1



Geoservices overseas S.A.

ZERO

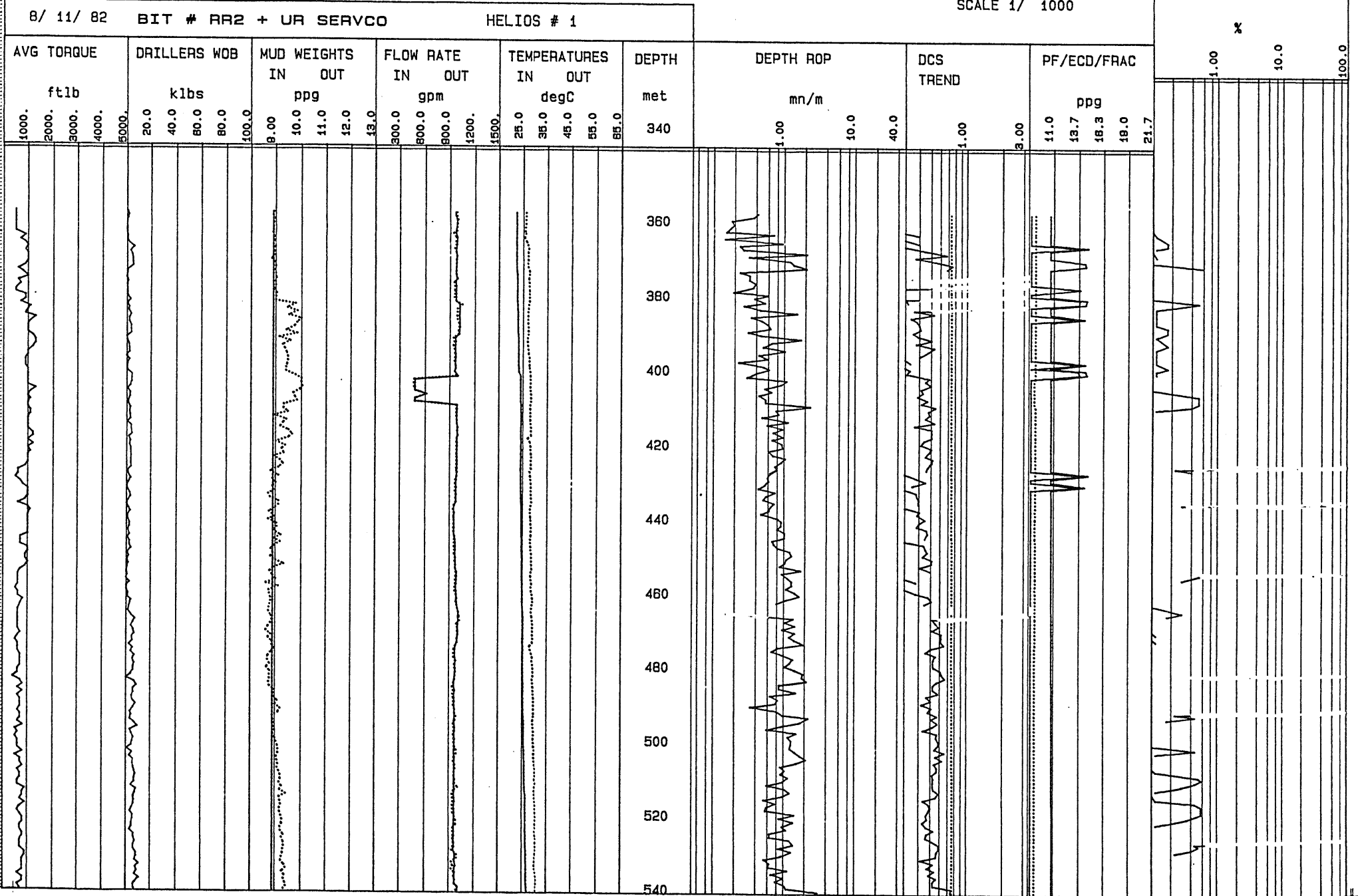
GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

x



ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

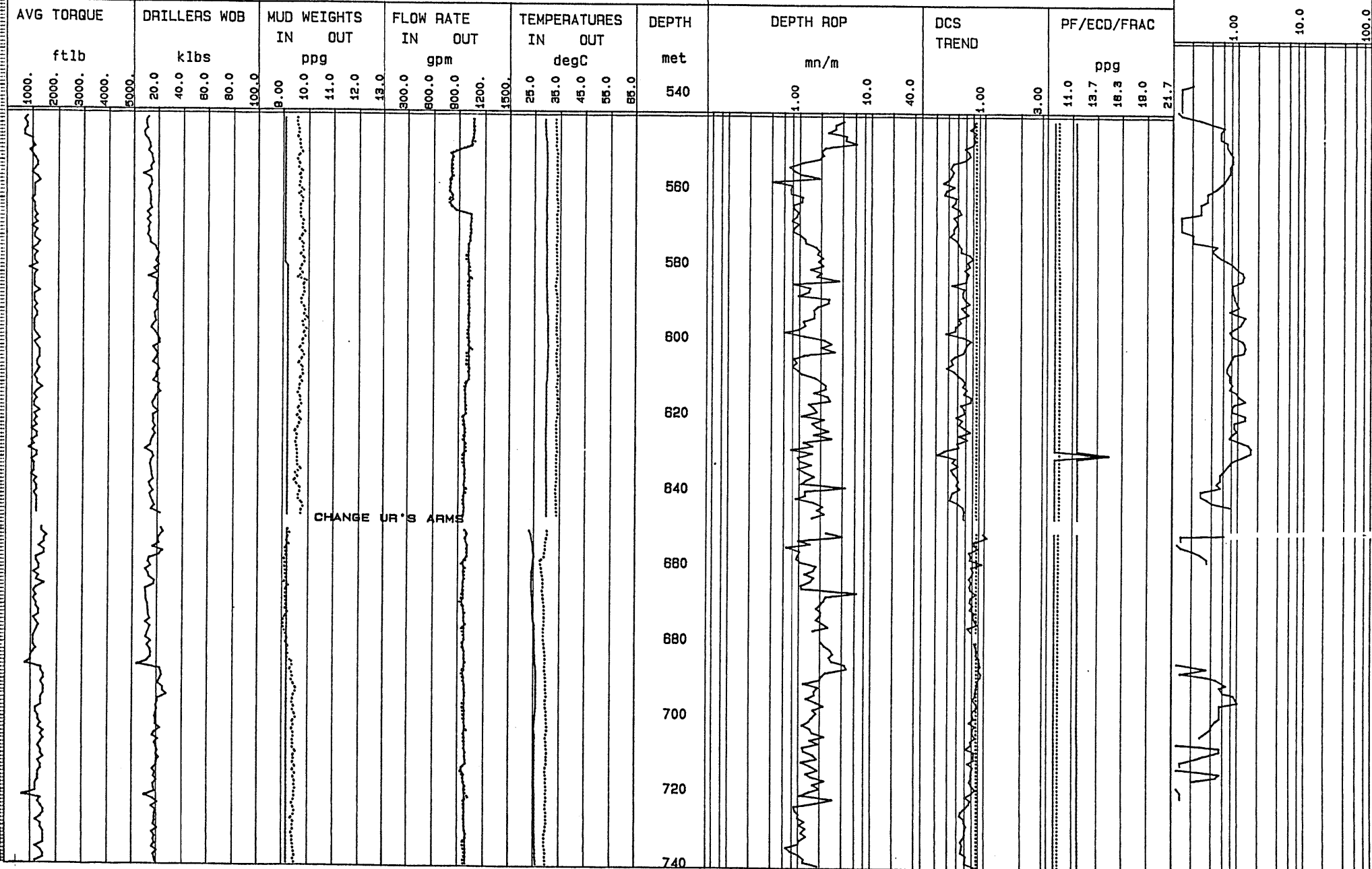
SCALE 1/ 1000

9/ 11/ 82

BIT # RR2 + UR SERVCO

HELIOS # 1

TOTAL GAS



CHANGE UR'S ARMS

Geoservices overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

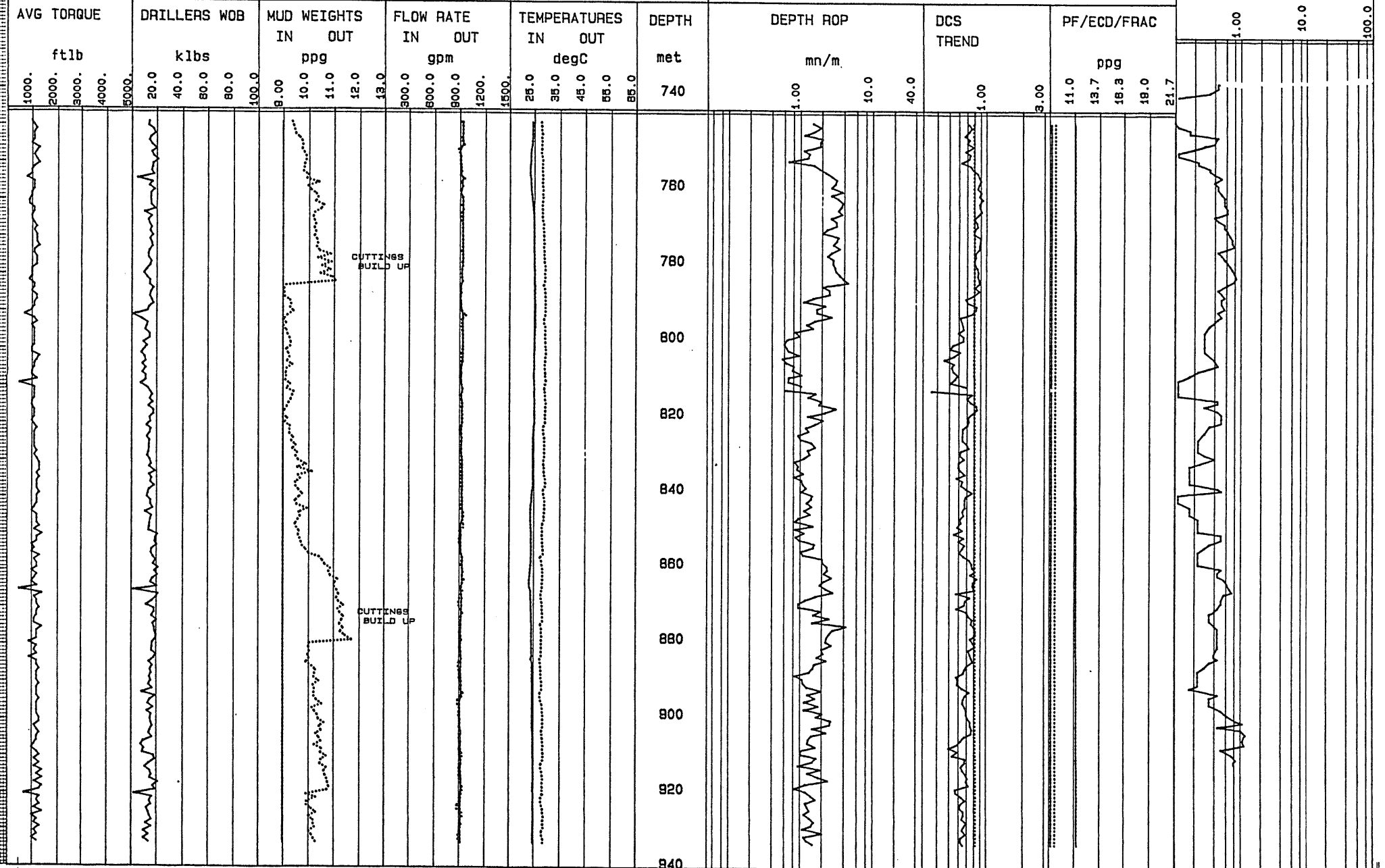
SCALE 1/ 1000

TOTAL GAS

10/ 11/ 82

BIT # RR2 + UR SERVCO

HELIOS # 1



CUTTINGS BUILD UP

CUTTINGS BUILD UP

Geoservices Overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

%

1.00
10.0
100.0

10/ 11/ 82

BIT # RR2 + UR SERVCO

HELIOS # 1

AVG TORQUE

DRILLERS WOB

MUD WEIGHTS

FLOW RATE

TEMPERATURES

DEPTH

DEPTH ROP

DCS
TREND

PF/ECD/FRAC

ftlb

klbs

IN OUT
ppg

IN OUT
gpm

IN OUT
degC

met

mn/m

ppg

1000.

2000.

3000.

4000.

5000.

20.0

40.0

80.0

80.0

100.0

8.00

10.0

11.0

12.0

13.0

300.0

800.0

800.0

1200.

1500.

25.0

35.0

45.0

55.0

55.0

930

1.00

30.0

40.0

1.00

3.00

11.0

13.7

16.3

18.0

21.7

CHANGE UR ARMS

950

970

990

1010

1030

1050

1070

1090

1110

1130

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

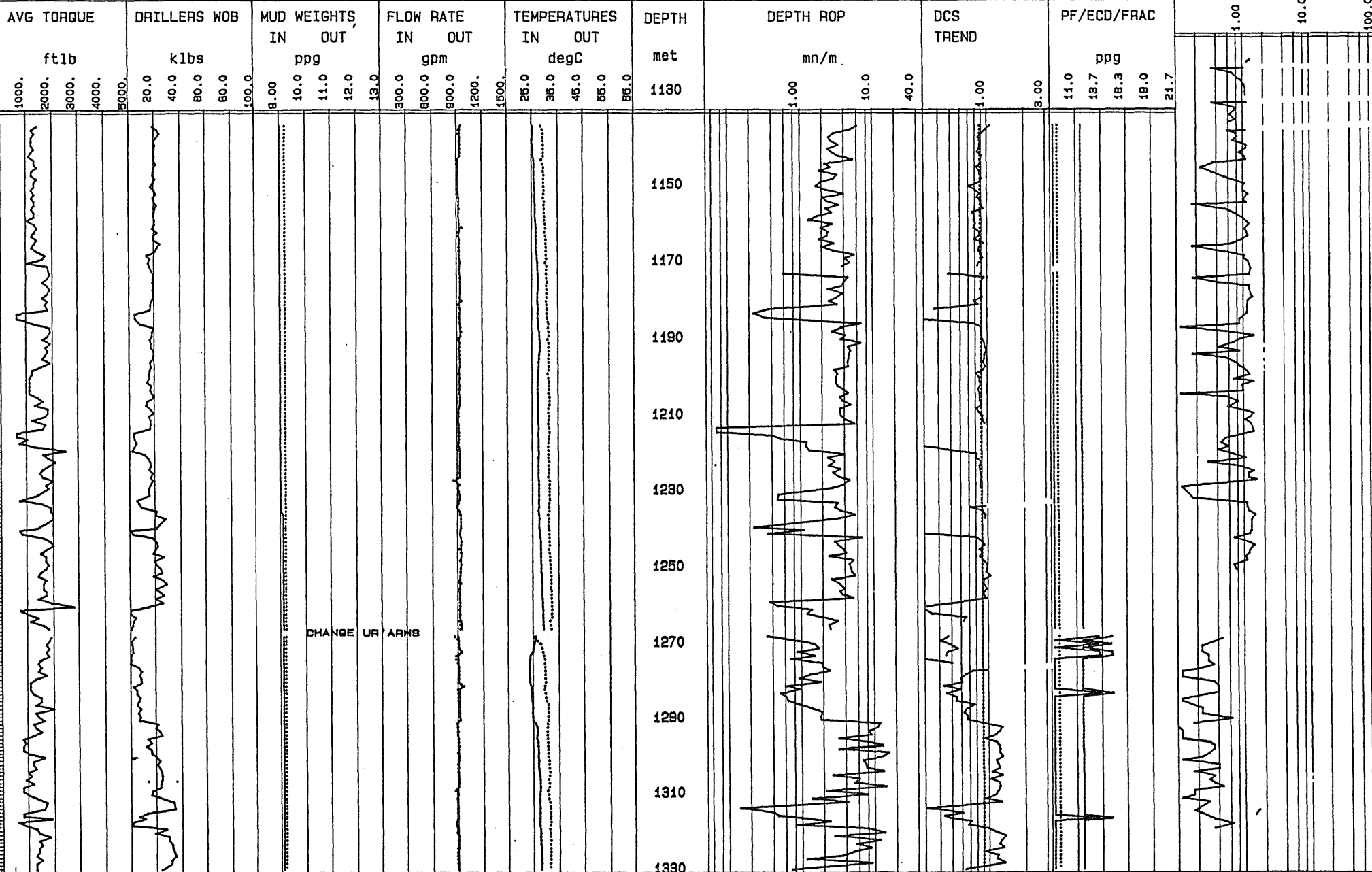
TOTAL GAS

%

11/ 11/ 82

BIT # RR2 + UR

HELIOS # 1



CHANGE UR ARMS

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

%

1.00

10.0

100.0

12/ 11/ 82

BIT # RR2 + UR SERVCO

HELIOS # 1

AVG TORQUE		DRILLERS WOB		MUD WEIGHTS		FLOW RATE		TEMPERATURES		DEPTH	DEPTH ROP			DCS TREND	PF/ECD/FRAC				TOTAL GAS					
ftlb		klbs		ppg		gpm		degC			met	mn/m.				ppg				%				
1000.	2000.	20.0	40.0	9.00	10.0	300.0	350.0	25.0	35.0	1330	1.00	10.0	40.0	1.00	9.00	11.0	13.7	16.3	18.0	21.7	1.00	10.0	100.0	
										1350														
										1370														
										1390														
										1410														
										1430														
										1450														
										1470														
										1490														
										1510														
										1530														

Geoservices Overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

%

13/ 11/ 82 BIT # RR3 SMITH SDS 12 1/4" HELIOS # 1

AVG TORQUE		DRILLERS WOB				MUD WEIGHTS				FLOW RATE				TEMPERATURES				DEPTH	DEPTH ROP			DCS TREND	PF/ECD/FRAC				TOTAL GAS											
ftlb		kibs				ppg				gpm				degC				met	mn/m			TREND	ppg				1.00	10.0	100.0									
1000.	2000.	3000.	4000.	5000.	20.0	40.0	80.0	80.0	100.0	9.00	10.0	11.0	12.0	13.0	300.0	300.0	300.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	1340	1.00	10.0	40.0	1.00	3.00	11.0	13.7	18.3	18.0	21.7			
																		1340																				
		<i>Scale 0.50 Scale 0.100</i>												1360																								
														1380																								
														1400																								
														1420																								
														1440																								
														1460																								
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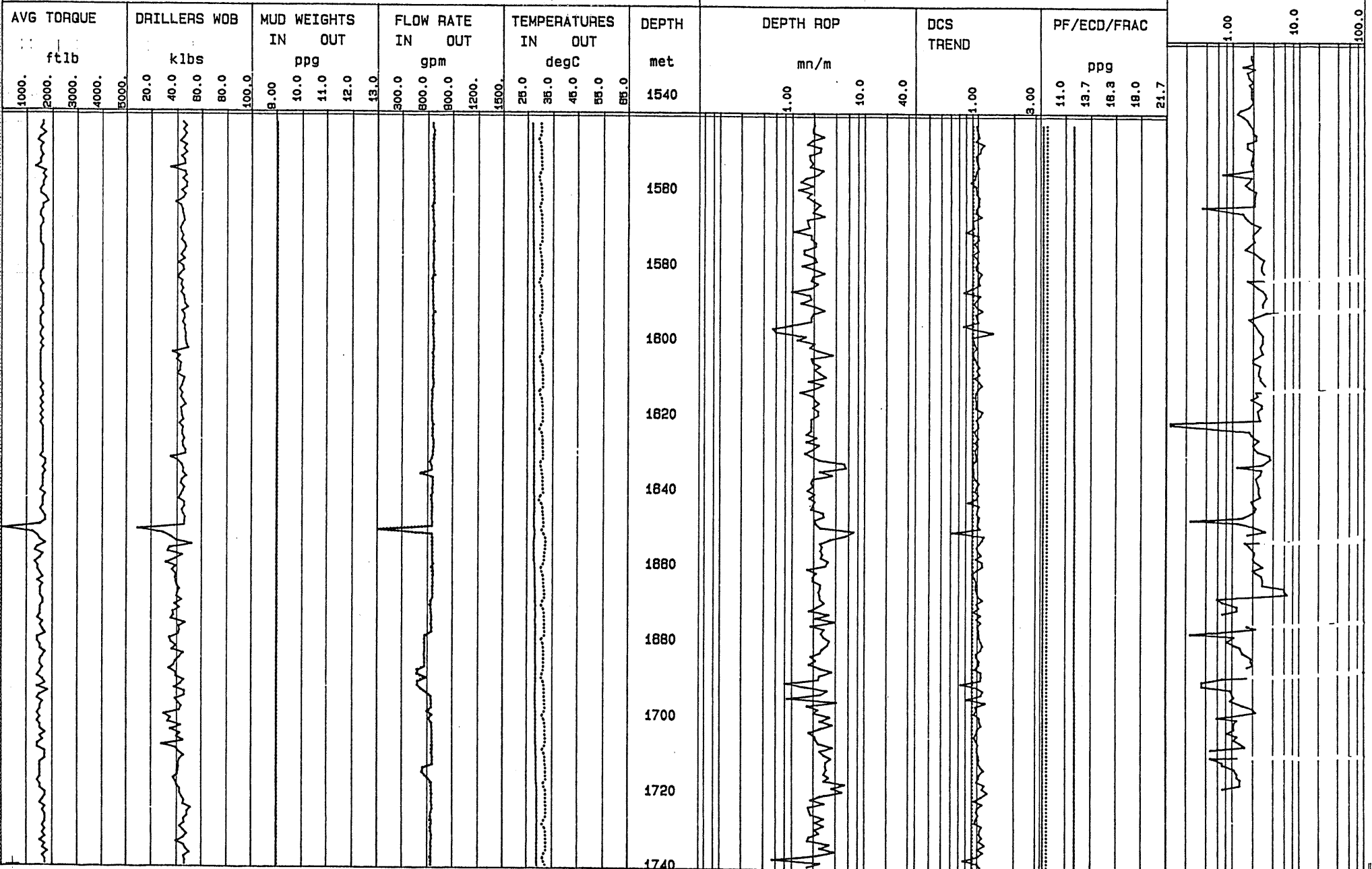
GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

14/ 11/ 82 BIT # RR3 SMITH SDS 12 1/4" HELIOS # 1



ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

14/ 11/ 82 BIT # RR3 SMITH SDS 12 1/4" HELIOS # 1

AVG TORQUE		DRILLERS WOB				MUD WEIGHTS				FLOW RATE				TEMPERATURES				DEPTH	DEPTH ROP			DCS TREND	PF/ECD/FRAC				TOTAL GAS											
ftlb		klbs				ppg				gpm				degC				met	mn/m			TREND	ppg				%											
1000.	2000.	3000.	4000.	5000.	20.0	40.0	80.0	80.0	100.0	9.00	10.0	11.0	12.0	13.0	300.0	800.0	900.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	1740	1.00	10.0	40.0	1.00	3.00	11.0	13.7	18.3	18.0	21.7	1.00	10.0	100.0
																		1740																				
																		1780																				
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																		1880																				
																		1800																				
																		1820																				
																		1840																				

Geoservices overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

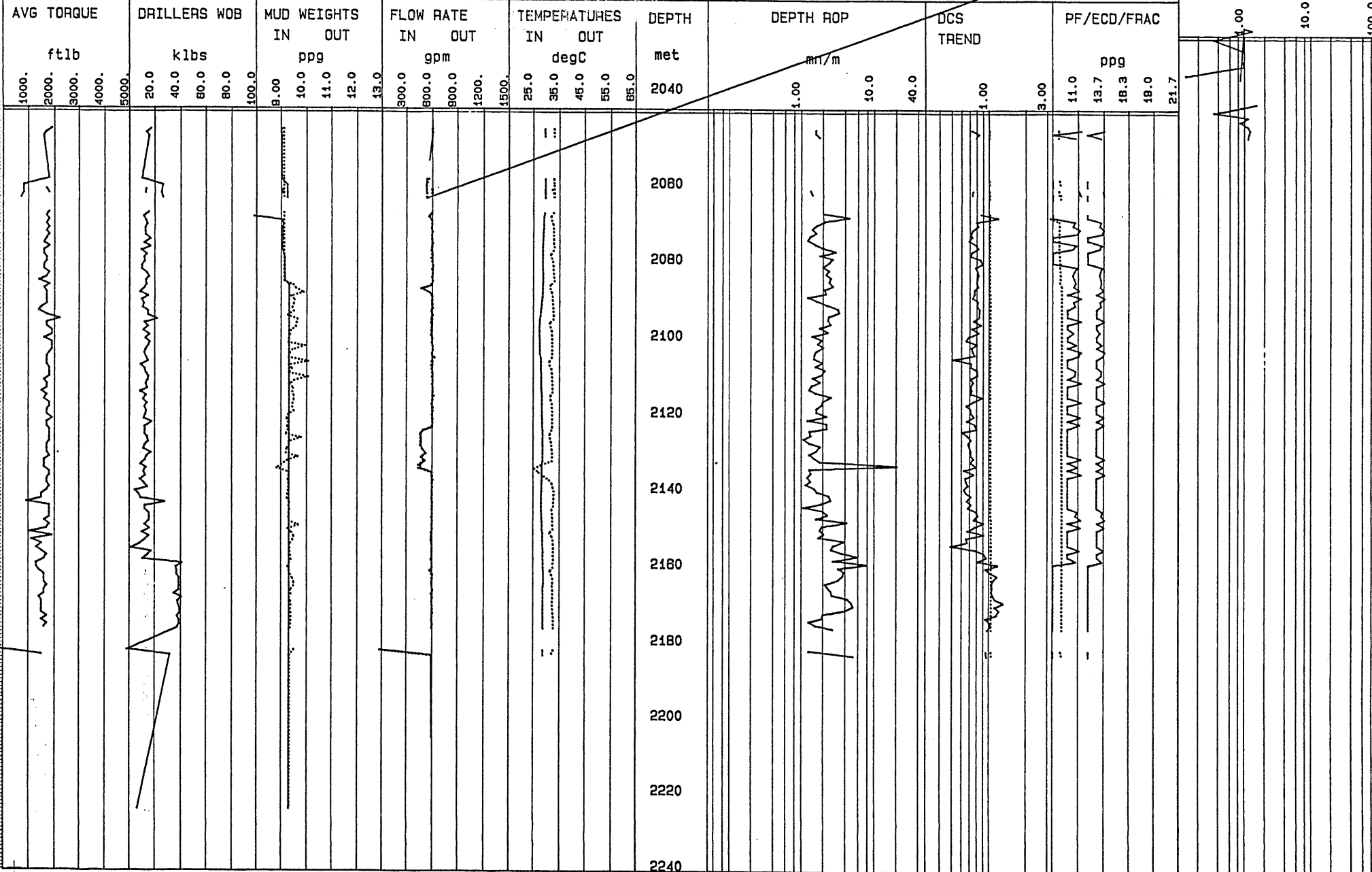
SCALE 1/ 1000

TOTAL GAS

x

16/ 11/ 82

HELIOS # 1

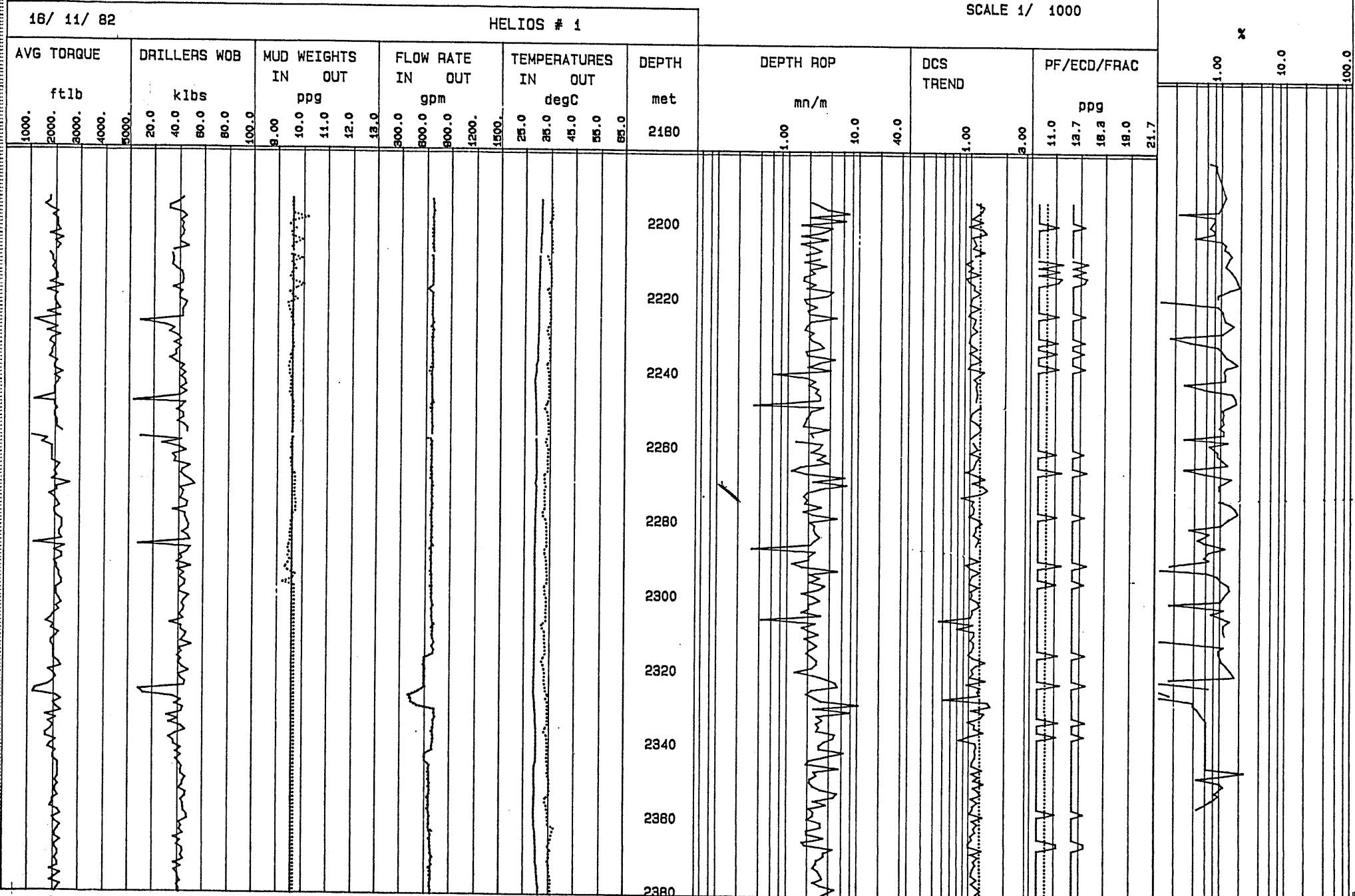


GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS



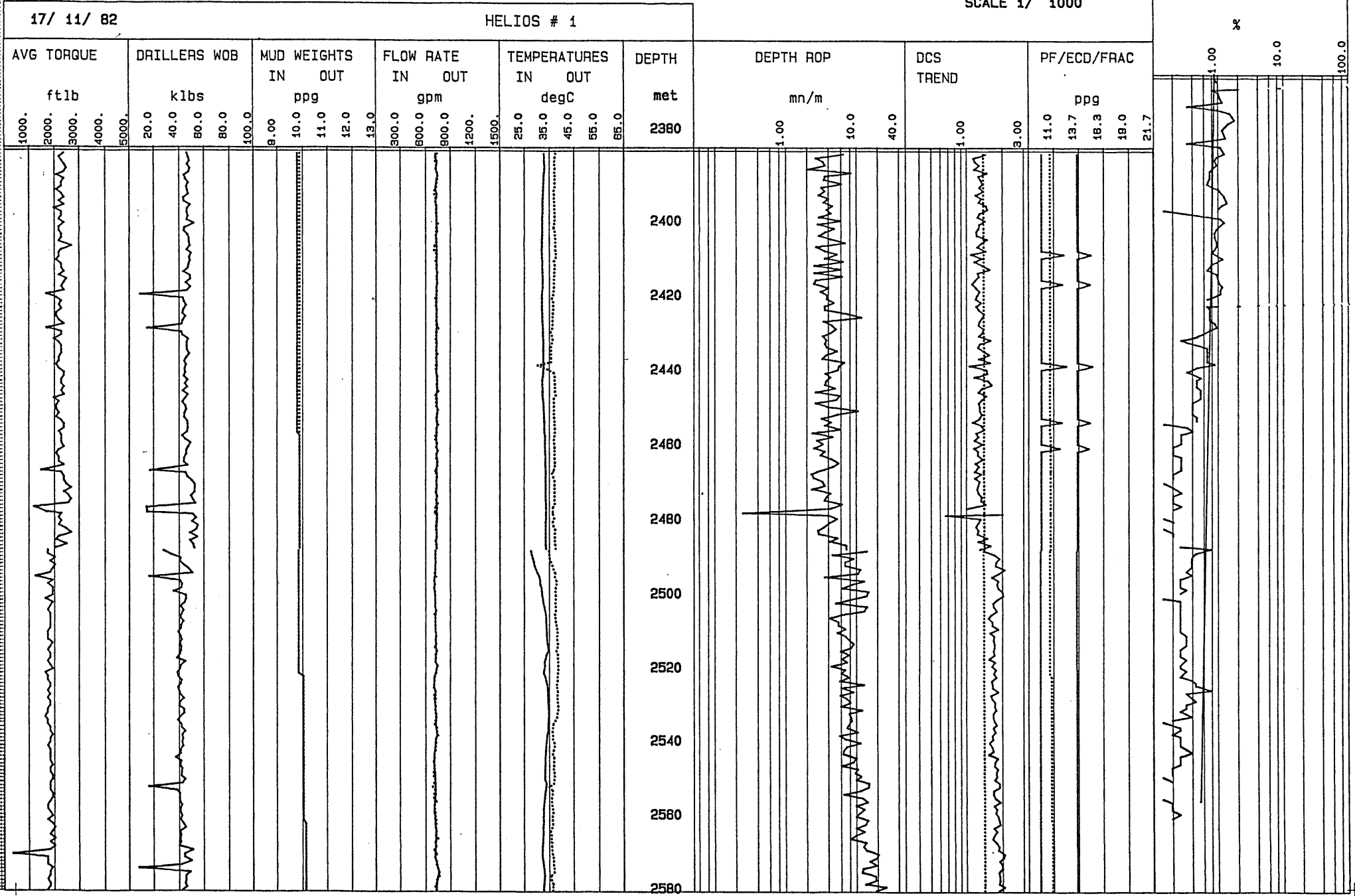
GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

%

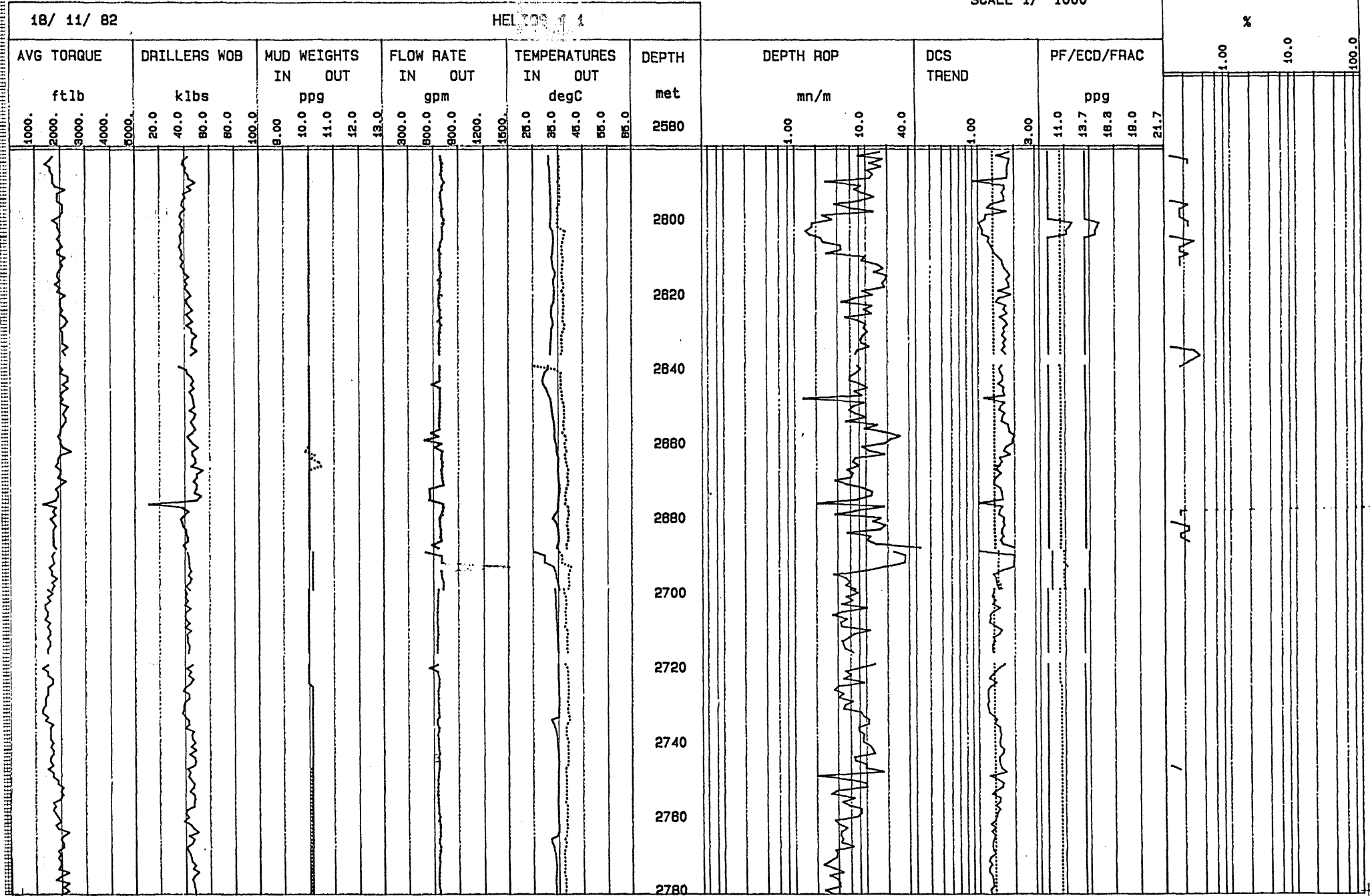


GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS



GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

%

1.00 10.0 100.0

20/ 11/ 82		HELIOS # 1													TOTAL GAS																							
AVG TORQUE		DRILLERS WOB		MUD WEIGHTS		FLOW RATE		TEMPERATURES		DEPTH	DEPTH ROP			DCS TREND	PF/ECD/FRAC																							
ftlb		klbs		ppg		gpm		degC		met	mn/m				ppg																							
1000.	2000.	3000.	4000.	5000.	20.0	40.0	80.0	80.0	100.0	8.00	10.0	11.0	12.0	13.0	300.0	800.0	800.0	1200.	1500.	25.0	35.0	45.0	55.0	85.0	2780	1.00	10.0	40.0	1.00	3.00	11.0	13.7	16.3	19.0	21.7			
										2800																												
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GEOSERVICES
ON-LINE TOC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

29/ 11/ 82, BIT # 7 SMITH F3 12 1/4" HELIOS # 1

AVG TORQUE					DRILLERS WOB				MUD WEIGHTS				FLOW RATE				TEMPERATURES					DEPTH			DEPTH ROP			DCS TREND		PF/ECD/FAC				TOTAL GAS				
ftlb					klbs				ppg				gpm				degC					met			mn/m					ppg				%				
1000.	2000.	3000.	4000.	5000.	20.0	40.0	80.0	80.0	100.0	8.00	10.0	11.0	12.0	13.0	300.0	800.0	800.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	2880	1.00	10.0	40.0	1.00	3.00	11.0	13.7	18.3	19.0	21.7	1.00	10.0	100.0
																						2880																
																						3000																
																						3020																
																						3040																
																						3080																
																						3080																
																						3100																
																						3120																
																						3140																
																						3180																
																						3180																

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

2/ 12/ 82 BIT # 9 SMITH F3 8 1/2" HELIOS # 1

AVG TORQUE					DRILLER WOB				MUD WEIGHTS				FLOW RATE				TEMPERATURES					DEPTH			DEPTH ROP			DCS TREND		PF/ECD/FRAC				TOTAL GAS				
ftlb					klbs				ppg				gpm				degC					met			mn/m					ppg				%				
1000.	2000.	3000.	4000.	5000.	20.0	40.0	60.0	80.0	100.0	9.00	10.0	11.0	12.0	13.0	300.0	800.0	800.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	3200	1.00	10.0	40.0	1.00	3.00	11.0	13.7	18.3	18.0	21.7	1.00	10.0	100.0
																						3200			1.00			1.00										
																						3220			1.00			1.00										
																						3240			1.00			1.00										
																						3280			1.00			1.00										
																						3280			1.00			1.00										
																						3300			1.00			1.00										
																						3320			1.00			1.00										
																						3340			1.00			1.00										
																						3360			1.00			1.00										
																						3380			1.00			1.00										
																						3400			1.00			1.00										

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLC™

SCALE 1/ 1000

TOTAL GAS

%

1.00

40.0

100.0

3/ 12/ 82 BIT # 10 & 11 FDGH/F2					HELIOS # 1																																			
AVG TORQUE		DRILLER WOB		MUD WEIGHTS		FLOW RATE		TEMPERATURES		DEPTH	DEPTH ROP		DCS TREND	PF/ECD/FRAC		TOTAL GAS																								
ftlb		klbs		ppg		gpm		degC			met	mn/m		ppg		1.00	40.0	100.0																						
1000.	2000.	3000.	4000.	5000.	20.0	40.0	80.0	80.0	100.0	9.00	10.0	11.0	12.0	13.0	300.0	800.0	900.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	3280	1.00	10.0	40.0	1.00	3.00	11.0	13.7	18.3	19.0	21.7					
																				3300																				
																				3320																				
																				3340																				
																				3360																				
																				3380																				
																				3400																				
																				3420																				
																				3440																				
																				3460																				
																				3480																				

BIT # 10
BIT # 11

11

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

%

1.00 10.0 100.0

6/ 12/ 82

BIT # 11 SMITH F2 8 1/2"

HELIOS # 1

AVG TORQUE					DRILLER WOB				MUD WEIGHTS				FLOW RATE				TEMPERATURES					DEPTH			DEPTH ROP			DCS TREND		PF/ECD/FRAC				TOTAL GAS				
ftlb					klbs				ppg				gpm				degC					met			mn/m					ppg				%				
1000.	2000.	3000.	4000.	5000.	20.0	40.0	80.0	80.0	100.0	9.00	10.0	11.0	12.0	13.0	300.0	600.0	900.0	1200.	1500.	25.0	35.0	45.0	55.0	65.0	3480	1.00	10.0	40.0	1.00	3.00	11.0	13.7	16.3	18.0	21.7	1.00	10.0	100.0
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																						3680																

Geoservices overseas S.A.

ZERO

GEOLOGY

- Lithology Plot (1/10000)
- Masterlog

PE904993

This is an enclosure indicator page.
The enclosure PE904993 is enclosed within the
container PE903201 at this location in this
document.

The enclosure PE904993 has the following characteristics:

ITEM_BARCODE = PE904993
CONTAINER_BARCODE = PE903201
 NAME = Helios 1 Lithology Report
 BASIN = GIPPSLAND
 PERMIT = VIC/P18
 TYPE = WELL
 SUBTYPE = STRAT_COLUMN
DESCRIPTION = Helios 1 Lithology Report. From
 Addendum 2 of WCR volume 1.
REMARKS =
DATE_CREATED =
DATE_RECEIVED = 23/06/83
 W_NO = W787
 WELL_NAME = Helios-1
CONTRACTOR =
CLIENT_OP_CO = Phillips Australian Oil Company

(Inserted by DNRE - Vic Govt Mines Dept)