

WELL 2/5-7 : SUMMARY OF PRODUCTION TEST RESULTS

TEST NO.	FORMATION	INTERVAL	PETROPHYSICAL EVALUATION				PRODUCTION TEST DATA						
			NET SAND THICKNESS	AVERAGE POROSITY	AVERAGE HYDROCARBON SATURATION	ACID STIMULATION	GROSS RATE	NET OIL RATE	WATER CUT	GAS-OIL RATIO	OIL GRAVITY	BEAN	FLOWING TUBING PRESSURE
			m	%	%	Yes	b/d	b/d	%	scf/bbl	^o API	164	psig
1	Maastrichtian	3300-3335	35	20	0	Yes	1948	775	60	150	42.1	20/64	782
2	Danian	3263-3287	24	15	20	Yes	1680	760	55	270	41	36/64	207
3	Danian	3210-3225	15	15	10	Yes	55	0	100	0	--	open pipe	0

Table I.8.1

WELL 2/5-7 : SUMMARY OF PRODUCTION TEST RESULTS

TEST NO.	FORMATION	INTERVAL	PRODUCTION TEST INTERPRETATION								SALIENT DATA	
			GAUGE DEPTH	FLOWING BOTTOM HOLE PRESSURE	HORNER ANALYSIS			TYPE CURVE		K	PI _{gross} ACTUAL	PRODUCED WATER SALINITY
					KH	SKIN	p*	KH	SKIN			
		m.bdf	m.bdf	psig	mD-ft	--	psig	mD-ft	--	mD	b/d/psi	ppm NaCl
1	Maastrichtian	3300-3335	3278	5075	330	- 2.8	7035	415	- 2.7	3	1.0	50,000
2	Danian	3263-3287	3240	4250	230	- 3.5	6400 - 7100	240 - 340	- 5.8	± 3	0.6	70,000
3	Danian	3210-3225	3184	4690	--	--	(± 7000)	--	--	--	0.02 - 0.03	66,000

Table I.8.2

FLUID PROPERTIES : PT-1

Oil = 42.1⁰ API = 0.815 g/cc = 0.3533 psi/ft

Gas = 0.835 (air = 1), T_{pc} = 431⁰ R, P_{pc} = 661 psia

GOR = 150 scf/stb (sep P = 330 psig, 125⁰ F)

BHT = 265⁰ F

Pres = 7154 psig at 3332 m bdf

T_{pr} = 1.68

P_{pr} = 10.84

z = 1.18, B_g = 0.0034 ft/scf

P_b = 655 psig; B_{ob} = 1.17 rb/stb

P = 7154 psig; B_o = 1.137 rb/stb

U_{od} = 0.7 cp, U_{ob} = 0.47, U_o = 1.61

water 50.000 ppm NaCl, U_w = 0.25 cP at 7154 psig

R_{sw} = 20 scf/bbl water

∅ = 22%, C_o = 4.6 10⁻⁶, C_w = 3.5 10⁻⁶ psi⁻¹, c_f = 3.5 10⁻⁶

U_t = 0.6 * 0.25 + 0.4 * 1.6 = 0.8 cP

c_t = (0.2 * 4.6 + 0.8 * 3.5 + 3.5) 10⁻⁶ = 7.2 10⁻⁶ psi⁻¹

B_t = 0.6 * 1 + 0.4 * 1.137 = 1.05

Well 2/5-7: Samples PT-1

Sample	Bottle No.	Time	Sampling point	Shipping pressure psig	Volume cm ³	Contents
16-1-84						
PVT 1A	14068-75	20:00	Sep.	95	600	Oil
	A-13302	20:00		290	2000	Gas
PVT 2	90-2491	21:00	Sep.	116	600	Oil
	A-7157	21:00		350	2000	Gas
PVT 3	13266-51	22:00	Sep.	175	600	Oil
	A-13269	22:00		312	2000	Gas
BHS 1	A/0878758	6:11 15/1	3262 m	0	600	Water
BHS 2	8088-92	6:11 15/1	3262 m	1600	600	Water
WTR 1	-	10:00 15/1	Surge tank	0	3000	Water
WTR 2	-	02:00 17/1	Sep.	0	5000	Water

Table I.8.6

Well 2/5-7: Samples PT-2

Sample	Bottle No.	Time	Sampling point	Shipping pressure psig	Volume cm ³	Contents
		1-2-84				
PVT-1	13266-137	04:00	Sep.	20	600	Oil
	A-7167	04:00		86	2000	Gas
PVT-2	20438-36	05:00	Sep.	20	600	Oil
	A-7852	05:00		120	2000	Gas
PVT-3	16251-1	06:00	Sep.	20	600	Oil
	A-9201	06:00		80	2000	Gas
WTR 1	-	31-1-84 22:00	Sep.	lab analysis:		Water 40470 ppm Cl ⁻
WTR 2	-	1-2-84 03:00	Sep.	lab analysis:		Water 39405 ppm Cl ⁻
WTR 3	-	1-2-84 07:30	Sep.	lab analysis:		39405 ppm Cl ⁻

Table I.8.11

Well 2/5-7: Sample PT-3

Sample	FBHP psia	Time	Sampling point	Ca ⁺⁺	Cl ⁻	pH	SG
BHS 1 Top	4690	13:07	3184 m	2400	39000	5.4	1.049
1 Btm		13:09		2450	40000	5.4	
BHS 2 Top	4686	20:49	3184 m	2400	40000	5.4	1.049
2 Btm		20:54		2400	39000	5.4	1.049
BHS 3 Top	4690	2:47	3184 m	2350	40000	5.4	1.049
3 Btm		2:49		2450	40000	5.5	1.049
BHS 4 Top	4682	5:49	3184 m	2400	400000	5.4	1.049
4 Btm		5:51		2400	400000	5.4	1.049

Run gauge SDP: 82005 with the Tandem BH sampler

Table I.8.13

WELL: 2/5-7

RFT data

RT = 36. m MSL, Vertical well.

Run 1 : 7-10-83 , mud wt = 1.665 kg/m³
 max temp= 219 DF at 3513 m
 gauge = 59764

RUN Nr.	TEST Nr.	TEST DEPTH m AH BDF	MUD PRESS. PM psig	FLOWING PRESSURE		FINAL SHUT IN PS psig	FLOWING TIME		PRESSURE CORRECTION		Remarks k= 5660 $\frac{q u}{p - p_f}$ (mD) $\mu = 0.5 cP$	CORR. FORMATION PRESSURE P psig
				PF1 psig	PF2 psig		T1 sec.	T2 sec.	MUD DPM psi	SHUT IN DPS psi		
1	1	3216.7	7631	10	18	-	-	-	-18	-	T	-
	2	3236.5	7694	-	-	-	-	-	-18	-	SF	-
	3	3245.7	7690	-	-	-	-	-	-18	-	SF	-
	4	3267.0	7737	-	-	-	-	-	-18	-	SF	-
	5	3285.4	7776	-	-	-	-	-	-18	-	SF	-
	6	3216.7	7600	5	25	-	-	-	-18	-	ST Repeat of nr 1	-
	7	3299.8	7804	3780	900	7160	14.4	7.2	-18	-17	k1=0.6; k2 = .6	7143
✓	8	3312.3	7827	85	80	7168	14.4	14.4	-18	-17	k1=0.3; k2 =0.3	7151
	9	3320.0	7854	5500	3990	7165	14.4	7.2	-18	-17	k1=1.2; k2 = 1.2	7148
	10	3333.8	7884	4100	1550	7179	14.4	7.2	-18	-17	k1=0.6; k2 = 0.7	7162
	11	3351.5	7924	4140	3220	7198	15.0	5.4	-18	-17	k1=0.6; k2 = 1.3	7181
	12	3383.2	7996	5260	4370	7133	16.8	6.0	-18	-17	k1=0.9; k2 = 1.7	7116
	13	3427.0	8093	500	500	7211	14.0	15.0	-18	-17	k1=0.3; k2 = 0.3	7194
	14	3447.5	8143	30	30	7342	17.0	17.0	-19	-17	k1=0.2; k2 = 0.2	7325
	15	3512.8	8277	2	140	7619	66.0	144.0	-20	-18	Building-up slowly low k	7602
	16	3409.5	8069	-	-	-	-	-	-19	-17	SF	-
	17	3409.0	8064	3230	800	7188	14.4	7.2	-19	-17	k1=0.5; k2 = 0.6	7171
	18	3320.0	7859	5250	3550	7173	15.0	6.0	-18	-17	k1=1.0; k2 = 1.31	7156
				550		7163	150.0		-18		1 gallon	
			7858	3060		7582	156.0		-18	-17	1 gallon + BU	
			7852	4200	2150	7155	15.0	6.0	-18	-17	-k1=0.6; k2=0.9	7138
				50				228.0	-18	-17	2 3/4 Gallon, No PBU	
	19	3320.0	7850	3350	700	7161	14.4	7.0	-18	-17	k1=0.5; k2=0.6	7144
				60				465.0	-18	-17	2 3/4 gallon no PBU	
	20	3321.0	7874	5350	2500	7168	14.4	7.0	-18	-17	k1=1.1; k2=0.9	7151
				70				249.0	-18	-17	2 3/4 gallon PBU starts very slowly	

Recovery: 1 Gallon 3 3/4 Gallon
 3 ltr mud 55 ltr filtrate
 Cl = 34000 ppm 33 000
 Ca⁺ = 80 ppm 60
 ph = 9.2 9.2

TABLE 3

WELL: 2/5-7

RT = 36.0 m MSL, Vertical well

RFT data

Run 2: 24-10-'83 mud wt. = 1.67

max. temp. = -

gauge = 51336;

HP gauge = 1413A - 003

RUN Nr.	TEST Nr.	TEST DEPTH m AH BDF	MUD PRESS. PM psig	FLOWING PRESSURE		FINAL SHUT IN PS psig	FLOWING TIME		PRESSURE CORRECTION		Remarks k = 5 660 $\frac{qu}{P-Pf}$ Uo=0.5cP	CORR: FORMATION PRESSURE P psig	HP " " P psig
				PF1 psig	PF2 psig		T1 sec.	T2 sec.	MUD DPM psi	SHUT IN DPS psi			
2	1	3 236.5	7 622	5	5	-	-	-	-12	-	T	-	-
	2	3 267.0	7 690	-	-	-	-	-	-12	-	S	-	-
	3	3 267.5	7 703	3	0	-	-	-	-12	-	T	-	-
	4	3 285.4	7 720	-	-	-	-	-	-12	-	S	-	-
	5	3 300.0	7 743	2 600	1 100	7 130	6	11	-12	-11	k1 = 1.04; k2 = 0.4	7 119	7 137
	6	3 311.8	7 768	-	500	7 145	6	13	-13	-11	PL; k2 = 0.3	7 134	7 156
	7	3 320.5	7 787	6 800	5 200	7 150	6	13	-13	-11	k1 = 13.5; k2 = 1.1	7 139	7 157
	8	3 326.2	7 805	6 500	3 300	7 159	6	13	-13	-11	k1 = 7.2; k2 = 0.6	7 148	7 161
	9	3 332.0	7 816	6 800	2 600	7 165	6	13	-13	-11	k1 = 13; k2 = 0.5	7 154	7 170
	10	3 351.5	7 858	6 700	4 600	7 187	6	13	-13	-11	k1 = 9.7; k2 = 0.8	7 176	7 194
	11	3 383.2	7 933	6 600	5 300	7 120	6	13	-13	-11	k1 = 9.1; k2 = 1.2	7 109	7 126
	12	3 369.0	7 898	6 600	2 000	7 109	6	14	-13	-11	k1 = 9.1; k2 = 0.4	7 098	7 117
	13	3 397.5	7 965	6 600	2 000	7 153	6	13	-13	-11	k1 = 8.5; k2 = 0.4	7 142	7 158
	14	3 400.5	7 971	6 800	4 000	7 156	6	13	-13	-11	k1 = 13.2; k2 = 0.7	7 145	7 175
	15	3 410.0	7 991	6 700	3 000	7 171	6	13	-13	-11	k1 = 10.0; k2 = 0.5	7 160	7 179
	16	3 427.0	8 033	6 800	2 200	7 196	6	13	-13	-11	k1 = 11.0; k2 = 0.4	7 185	7 204
	17	3 448.0	8 080	7 000	50	7 318	6	15	-13	-11	PL	7 307	7 325
	18	3 512.8	8 232	6 900	0	7 594	6	33	-13	-12	PL	7 582	7 600
	19	3 549.5	8 314	7 000	50	7 585	6	13	-14	-12	PL	7 573	-
	20	3 614.0	8 468	7 200	600	7 710	6	13	-14	-12	k1 = 9.2; k2 = 0.3	7 698	-
	21	3 619.0	8 472	7 100	1 000	7 715	6	13	-14	-12	k1 = 7.7; k2 = 0.3	7 703	-
	22	3 657.0	8 563	7 100	5	-	6	80	-15	-11	T	-	-
	23	3 722.0	8 717	-	-	-	6	13	-15	-11	T	-	-
	24	3 765.5	8 813	7 700	5	-	6	60	-15	-	T	-	-
	25	3 362.0	7 883	6 100	5	7 248	6	45	-12	-10	k1 = 4.1; k2 = 0.1	7 238	-

TABLE 4