

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_f & P_s)
~~XXXXXXXXXX~~ ~~XXXXXXXXXX~~

Form C-122-E
Adopted 9-1-65

Standard Oil Co.

COMPANY of Texas

LEASE Bogle Flats Unit "B"

WELL NO. 1

DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d 1.995 F_r .018233 M₂ 3.235 M₂ c/d (L/H) (F_r Q_m)² .003478 P_{cr} 673 T_{cr} 371
TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603		7206			Delta P = 3 (37.5 GH)			
2	GH		0	2370.77		4741.55			I _t + 4 I ₁ + I ₂			
3	37.5GH		0	88,904		177,808						
4	P _c or P _n		2278.2	2560.2	2561.2	2844.2	2846.2		= 3 (177,808)			
5	P _r		3.39	3.80	3.81	4.23	4.23		157.802 + 625.312 + 155.352			
6	T		538	565	565	592	592		= 533,424 = 568.4			
7	T _r		1.45	1.52	1.52	1.60	1.60		938.466			
8	Z		.739	.782	.782	.823	.823					
9	P/Z P/Z	4/8	3082.8	3273.9	3275.2	3455.9	3458.3		P _s = P _t + Delta P			
10	P/TZ	9/6	5.7301	5.7945	5.7968	5.8377	5.8417		= 2278.2 + 568.4			
11	(P/TZ) ² /1000	(10) 2/1000	.032834	.033576	.033603	.034079	.034125		= 2846.6			
12	L/H(F _r Q _m) ²		.003478	.003478	.003478	.003478	.003478					
13		I ₁ + I ₂	.036312	.037054	.037081	.037557	.037603					
14	I _n	I ₀ ÷ I ₃	157.802	156.380	156.328	155.436	155.352					
15	M = P _n - P _{n-1}			282	283	283	285					
16	N = I _n + I _{n-1}			314.182	314.130	311.764	311.680					
17	M x N	15 x I ₆			88,899							
18	Σ (M x N)	Σ I ₇			88,899							

WORK SHEET FOR STEPWISE CALCULATION
(SURFACE) PRESSURE (P_c & P_w)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas

LEASE Bogle Flats Unit

WELL NO. 1

DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d F_r 0 M²cfd (L/H) (F_rQ_m)² 0 P_{cr} 673 T_{cr} 371

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603	0							
2	GH		4741.55	2370.77	0							
3	37.5GH		177,808	88,904	0							
4	P _c or P _n		2856.6	2595.6	2333.6	2331.6						
5	P _r		4.25	3.86	3.47	3.47						
6	T		592	563.5	535	535						
7	T _r		1.60	1.52	1.44	1.44						
8	Z		.823	.781	.732	.732						
9	P/Z P/Z	4/8	3471.0	3323.4	3180.0	3185.3						
10	P/TZ	9/6	5.8632	5.8978	5.9538							
11	(P/TZ) ² /1000	(10/2)/1000										
12	L/H(F _r Q _m) ²											
13		11 + 12										
14	I _n	10 ÷ 13	170.555	169.555	167.816	167.960						
15	M = P _n - P _{n-1}			261	262	264						
16	N = I _n + I _{n-1}			340.110	337.371	337.515						
17	M x N	15 x 16		88,769		89,104						
18	Σ (M x N)	Σ 17	177,808	89,039								

REIVED
JUN 13 1966
O. C. C.
ARTEBIA, OFFICE

WORK SHEET FOR STEPWISE CALCULATION (SUBSURFACE) PRESSURE (P_f & P_s)
~~XXXXXXXXXX~~ ~~XXXXXXXXXX~~

Form C-122-E
 Adopted 9-1-65

Standard Oil Company

COMPANY of Texas

LEASE Bogle Flats Unit "A"

WELL NO.

1

DATE

5-30-66

LOCATION: Unit G

Section

3

Township

22S

Range

23E

L 7206

H

7206

L/H 1.000

G

.658

% CO₂

.59

% N₂

.85

% H₂S

.07

d 1.995 F_r .01823 b_m 2.380

$M^2 c_{fd}$

(L/H) ($F_r Q_m$)²

.001883

P_{Cr}

673

T_{Cr}

371

TABLE IX & X

TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603	7206							
2	GH		0	2370.77	4741.55							
3	37.5GH		0	88,904	177,808							
4	P_c or P_n		2306.2	2582.2	2857.2							
5	P_r		3.43	3.84	4.25							
6	T		535	563.5	592							
7	T_r		1.44	1.52	1.60			Delta P = 3 (37.5 GH)				
8	Z		.732	.781	.823			$I_c + 4 I_1 + I_2$				
9	P/Z P/Z		3150.6	3306.3	3471.7							
10	P/TZ		5.8890	5.8674	5.8644			= 3 (177,808)				
11	$(P/TZ)^2/1000$		.034680	.034426	.034391				161.065 + 646.384 + 161.670			
12	$L/H(F_r Q_m)^2$		.001883	.001883	.001883							
13			.036563	.036309	.036274			= 533,424 = 550.4				
14	I_n		161.065	161.596	161.670			969.119				
15	$M=P_n-P_{n-1}$		276	275								
16	$N=I_n+I_{n-1}$		322.661	323.266				$P_s = \text{Delta } P + P_c$				
17	$M \times N$		89,054	88,898				= 550.4 + 2306.2				
18	$\Sigma (M \times N)$		89,054	177,952				= 2856.6				

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_c & P_w)
(SURFACE)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d F_r Q_m 0 M₂ cfd (L/H) (F_r Q_m)² 0 P_{cr} 673 T_{cr} 371
TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603	0			Delta	P = 3 (37.5 GH)			
2	GH		4741.55	2370.77	0				L _w + 4 I ₁ + I ₂			
3	37.5GH		177,808	88,904	0				= 3 (177,808)			
4	P _c or P _n		2846.6	2586.6	2326.6				170.885 + 683.260 + 171.157			
5	P _r		592	565	538				= 533.424 = 520.3			
6	T		1.60	1.52	1.45				1,025.302			
7	T _r		.823	.782	.739							
8	Z		3458.8	3307.7	3148.3				P _w = P _s - Delta P			
9	P/Z P/Z		5.8426	5.8543	5.8519				= 2846.6 - 520.3			
10	P/TZ		9.6						= 2,326.3			
11	(P/TZ) ² /1000	(10) ² /1000										
12	L/H(F _r Q _m) ²											
13		I ₁ + I ₂										
14	I _n	I ₀ ÷ I ₃	171.157	170.815	170.885							
15	M = P _n - P _{n-1}			260	260							
16	N = I _n + I _{n-1}			341.972	341.700							
17	M x N	I ₅ x I ₆		88,913	88,842							
18	Σ (M x N)	Σ I ₇	177,808	88,895								

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_f & P_s)
(SURFACE) (P_c & P_w)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d 1.995 F_r .01823 Q_m 4.582 M^2_{ctd} (L/H) ($F_r Q_m$)² .006978 P_{ct} 673 T_{ct} 371
TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603		7206		Delta P = 3 (37.5 GH)				
2	GH		0	2370.77		4741.55		$I_t + 4 I_1 + I_2$				
3	37.5GH		0	88,904		177,808						
									= 3 (177,808)			
4	P_c or P_n		2213.2	2516.2	2518.2	2824.2	2828.2		146,748 + 577.252 + 142.603			
5	P_r		3.29	3.74	3.74	4.20	4.20					
6	T		538	565	565	592	592		= 533,424 = 615.5			
7	T_r		1.45	1.52	1.52	1.60	1.60		866.603			
8	Z		.740	.781	.781	.822	.822					
9	P/Z P/Z		2990.8	3221.8	3224.3	3435.8	3440.6		$P_s = P_t + Delta P$			
10	P/TZ		5.5591	5.7023	5.7067	5.8037	5.8118		= 2213.2 + 615.5			
11	(P/TZ) ² /1000	(10) 2/1000	.030904	.032516	.032566	.033683	.033777		= 2,828.7			
12	L/H($F_r Q_m$) ²		.006978	.006978	.006978	.006978	.006978					
13		$I_1 + I_2$	.037882	.039494	.039544	.040661	.040755					
14	I_n	$I_0 + I_3$	146.748	144.384	144.313	142.734	142.603					
15	$M = P_n - P_{n-1}$			303	305	306	310					
16	$N = I_n + I_{n-1}$			291.132	291.061	287.047	286.916					
17	M x N	$I_5 \times I_6$			88,774		88,944					
18	$\Sigma (M \times N)$	ΣI_7			88,774		177,718					

WORK SHEET FOR STEPWISE CALCULATION (SUBSURFACE PRESSURE (P_c & P_w)) (SURFACE)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d F_r Q_m 0 M²cfd (L/H) (F_rQ_m)² 0 P_{cr} 673 T_{cr} 371

TABLE IX & X

TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603		0		Delta P = 3 (37.5 GH)				
2	GH		4741.55	2370.77		0		$\frac{I_w + 4 I_1 + I_2}{1}$				
3	37.5GH		177,808	88,904		0		= 3 (177,808)				
4	P _c or P _n		2828.7	2570.7	2569.7	2311.7			177.990 + 687.748 + 172.034			
5	P _r		4.20	3.82	3.82	3.44						
6	T		592	565	565	538			= 533,424 = 517.0			
7	T _r		1.60	1.52	1.52	1.45			1,031.772			
8	Z		.822	.782	.782	.739						
9	P/Z P/Z	4.8	3441.2	3287.3	3286.1	3128.1		P _w = P _s - Delta P				
10	P/TZ	9.6	5.8128	5.8182	5.8161	5.8143		= 2828.7 - 517.0				
11	(P/TZ) ² /1000	(10) ² /1000						= 2,311.7				
12	L/H(F _r Q _m) ²											
13		I ₁ + I ₂										
14	I _n	I ₀ ÷ I ₃	172.034	171.874	171.937	171.990						
15	M = P _n - P _{n-1}			258	259	258						
16	N = I _n + I _{n-1}			343.908	343.971	343.927						
17	M x N	15 x 16			89,088	88,733						
18	Σ (M x N)	Σ I ₇	177,808		88,720							

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_f & P_s)
(SURFACE) ~~XXXXXX~~

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E
L 7206 H 7206 L/H 1.000 G .658 %CO₂ %N₂ .85 %H₂S .07
d 1.995 F_r.018231 Q_m 5.272 M²ctd (L/I) (F_rQ_m)² .009238 P_{CT} 673 T_{CT} 371
TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603		7206			Delta P	3 (37.5GH)		
2	GH		0	2370.77		4741.55				I _L + 4 I ₁ + I ₂		
3	37.5GH		0	88,904		177,808				= 3 (177,808)		
4	P _c or P _n		2169.2	2482.2	2486.2	2803.2	2811.2			142,142 + 553.040 +	135.572	
5	P _r		3.22	3.69	3.69	4.17	4.18			533,424 =	642.1	
6	T		544	568	568	592	592					
7	T _r		1.47	1.53	1.53	1.60	1.60			830.754		
8	Z		.754	.785	.785	.821	.822					
9	P/Z P/Z		2876.9	3162.0	3167.1	3414.4	3420.0	P _s = P _r + Delta P				
10	P/TZ		9.6	5.2884	5.5759	5.7676	5.7770	=	2169.2 +	642.1		
11	(P/TZ) ² /1000		.027967	.030990	.031091	.033265	.033374	=	2811.3			
12	L/H(F _r Q _m) ²		.009238	.009238	.009238	.009238	.009238					
13			.037205	.040228	.040329	.042503	.042612					
14	I _n		142.142	138.384	138.260	135.699	135.572					
15	M=P _n -P _{n-1}		313	317	317	325						
16	N=I _n +I _{n-1}		280.526	280.402	273.959	273.832						
17	M x N		88,887	88,887		88,995						
18	Σ (M x N)		88,887	177,882								

WORK SHEET FOR STEPWISE CALCULATION
(SURFACE) PRESSURE (P_c & P_w)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas

LEASE Bogle Flats Unit "X"

WELL NO. 1

DATE 5-30-66

LOCATION: Unit

G

Section

3

Township

22S

Range

23E

L 7206

H

7206

L/H

1.000

G

.658

% CO₂

.59

% N₂

.85

% H₂S

.07

d

F_r

Q_m

0

M²cfd

(L/H) (F_rQ_m)²

0

6/3

T_{cr}

371

TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603		0						
2	GH		4741.55	2370.77		0			I _w + 4	I ₁ + I ₂		
3	37.5GH		177,808	88,904		0						
4	P _c or P _n		2811.3	2554.3	2555.3	2300.3	2303.3		3 (177,808)			
5	P _r		4.18	3.80	3.80	3.42	3.42		177.610 + 1698.860 + 173.094			
6	T		592	568	568	544	544		533.444 = 508.2			
7	T _r		.822	.786	.786	.752	.752		1.049,564			
8	Z		3420.1	3249.8	3251.0	3058.9	3062.9	P _w = P _s - Delta P				
9	P/Z P/Z		5.7772	5.7215	5.7236	5.6230	5.6303		2811.3 - 508.2			
10	P/TZ		9÷6									
11	(P/TZ) ² /1000		(10)²/1000									
12	L/H(F _r Q _m) ²											
13			I ₁ + I ₂									
14	I _n		I ₀ ÷ I ₃	173.094	174.779	174.715	177.841	177.610				
15	M = P _n - P _{n-1}			257	256	255	252					
16	N = I _n + I _{n-1}			347.873	347.809	352.556	352.325					
17	M x N		15 x 16		89,039							
18	Σ (M x N)		Σ 17	177,808		88,769						

JUN 1 1966
D. O. D.
ARTERIAL

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_f & P_s)
(SURFACE) (P_c & P_w)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E
L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07
d 1.995 F_r .018231 b_m 4.582 M²cfd (L/H) (F_rQ_m)² .006978 P_{CT} 673 T_{CT} 371
TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603		7206		Delta P	= 3 (37.5 GH)			
2	GH		0	2370.77		4741.55		I _t + 4 I ₁ + I ₂				
3	37.5GH		0	88,904		177,808			= 3 (177,808)			
4	P _c or P _n		2213.2	2516.2	2518.2	2824.2	2828.2		146,748 + 577.252 + 142.603			
5	P _r		3.29	3.74	3.74	4.20	4.20					
6	T		538	565	565	592	592		= 533,424 = 615.5			
7	T _r		1.45	1.52	1.52	1.60	1.60		866.603			
8	Z		.740	.781	.781	.822	.822					
9	P/Z P/Z	4±8	2990.8	3221.8	3224.3	3435.8	3440.6		P _s = P _t + Delta P			
10	P/TZ	9±6	5.5591	5.7023	5.7067	5.8037	5.8118		= 2213.2 + 615.5			
11	(P/TZ) ² /1000	(10) 2/1000	.030904	.032516	.032566	.033683	.033777		= 2,828.7			
12	L/H(F _r Q _m) ²		.006978	.006978	.006978	.006978	.006978					
13		I ₁ + I ₂	.037882	.039494	.039544	.040661	.040755					
14	I _n	I ₀ ÷ I ₃	146.748	144.384	144.313	142.734	142.603					
15	M = P _n - P _{n-1}		303	305	306	310						
16	N = I _n + I _{n-1}		291.132	291.061	287.047	286.916						
17	M x N	15 x 16			88,774							
18	Σ (M x N)	Σ 17			88,774		177,718					

WORK SHEET FOR STEPWISE CALCULATION
(SURFACE) PRESSURE (P_c & P_w)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas

LEASE Bogle Flats Unit "0"

WELL NO. 1

DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 %CO₂ .59 %N₂ .85 %H₂S .07

d Fr 0 M²cfd (L/H) (F_rQ_m)² 0 P_{cr} 673 T_{cr} 371

TABLE IX & X

TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603	0							
2	GH		4741.55	2370.77	0							
3	37.5GH		177,808	88,904	0							
4	P _c or P _n		2856.6	2595.6	2333.6	2331.6						
5	P _r		4.25	3.86	3.47	3.47						
6	T		592	563.5	535	535						
7	T _r		1.60	1.52	1.44	1.44						
8	Z		.823	.781	.732	.732						
9	P/Z P/Z		3471.0	3323.4	3180.0	3185.3						
10	P/TZ		5.8632	5.8978	5.9538							
11	(P/TZ) ² /1000											
12	L/H(F _r Q _m) ²											
13												
14	I _n		170.555	169.555	167.816	167.960						
15	M=P _n -P _{n-1}			261	262	264						
16	N=I _n +I _{n-1}			340.110	337.371	337.515						
17	M x N			88,769		89,104						
18	Σ (M x N)		177,808	89,039								

WORK SHEET FOR STEPWISE CALCULATION (SUBSURFACE) PRESSURE (P_f & P_s)
~~XXXXXXXXXX~~ ~~XXXXXXXXXX~~

Form C-122-E
 Adopted 9-1-65

Standard Oil Co.

COMPANY of Texas LEASE Bogle Flats Unit "B" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d 1.995 F_1 .018234 F_m 3.235 M^2_{ctd} (L/H) ($F_1 Q_m$)² .003478 P_{ct} 673 T_{ct} 371
 TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603		7206		Delta P = 3 (37.5 GH)				
2	GH		0	2370.77		4741.55		$I_t + 4$ $I_1 + I_2$				
3	37.5GH		0	88,904		177,808						
4	P_c or P_n		2278.2	2560.2	2561.2	2844.2	2846.2		= 3 (177,808)			
5	P_r		3.39	3.80	3.81	4.23	4.23					
6	T		538	565	565	592	592		= 533,424 = 568.4			
7	T_r		1.45	1.52	1.52	1.60	1.60		$\frac{938.466}{}$			
8	Z		.739	.782	.782	.823	.823					
9	P/Z or P/Z	$\frac{4}{8}$	3082.8	3273.9	3275.2	3455.9	3458.3		$P_s = P_r + \text{Delta P}$			
10	P/TZ	$\frac{9}{6}$	5.7301	5.7945	5.7968	5.8377	5.8417		= 2278.2 + 568.4			
11	$(P/TZ)^2/1000$	$(10)^2/1000$	.032834	.033576	.033603	.034079	.034125		= 2846.6			
12	$L/H(F_1 Q_m)^2$		.003478	.003478	.003478	.003478	.003478					
13		$I_1 + I_2$	.036312	.037054	.037081	.037557	.037603					
14	I_n	$I_0 \div I_3$	157.802	156.380	156.328	155.436	155.352					
15	$M = P_n - P_{n-1}$			282	283	283	285					
16	$N = I_n + I_{n-1}$			314.182	314.130	311.764	311.680					
17	$M \times N$	15×16			88,899							
18	$\Sigma (M \times N)$	$\Sigma 17$			88,899							

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_c & P_w)
(SURFACE)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d F_r Q_m 0 M²cf/d (L/H) (F_rQ_m)² 0 P_{cr} 673 T_{cr} 371
TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603	0			Delta P = 3 (37.5 GH)				
2	GH		4741.55	2370.77	0			L _w + 4 I ₁ + I ₂				
3	37.5GH		177,808	88,904	0			= 3 (177,808)				
			2846.6	2586.6	2326.6			170.885 + 683.260 + 171.157				
4	P _c or P _n		4.23	3.84	3.46							
5	P _r		592	565	538			= 533.424 = 520.3				
6	T		1.60	1.52	1.45			1,025.302				
7	T _r		.823	.782	.739							
8	Z		3458.8	3307.7	3148.3			P _w = P _s - Delta P				
9	P/Z P/Z	4÷8	5.8426	5.8543	5.8519			= 2846.6 - 520.3				
10	P/TZ	9÷6						= 2,326.3				
11	(P/TZ) 2/1000	(10) 2/1000										
12	L/H(F _r Q _m) ²											
13		I ₁ + I ₂										
14	I _n	I ₀ ÷I ₃	171.157	170.815	170.885							
15	M=P _n -P _{n-1}			260	260							
16	N=I _n +I _{n-1}			341.972	341.700							
17	M x N	15 x 16		88,913	88,842							
18	Σ (M x N)	Σ 17	177,808	88,895								

WORK SHEET FOR STEPWISE CALCULATION (SURFACE) PRESSURE (P_c & P_w)

Form C-122-E
 Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit 3/4" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d F_r Q_m 0 M²cd (L/H) (F_rQ_m)² 0 P_{cr} T_{cr} 371

TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603		0		Delta	3 (37.5 GH)			
2	GH		4741.55	2370.77		0			$(F_r + I_1 + I_2)$			
3	37.5GH		177,808	88,904		0						
4	P _c or P _n		2811.3	2554.3	2555.3	2300.3	2303.3		$= 3 (177,808)$			
5	P _r		4.18	3.80	3.80	3.42	3.42		177.610 + 1698.860 + 173.094			
6	T		592	568	568	544	544		$= 533,424 = 508.2$			
7	T _r		.822	.786	.786	.752	.752		1,049.564			
8	Z		3420.1	3249.8	3251.0	3058.9	3062.9	P _g - P _s - Delta P				
9	P/Z P/Z	$\bar{4} \div \bar{8}$	5.7772	5.7215	5.7236	5.6230	5.6303		2811.3 - 508.2			
10	P/TZ	$\bar{9} \div \bar{6}$							2303.1			
11	(P/TZ) ² /1000	(10) ² /1000										
12	L/H(F _r Q _m) ²											
13		$\bar{11} + \bar{12}$										
14	I _n	$\bar{10} \div \bar{13}$	173.094	174.779	174.715	177.841	177.610					
15	M=P _n -P _{n-1}			257	256	255	252					
16	N=I _n +I _{n-1}			347.873	347.809	352.556	352.325					
17	M x N	$\bar{15} \times \bar{16}$			89,039		88,786					
18	$\Sigma (M \times N)$	$\Sigma \bar{17}$	177,808		88,769							

WORK SHEET FOR STEPWISE CALCULATION
(SUBSURFACE) PRESSURE (P_f & P_s)
(SURFACE) ~~XXXXXX~~

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas

LEASE Bogle Flats Unit "X"

WELL NO. 1

DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % H₂S .07
d 1.995 F_r .018231 Q_m 5.272 M₂ c/d (L/H) (F_r Q_m)² .00238 P_{cr} 673 T_{cr} 371
TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603		7206			Delta P - 3 (37.5GH)			
2	GH		0	2370.77		4741.55			I ₁ + 4 I ₁ + I ₂			
3	37.5GH		0	88,904		177,308			= 3 (177,308)			
4	P _c or P _n		2169.2	2482.2	2486.2	2803.2	2811.2		142.142 + 553.040 + 135.572			
5	P _r		3.22	3.69	3.69	4.17	4.18					
6	T		544	568	568	592	592		533.424 = 642.1			
7	T _r		1.47	1.53	1.53	1.60	1.60		830.754			
8	Z		.754	.785	.785	.821	.822					
9	P/Z P/Z		2876.9	3162.0	3167.1	3414.4	3420.0	P _s = P _r + Delta P				
10	P/TZ		5.2884	5.5669	5.5759	5.7676	5.7770		2169.2 + 642.1			
11	(P/TZ) ² /1000	(10) ² /1000	.027967	.030990	.031091	.033265	.033374		2811.3			
12	L/H(F _r Q _m) ²		.009238	.009238	.009238	.009238	.009238					
13		I ₁ + I ₂	.037205	.040228	.040329	.042503	.042612					
14	I _n	I ₀ ÷ I ₃	142.142	138.384	138.260	135.699	135.572					
15	M = P _n - P _{n-1}			313	317	317	325					
16	N = I _n + I _{n-1}			280.526	280.402	273.959	273.832					
17	M × N	15 × 16			88,887		88,995					
18	Σ (M × N)	Σ 17			88,887		177,882					

WORK SHEET FOR STEPWISE CALCULATION
(SURFACE) PRESSURE (P_c & P_w)

Form C-122-E
Adopted 9-1-65

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E

L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07

d F_r Q_m 0 M²cfd (L/H) (F_rQ_m)² 0 P_{CT} 673 T_{CT} 371

TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		7206	3603		0		Delta P = 3 (37.5 GH)				
2	GH		4741.55	2370.77		0		$\frac{L_w}{L_w + 4 I_1 + I_2}$				
3	37.5GH		177,808	88,904		0		= 3 (177,808)				
4	P _c or P _n		2828.7	2570.7	2569.7	2311.7			177.990 + 687.748 + 172.034			
5	P _r		4.20	3.82	3.82	3.44						
6	T		592	565	565	538			= 533,424 = 517.0			
7	T _r		1.60	1.52	1.52	1.45			1,031.772			
8	Z		.822	.782	.782	.739						
9	P/Z P/Z		3441.2	3287.3	3286.1	3128.1		P _w = P _s - Delta P				
10	P/TZ		5.8128	5.8182	5.8161	5.8143		= 2828.7 - 517.0				
11	(P/TZ) ² /1000							= 2,311.7				
12	L/H(F _r Q _m) ²											
13												
14	I _n		172.034	171.874	171.937	171.990						
15	M=P _n -P _{n-1}			258	259	258						
16	N=I _n +I _{n-1}			343.908	343.971	343.927						
17	M x N				89,088	88,733						
18	Σ (M x N)		177,808		88,720							

Standard Oil Company

COMPANY of Texas LEASE Bogle Flats Unit "X" WELL NO. 1 DATE 5-30-66

LOCATION: Unit G Section 3 Township 22S Range 23E
 L 7206 H 7206 L/H 1.000 G .658 % CO₂ .59 % N₂ .85 % H₂S .07
 d 1.995 $F_r \cdot 0.01823 D_m$ 2.380 $M^2 cfd$ (L/H) ($F_r Q_m$)² .001883 P_{cr} 673 T_{cr} 371
 TABLE IX & X TABLE IX & X

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	3603	7206							
2	GH		0	2370.77	4741.55							
3	37.5GH		0	88,904	177,808							
4	P_c or P_n		2306.2	2582.2	2857.2							
5	P_r		3.43	3.84	4.25							
6	T		535	563.5	592							
7	T_r		1.44	1.52	1.60			Delta $P = 3$ (37.5 GH)				
8	Z		.732	.781	.823			$I_r + 4$	$I_1 + I_2$			
9	P/Z or P/Z	$4 \div 8$	3150.6	3306.3	3471.7							
10	P/TZ	$9 \div 6$	5.8890	5.8674	5.8644			$= 3$ (177,808)				
11	$(P/TZ) \cdot 2/1000$	$(10) 2/1000$	.034680	.034426	.034391			$161.095 + 646.384 + 161.670$				
12	$L/H(F_r Q_m)^2$		.001883	.001883	.001883							
13		$I_1 + I_2$	.036563	.036309	.036274			$= 533,474 \therefore 550.4$				
14	I_n	$10 \div 13$	161.065	161.596	161.670			969.119				
15	$M = P_n - P_{n-1}$			276	275							
16	$N = I_n + I_{n-1}$			322.661	323.266			$P_s = \text{Delta } P + P_r$				
17	$M \times N$	15×16		89,054	88,898			$= 550.4 + 2306.2$				
18	$\Sigma (M \times N)$	$\Sigma 17$		89,054	177,952			$= 2856.6$				