

VOLUME 1: 1370 PSIA 1: 5353.2
2: 1776 2: 4918.2

FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SUBSURFACE) PRESSURE (Ps)
 COMPANY : POGO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : SECTION : 18 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 G/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 0
 d : 2.000 Fr : 0.017670 Qm : 1.370 (L/H) (FrQm) 0.000586

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5
1	H		0	6961		13921	
2	SH		0	4983.72		9967.44	
3	137.55H		0	186889		373779	
4	Pc on Pn		5353.2	6316.3	6285.1	7215.1	7215.1
5	Pn		3.01	9.46	9.41	10.80	10.80
6	T		534	603.605	603.605	673.21	673.21
7	T		1.35	1.53	1.53	1.70	1.70
8	T		0.978	1.090	1.087	1.178	1.178
9	P/Pn	4/8	5473.4	5793.7	5782.0	6124.3	6124.3
10	P/Pn	9/6	10.2497	9.5985	9.5792	9.0972	9.0972
11	Ln10(P/Pn) (10)2/100		0.10506	0.09217	0.09176	0.08276	0.08276
12	L/H(FrQm)2		0.000586	0.000586	0.000586	0.000586	0.000586
13		11+12	0.105643	0.092717	0.092346	0.083345	0.083345
14	T	10/13	67.022	103.515	103.701	109.151	109.151
15	(P-Pn)/Pn			963	932	970	977
16	(P-Pn)/Pn			200.547	200.753	212.852	212.882
17	(P-Pn)/Pn	15+16			137082		136697
18	SLM(Pn)	SLM17			137082		373779

DELTA P = 1805.4
Ps = 7158.6

FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SUBSURFACE) PRESSURE P_r & P_s

COMPANY : POBO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : 0 SECTION : 18 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 S/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 0
 d : 2.000 Fr : 0.017670 Qm : 1.776 $\times$ (L/H) (Fr Qm) 0.000985

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5
1	H		0	6961		13921	
2	GH		0	4983.72		9967.44	
3	37.5GH		0	186889		373779	
							$P_s = 6676.2$
4	Pc or Pn		4918.2	5857.7	5826.4	6732.4	6732.4
5	Pr		7.36	8.77	8.72	10.08	10.08
6	T		534	603.605	603.605	673.21	673.21
7	Tr		1.35	1.53	1.53	1.70	1.70
8	Z		0.925	1.044	1.040	1.136	1.136
9	P/ZP/Z	4/8	5315.8	5613.3	5600.3	5928.7	5928.7
10	P/TZ	8/6	9.9346	9.2997	9.2780	8.8066	8.8066
11	$\ln(10^2/1000) / (10^2/100)$		0.09909	0.08648	0.08608	0.07756	0.07756
12	$L/H(Fr Q_m)^2$		0.000985	0.000985	0.000985	0.000985	0.000985
13		11-12	10.100079	10.087469	10.087067	10.078540	10.078540
14	In	10/13	99.467	106.320	106.562	112.128	112.128
15	$\Delta P = P_n - P_{n-1}$			639	908	906	634
16	$N = In - In-1$			205.787	206.030	218.690	218.690
17	$M = N$	15x16			137109		136689
18	SUM(MxN)	SUM17			137109		373779

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FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SUBSURFACE) PRESSURE ΔP & P_s

COMPANY : POGO PRODUCING LEASE : NBR ST FEEDWELL NO. : 1 DATE : 7 18 91
UNIT : SECTION : 18 TOWNSHIP : 22 RANGE : 33
L : 13921 H : 13921 L/H : 1.0 G/GMIX : 0.716
CO2 : 0.36 N2 : 1.42 H2S : 0
d : 2.000 Fr : 0.017670 Gm : 2.409 γ (L/H) (FrGm) 0.001812

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5
1	H		0	6961		13921	
2	GH		0	4983.72		9967.44	$\Delta P = 1767.6$
3	137.5GH		0	186889		373779	
							$P_s = 6625.8$
4	Pc on Pn		4858.2	5801.4	5770.6	6681.0	6681.0
5	Pr		7.27	8.68	8.64	10.00	10.00
6	T		534	603.605	603.605	673.21	673.21
7	T-		1.35	1.53	1.53	1.70	1.70
8	L		0.918	1.038	1.035	1.131	1.131
9	P/ZP/Z	4/8	5292.3	5589.8	5576.8	5906.7	5906.7
10	P/TZ	9/6	9.9107	9.2607	9.2391	8.7740	8.7740
11	$\ln(10^{12}/1000)$	$(10^{12}/1000)$	0.69822	0.68576	0.68536	0.07698	0.07698
12	L/H(FrGm)/2		0.001812	0.001812	0.001812	0.001812	0.001812
13		11+12	0.100034	0.087572	0.087177	0.078794	0.078794
14	In	10/13	11.074	105.749	105.986	111.353	111.353
15	M=Pn-Pn-1			843	812	910	859
16	N=In+In-1			204.823	205.059	217.339	217.339
17	M x N	15x16			187105		186674
18	SUM(MxN)	SUM17			187105		373779

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FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SUBSURFACE) PRESSURE (Psi & Ps)

COMPANY : POGO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : 0 SECTION : 18 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 G/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 0
 d : 2.000 Fr : 0.017670 Qm : 2.607 (L/H)(FrQm)0.002122

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5
1	H		0	6961		13921	
2	GH		0	4983.72		6967.44	DELTA P = 1739.1
3	37.5GH		0	186889		373779	Ps = 6347.3
4	Pc or Pn		4608.2	5536.7	5506.1	6401.9	6401.9
5	Pr		5.90	8.29	8.24	9.58	9.58
6	T		534	603.605	603.605	673.21	673.21
7	Tr		1.35	1.53	1.53	1.70	1.70
8	Z		0.888	1.011	1.008	1.107	1.107
9	P/ZP/Z	4/8	5189.3	5474.3	5460.4	5783.5	5783.5
10	P/TZ	9/6	9.7179	9.0693	9.0464	8.5910	8.5910
11	Ln10^2/1000(10)2/100		0.09444	0.08225	0.08184	0.07381	0.07381
12	L/H(FrQm)2		0.002122	0.002122	0.002122	0.002122	0.002122
13		11+12	0.096559	0.084374	0.083959	0.075927	0.075927
14	In	10/13	100.642	107.489	107.748	113.148	113.148
15	M=Pn-Pn-1			928	898	896	845
16	N=In-In-1			208.131	208.390	220.896	220.896
17	M x N	15x16			187122		186657
18	SUM(MxN)	SUM17			187122		373779

FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SURFACE) PRESSURE (P_{sc} & P_w)

COMPANY : POGO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : 0 SECTION : 18 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 S/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 1.42
 d : 2.000 Fr : 0.017670 Qm : 0.000 (L/H) (Fr Qm) 0.000000

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5	6
1	H		13921	6961		0		
2	GH		19967.436	4983.72		0		
3	37.5GH		373779	186889		0		
4	Pc or Pn		6676.2	5853.3	5831.0	4987.2	4931.9	4936.8
5	Pr		10.08	8.76	8.73	7.47	7.38	7.39
6	T		673.21	603.605	603.605	534	534	534
7	Tr		1.70	1.53	1.53	1.35	1.35	1.35
8	Z		1.136	1.043	1.041	0.934	0.934	0.927
9	P/ZP/Z	4/8	5928.7	5611.5	5602.2	5342.2	5283.0	5322.9
10	P/TZ	7/6	8.8066	7.2957	7.2813	10.0041	9.8933	9.9680
11	Ln10*2/1000(10)2/100(1)							
12	L/H(FrQm)2							
13		11+12						
14	In	10/13	113.552	107.565	107.744	99.959	101.079	100.521
15	m=Pn-Pn-1			823	845	844	899	894
16	N=In+In-1			221.117	221.296	207.703	208.822	208.065
17	M x N	15x16			197040			186061
18	SUM(MxN)	SUM17	373779		196739			

DELTA P = 1738.9

Pw = 4937.3

FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SURFACE) PRESSURE (P_e & P_w)

COMPANY : POGO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : 0 SECTION : 18 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 G/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 0
 d : 2.000 Fr : 0.017670 Q_m : 0.000 (L/H) (Fr Q_m) 0.000000

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5	6
1	H		13921	6961		0		
2	GH		19967.436	4983.72		0		DELTA P = 1732.7
3	37.56H		373779	186689		0		P _w = 4893.1
4	P _e or P _n		6625.8	5806.0	5783.7	4942.9	4887.7	4889.4
5	P _r		10.00	8.69	8.66	7.40	7.32	7.32
6	T		673.21	603.605	603.605	534	534	534
7	Tr		1.70	1.53	1.53	1.35	1.35	1.35
8	Z		1.131	1.038	1.036	0.928	0.922	0.922
9	P/ZP/Z	4/8	5906.7	5591.7	5582.3	5325.3	5303.9	5304.6
10	P/TZ	9/6	8.7740	9.2638	9.2483	9.9725	9.9324	9.9336
11	Ln10 ² /1000	(10)2/100						
12	L/H(Fr Q _m) ²							
13		11+12						
14	In	10/13	113.974	107.947	108.128	100.276	100.681	100.668
15	M=P _n -P _{n-1}			520	842	841	896	594
16	N=In-In-1			221.920	222.102	208.404	208.809	208.796
17	M x N	15x16			187043			186725
18	SUM(MxN)	SUM17	373779		186736			

FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SURFACE) PRESSURE P_w & P_w

COMPANY : POBO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : 0 SECTION : 19 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 G/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 0
 d : 2.000 Fr : 0.017670 Qm : 0.000 (L/H) (Fr Qm) 0.000000

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5	6
1	H		13921	6961		0		
2	GH		19967.436	4983.72		0		
3	37.5GH		373779	186889		0		
4	Pc or Pn		7159.6	6308.5	6285.9	5414.5	5359.5	5361.0
5	Pr		10.80	9.44	9.41	9.11	8.02	8.03
6	T		673.21	603.605	603.605	534	534	534
7	Tr		1.70	1.53	1.53	1.35	1.35	1.35
8	Z		1.178	1.089	1.087	0.986	0.979	0.979
9	P/ZP/Z	4/8	6124.3	5790.8	5782.3	5494.0	5475.5	5476.0
10	P/Z	9/6	9.0972	9.5937	9.5797	10.2884	10.2537	10.2547
11	Ln10^2/(1000)((10)/2/100)							
12	L/H(Fr Qm)^2							
13		11+12						
14	In	10/13	109.924	104.235	104.388	97.197	97.825	97.516
15	M=Pn-Pn-1			850	873	971	925	925
16	M=In-In-1			214.159	214.311	201.585	201.913	201.904
17	M x N	15x16			187022			196748
18	SUM(M/N)	SUM17	373779		186757			

DELTA P = 1794.2

Pw = 5364.4

FORM C-122E WORKSHEET FOR STEPWISE CALCULATION (SURFACE) PRESSURE (P_s & P_w)

COMPANY : POGO PRODUCING LEASE : NBR ST FEDWELL NO. : 1 DATE : 7 18 91
 UNIT : 0 SECTION : 18 TOWNSHIP : 22 RANGE : 33
 L : 13921 H : 13921 L/H : 1.0 G/GMIX : 0.716
 CO2 : 0.36 N2 : 1.42 H2S : 1.42
 d : 2.000 Fr : 0.017670 Qm : 0.000 (L/H) (FrQm) 0.000000

PCR : 668 TCR : 395

LINE	ITEM	SOURCE	1	2	3	4	5	6	
1	H		13921	6961		0			
2	GH		9967.436	4983.72		0			DELTA P = 1697.6
3	37.5GH		373779	186889		0			
4	Pc or Pn		6347.3	5544.5	5522.5	4699.2	4644.0	4649.0	Pw = 4649.7
5	Pr		9.58	8.30	8.27	7.03	6.95	6.96	
6	T		673.21	603.605	603.605	534	534	534	
7	Tr		1.70	1.53	1.53	1.35	1.35	1.35	
8	Z		1.107	1.012	1.010	0.899	0.899	0.893	
9	P/ZP/Z	4/8	5783.5	5477.8	5467.9	5227.8	5166.4	5206.7	
10	P/TZ	9/6	8.5910	9.0752	9.0587	9.7900	9.6749	9.7504	
11	Ln10*2/1000	(10)2/100							
12	L/H(FrQm)2								
13		11+12							
14	In	10/13	116.401	110.191	110.391	102.146	103.360	102.559	
15	M=Pn-Pn-1			803	825	823	879	574	
16	N=In+In-1			226.592	226.792	212.537	213.752	212.951	
17	M x N	15x16			187055			186025	
18	SUM(MxN)	SUM17	373779		186724				