

WORK SHEET FOR STEPWISE CALCULATION

(P_f & P_g)
PRESSURE
(SURFACE) (P_c & P_w)

Form C-122-E

RATE NO. 1

NAME Monsanto Company LEASE Cert Federal WELL NO. 2 DATE 10-20-76

SECTION 10 TOWNSHIP 21S RANGE 27E

10239 H 10239 L/H 1.00 G 0.793 % CO₂ 0.00 % N₂ 0.00 % H₂S 0.00
d F_r Q_m M₂ cfd (L/H) (P_r Q_w)² P_{cr} 666 T_{cr} 421

DE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		10239	5120		0						
2	GH		8120	4060		0						
3	37.56H		304482	152241		0						
4	P _c or P _n		3167.6	2664.1	2652.5	2138.2	2114.4					
5	P _r		4.76	4.00	3.98	3.21	3.17					
6	P _w		614	566	566	517	517					
7	P _r		1.46	1.34	1.34	1.23	1.23					
8	Z		0.780	0.680	0.679	0.571	0.570					
9	P/2 P/2		4061.03	3916.69	3905.36	3743.34	3710.80					
10	P/P _w		9 ÷ 6	6.6140	6.9061	7.2405	7.1776					
11	(P/P _w) ² / 1000		(10 ² / 1000)									
12	/H(P _r Q _w) ²											
13	11 + 12											
14	10 ÷ 13		151.193	144.382	144.800	138.112	139.323					
15	N = P _n - P _{n-1}			503	515	514	538	536				
16	N = 1 + N - 1			295.575	295.994	282.912	284.124					
17	M x N		15 x 16		152437		152859					
18	Σ (M x N)		Σ 17		152437		305296					

$$\Delta P = \frac{3[304482]}{151.193 + 4[144.000] + 139.323} = \frac{913447}{869.716} = 1050.3 \quad P = 3167.6 - 1050.3 = 2117.3$$