

WORK SHEET FOR STEPWISE CALCULATION

(SUBSURFACE) PRESSURE (P_f & P_g)
~~XXXXXXXXXX~~ (P_c & P_w)

Form C-122-E

RATE NO. 4

PAYEE 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 1.995 F 0.018231 Q_m 1.798 W_{cfD} (L/H) ($P Q_m$)² 0.001074 P_{cr} 666 T_{cr} 421

ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1		0	5120	10239							
2	GH	0	4060	8120							
3	37.5GH	0	152241	304482							
4	P _c or P _n	2023.2	2528.2	3033.2	3029.2						
5	P _r	3.04	3.80	4.55	4.55						
6	T	529	572	614	614						
7	T _r	1.26	1.36	1.46	1.46						
8	Z	0.590	0.636	0.771	0.770						
9	P/Z P/Z	4 ÷ 3	3426.83	3685.42	3933.09	3931.98					
10	P/P _n	9 ÷ 5	6.4779	6.4487	6.4057	6.4039					
11	(P/P _n) ² /1000	(10 ² /1000)	0.041964	0.041586	0.041033	0.041010					
12	(P/P _n) ²		0.001074	0.001074	0.001074	0.001074					
13	T _n	11 ÷ 12	0.043039	0.042650	0.042107	0.042004					
14	T _n	10 ÷ 13	150.516	151.165	152.128	152.168					
15	P _n - P _{n-1}		305	504	501	501					
16	P _{n-1} + P _{n-1}		301.681	303.292	303.333						
17	H x N	15 x 16	152349		151970						
18	Σ (H x N)	Σ 17	152349		304319						

Delta P = $\frac{3[304482]}{150.516 + 4[151.165] + 152.168} = \frac{913447}{907.344} = 1006.7$ P = 2023.2 + 1006.7 = 3029.9