

WORK SHEET FOR STEPWISE CALCULATION

(SUBSURFACE)

PRESSURE

(P_f & P_s)

(SURFACE)

(P_c & P_w)

Form C-122-E

COMPANY MONSANTO COMPANY LEASE LONE TREE WELL NO. 1 DATE 7/20/77
 LOCATION: UNIT K SECTION 13 TOWNSHIP 21S RANGE 27E
 L 9497 H 9497 L/H 1.0 G .888 % CO₂ 0 %H₂S 0
 d 1.995 F_r .018231 Q_m .428 M² cfd (L/H) (F_r Q_m)² .000061 P 663 T 451 cr

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		0	4748			9497					
2	GH		0	4216			8432					
3	37.5GH		0	158125			316250					
4	P _c or P _n		613.2	733.5	736.9	740.7	868.7	875.9	884.3			
5	P _r		.924	1.106	1.111	1.118	1.310	1.321	1.333			
6	T		530	567.5	567.5	567.5	605	605	605			
7	T _r		1.18	1.26	1.26	1.26	1.34	1.34	1.34			
8	Z		.781	.823	.823	.824	.810	.808	.807			
9	P/Z P/Z	$\bar{4} \div \bar{8}$	785.147	891.348	895.407	898.939	1072.552	1084.054	1095.839			
10	P/TZ	$\bar{9} \div \bar{6}$	1.4814	1.5706	1.5778	1.5840	1.7728	1.7918	1.8113			
11	(P/TZ ² /1000	$(10^2/1000)$	.002195	.002467	.002489	.002509	.003143	.003211	.003281			
12	L/H (F _r Q _m) ²		.000061	.000061	.000061	.000061	.000061	.000061	.000061			
13	I _n	$\bar{11} + \bar{12}$	.002256	.002578	.002550	.002570	.003204	.003272	.003342			
14	M=P _n -P _{n-1}	$\bar{10} \div \bar{13}$	656.776	621.312	618.631	616.316	553.335	547.684	542.010			
15	N=1 _n +1 _{n-1}			120	124	128	128	135	144			
16	M x N			1313.55	1278.08	1239.94	1234.95	1169.65	1101.01			
17	Σ (M x N)					158712			158545			
18						158712			317257			

$$\text{Delta P} = 656.776 + 4 (616.316) + 542.010 = 3664.050 = 258.9 \text{ P} = 613.2 + 258.9 = 872.1$$