WORK SHEET FOR STEPWISE CALCULATION ~~XXSURFACEXX~~ PRESSURE (P_f & P_s) (SURFACE) (P_c & P_w) Form C-122-E

RATE NO. 3

PANY Monsanto Company LEASE Cerf Federal WELL NO. 2 DATE 10-20-76

ATION: UNIT F SECTION 10 TOWNSHIP 21S RANGE 27E

10239 H 10239 L/H 1.00 G 0.793 % CO_2 0.00 % N_2 0.00 % H_2S 0.00

d ____ F_r ____ Q_m ____ M^2cfd (L/H) $(F_rQ_M)^2$ ____ P_{cr} 666 T_{cr} 421

NE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
	H		10239	5120		0						
	GH		8120	4060		0						
	37.5GH		304482	152241		0						
	P_c or P_n		3114.9	2617.4	2613.1	2111.7	2100.7					
	P_r		4.68	3.93	3.92	3.17	3.15					
	T		614	571	571	527	527					
	T_r		1.46	1.36	1.36	1.25	1.25					
	Z		0.776	0.690	0.690	0.587	0.586					
	P/Z P/Z	$\overline{4} \div \overline{8}$	4013.01	3793.32	3788.22	3597.38	3584.78					
	P/TZ	$\overline{9} \div \overline{6}$	6.5359	6.6491	6.6402	6.8261	6.8022					
	$(P/TZ)^2/1000$	$(10^2/1000$										
	$^1/H(F_rQ_m)^2$											
		$\overline{11} + \overline{12}$										
	^1n	$\overline{10} \div \overline{13}$	153.002	150.396	150.598	146.496	147.011					
	$N=P_n - P_n -$ 1			498	502	501	512	512				
	$N=^1n + ^1n-1$			303.398	303.601	297.094	297.609					
	M x N	$\overline{15} \times \overline{16}$			152408		152376					
	$\sum$ (M x N)	$\sum$ $\overline{17}$			152408		304784					

Delta P = $\frac{3[\ 304482\ ]}{153.002 + 4[\ 150.598\ ] + 147.011} = \frac{913447}{902.405} = 1012.2$ P = 3114.9 - 1012.2 = 2102.7