

WORK SHEET FOR STEPWISE CALCULATION

(SUBSURFACE)

PRESSURE (P<sub>f</sub> & P<sub>s</sub>)

FORM C-122-E

(SURFACE)

PRESSURE (P<sub>c</sub> & P<sub>w</sub>)

RATE NO. 1

COMPANY GULF OIL CORP. LEASE WHITE CITY PEN GAS COM UNIT WELL NO. 3 DATE 1-18-77

LOCATION: UNIT SECTION TOWNSHIP RANGE

11157 H 11157 L/H 1.00 G 0.579 % CO<sub>2</sub> 0.00 % N<sub>2</sub> 0.00 % H<sub>2</sub>S 0.00

d F<sub>r</sub> Q<sub>m</sub> M<sup>2</sup> cfd (L/H) (F<sub>r</sub> Q<sub>m</sub>)<sup>2</sup> P<sub>cr</sub> 671 T 358 Cr

LINE	ITEM	SOURCE	1	2	3	4	5	6	7	8	9	10
1	H		11157	5579		0						
2	GH		6460	3230		0						
3	37.5GH		242246	121123		0						
4	P <sub>c</sub> or P <sub>n</sub>		4780.0	4328.0	4310.7	3841.8	3792.4	3800.3				
5	P <sub>r</sub>		7.12	6.45	6.42	5.73	5.65	5.66				
6	T		645	583	583	520	520	520				
7	T <sub>r</sub>		1.80	1.63	1.63	1.45	1.45	1.45				
8	Z		0.993	0.922	0.920	0.808	0.824	0.825				
9	P/Z P/Z	$\bar{4} \div \bar{8}$	4813.70	4694.68	4684.48	4754.71	4602.43	4606.42				
10	P/TZ	$\bar{9} \div \bar{6}$	7.4631	8.0595	8.0420	9.1437	8.8508	8.8585				
11	(P/TZ) <sup>2</sup> /1000	$(10^2/1000)$										
12	L/H(F <sub>r</sub> Q <sub>m</sub> ) <sup>2</sup>											
13		$\bar{11} + \bar{12}$										
14	I <sub>n</sub>	$\bar{10} \div \bar{13}$	133.993	124.077	124.347	109.365	112.984	112.886				
15	M=P <sub>n</sub> <sup>-1</sup>			452	469	469	518	510	511			
16	N=L <sub>n</sub> <sup>+1</sup>			258.069	258.340	233.712	237.331	237.233				
17	M x N	$\bar{15} \times \bar{16}$		121161	121161			120989				
18	(M x N)	$\bar{17}$		121161	121161			242150				

Delta P =  $\frac{3[242246]}{133.993 + 4[124.347] + 112.886} = \frac{726739}{744.267} = 976.4$  P = 4780.0 - 976.4 = 3803.6