

RUN NUMBER 10

MONTEBELLO SYNTHESIS UNIT
CALCULATION OF YIELDS

	FRESH FEED			WET GAS			CHANGE			POLY Y'LD			
	%	m/hr	#/hr	%	m/hr	#/hr	mols	C	H	O	#/hr	gal/hr	
CO	35.7	7.255	203.1	4.4	0.214	6.0	-7.041	-7.041		-7.041			
H2	59.7	12.161	24.3	50.5	2.470	4.9	-9.691		-19.382				
CO2	2.3	0.467	20.6	26.8	1.311	57.7	0.844	0.844			1.688		
N2	0.9	0.183	5.1	4.7	0.230	6.4	0.047						
CH4	1.4	0.284	4.5	10.1	0.491	7.9	0.207	0.207	0.828				
C2H4				1.4	0.066	1.5	0.066	0.132	0.264				
C2H6				0.2	0.008	0.2	0.008	0.016	0.048				
C3H6				0.5	0.023	1.0	0.023	0.069	0.138		0.90	0.87	0.14
C3H8				0.0									
C4H8				0.5	0.024	1.4	0.024	0.096	0.192		0.95	1.22	0.27
C5H10				0.3	0.016	0.9	0.016	0.064	0.160			0.93	0.19
C5H10				0.6	0.027	1.9	0.027	0.135	0.270			1.89	0.35
OIL								5.478	10.956			76.85	11.1
WATER									6.526	5.353			
TOTAL		20.35	257.6		4.88	90.2	15.47			3243		81.8	12.7

Contraction: $15.47/20.35 = 76.0\%$
 Conversion of CO: $7.041/7.255 = 97.0\%$
 Conversion of H2: $9.691/12.161 = 79.7\%$

CO Converted to:

	mols/hr	%	%
CO2	0.844	11.6	12.0
C1 & C2	0.355	4.9	5.0
C3 & Heavier	5.842	80.5	83.0
Unconverted	0.214	3.0	

Oil Yield: $11.8 / 2.45 = 4.81$ gal. "recovered" oil per MCF natural gas fed to generator
 $12.7 / 2.45 = 5.19$ gal. ultimate oil per MCF natural gas fed to generator
 $= 123.2$ bbl. ultimate oil per MMCF natural gas fed to generator

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RUN NUMBER 11A

MONTEBELLO SYNTHESIS UNIT
CALCULATION OF YIELDS

	FRESH FEED			WET GAS			CHANGE			POLY Y'LD	#/hr	gal/hr
	%	m/hr	#/hr	%	m/hr	#/hr	mols	C	H			
CO	34.9	7.629	213.8	7.0	0.586	16.4	-7.043	-7.043				
H2	58.0	12.679	25.3	50.0	4.165	8.3	-8.514		-17.028			
CO2	2.0	0.438	19.3	22.0	1.835	80.8	1.397	1.397			2.794	
N2	2.3	0.504	14.1	3.2	0.267	7.5	-0.237					
CH4	2.8	0.614	9.8	10.6	0.886	14.2	0.272	0.272	1.088			
C2H4				1.9	0.156	4.4	0.156	0.312	0.624			
C2H6				0.7	0.059	1.8	0.059	0.118	0.354			
C3H6				1.7	0.143	6.0	0.143	0.429	0.858	0.90	5.41	0.86
C3H8				0.2	0.020	0.9	0.020	0.060	0.160			
C4H8				1.5	0.124	6.9	0.124	0.496	0.992	0.95	6.07	0.99
C4H10				0.3	0.026	1.5	0.026	0.104	0.260		1.51	0.31
C5H10				0.9	0.073	5.1	0.073	0.365	0.730		5.11	-0.95
OIL								3.490*	6.980		48.85	7.52
WATER									4.982*	4.249*		
TOTAL		21.864	282.3		8.34	153.8	13.524			2.491	66.95	10.63

Contraction: 13.52/21.86 = 61.9 %
 Conversion of CO: 7.043/7.629 = 92.2 %
 Conversion of H2: 8.514/12.679 = 67.2 %

CO Converted to:

	mols/hr	%	%
CO2	1.397	18.3	19.8
C1 & C2	0.702	9.2	10.0
C3 and Heavier	4.944	64.8	70.2
Unconverted	0.586	7.7	

Oil Yield: 7.52 / 2.79 = 2.70 gal. "recovered" oil per MCF natural gas fed to generator
 10.63 / 2.79 = 3.82 gal. ultimate oil per MCF natural gas fed to generator
 = 90.9 bbl. ultimate oil per MMCF natural gas fed to generator

11A

RUN NUMBER 11 B

MONTEBELLO SYNTHESIS UNIT
CALCULATION OF YIELDS

	FRESH FEED			WET GAS			CHANGE			POLY WLD	#/hr	gal/hr
	%	m/hr	#/hr	%	m/hr	#/hr	mols	C	H			
CO	35.1	8.705	244.0	7.3	0.757	21.2	-7.948	-7.948			-7.948	
H2	59.5	14.756	29.5	46.8	4.824	9.6	-9.932		-19.864			
CO2	2.1	0.521	22.9	20.1	2.063	90.9	1.542	1.542			3.084	
N2	1.3	0.322	9.0	3.3	0.337	9.4	0.015					
CH4	2.0	0.496	7.9	14.2	1.462	23.4	0.966	0.966	3.864			
C2H4				2.0	0.206	5.8	0.206	0.412	0.824			
C2H6				1.4	0.140	4.2	0.140	0.280	0.840			
C3H6				1.6	0.164	6.9	0.164	0.492	0.984	0.90	6.20	0.99
C3H8				0.4	0.041	1.8	0.041	0.123	0.328			
C4H8				1.5	0.156	8.7	0.156	0.624	1.248	0.95	8.30	1.36
C4H10				0.4	0.041	2.4	0.041	0.164	0.410		2.38	0.49
C5H10				1.0	0.099	6.9	0.099	0.495	0.990		6.93	1.28
OIL								2.850*	5.700		39.9	5.26
WATER									4.676*	4.864*		
TOTAL		24.80	313.3		10.29	191.2	14.51			2338	63.71	9.38

Contraction: 14.51/24.80 = 58.5 %
 Conversion of CO: 7.948/8.705 = 91.3 %
 Conversion of H2: 9.932/14.756 = 67.4 %

CO Converted to:

	mols/hr	%	%
CO2	1.542	17.7	19.4
C1 & C2	1.658	19.1	20.9
C3 & Heavier	4.748	54.5	59.7
Unconverted	0.757	8.7	

11 B

Oil Yield: 5.26 / 3.2 = 1.65 gal. "recovered" oil per MCF natural gas fed to generator
 9.38 / 3.2 = 2.93 gal. ultimate oil per MCF natural gas fed to generator
 = 69.7 bbl. ultimate oil per MMCF natural gas fed to generator