

Appendix C: Process Stream Summary

Stream name	145	160	165	188	189	196	205	207
From block:	PUMP1	PUMP4	PUMP5	B13	PSACOO	B3	SYNCOMPR	B2
To block	B6	INTER2A	INTER2B	STMGEN6		LTCOO	B2	REFHTR
Mole Flow KMOL/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	3.3	4.6
H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	244.1
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	154.7
H2O	1886.0	133.2	113.7	891.1	1519.3	669.1	0.0	496.2
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1202.3
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	181.9
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.1
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	208	212	ARWOOD	ASHSAND	BFW1A	BFW2A	BFW2B	BFW4
From block:	B5	B7	WOODSEP	COMBSPLT	PUMP1	PUMP4	PUMP5	B13
To block	B2	PSACOO	WOODSEP	SANDSPLT	PUMP1	PUMP4	PUMP5	B13
Mole Flow	208	212	ARWOOD	ASHSAND	BFW1A	BFW2A	BFW2B	BFW4
KMOL/HR	B5	B7	WOODSEP	COMBSPLT	PUMP1	PUMP4	PUMP5	B13
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O	1202.3	1777.6	1838.9	0.0	1886.0	133.2	113.7	891.1
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	10780.9	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name From block: To block	Mole Flow KMOL/HR	BFW5		BFW6		CHAR		CHARCOMP		CHARFLUE		CI	CO	COLDIN
		B7		B3		CHARSEP	CHARDEC	CHARFURN	CHARDEC	CHARFURN	COMBSPLT			
TAR		0.0		0.0		0.0		0.0		0.0		0.0		4.6
H2		0.0		0.0		0.0		165.6		0.0		0.0		252.8
O2		0.0		0.0		0.0		92.1		228.2		0.0		0.0
N2		0.0		0.0		0.0		0.2		3080.9		0.0		0.0
CO2		0.0		0.0		0.0		0.0		599.0		0.0		154.4
CO		0.0		0.0		0.0		0.0		0.0		0.0		495.8
H2O		1777.6		669.1		0.0		0.0		205.6		1343.8	1343.8	1202.3
CH4		0.0		0.0		0.0		0.0		0.0		0.0		182.7
H2S		0.0		0.0		0.0		0.0		0.0		0.0		1.2
NH3		0.0		0.0		0.0		0.0		0.0		0.0		5.0
COS		0.0		0.0		0.0		0.0		0.0		0.0		0.0
SO2		0.0		0.0		0.0		0.0		0.1		0.0		0.0
SO3		0.0		0.0		0.0		0.0		0.0		0.0		0.0
NO2		0.0		0.0		0.0		0.0		0.0		0.0		0.0
NO		0.0		0.0		0.0		0.0		0.0		0.0		0.0
PHENOL		0.0		0.0		0.0		0.0		0.0		0.0		0.0
C6H6		0.0		0.0		0.0		0.0		0.0		0.0		0.0
C2H6		0.0		0.0		0.0		0.0		0.0		0.0		0.0
C2H4		0.0		0.0		0.0		0.0		0.0		0.0		5.7
C2H2		0.0		0.0		0.0		0.0		0.0		0.0		53.0
O2SI		0.0		0.0		0.0		0.0		0.0		0.0		4.9
CARBON		0.0		0.0		0.0		10727.4		0.0		0.0		0.0
								597.7		0.0		0.0		0.0

Stream name From block: To block	Mole Flow KMOL/HR	COLDOUT MODEL1	COMBAIR AIRCOMP1	COMBAIR2 AIRCOMP1 AIRHEAT	COMBPROD CHARFURN COMBSPLT	COOLED1A B4	COOLED2A INTER2A	COOLED2B INTER2B	DRIED DRYRSEP
TAR	4.6	4.6	0.0	0.0	0.0	4.6	0.0	0.0	0.0
H2	252.8	252.8	0.0	0.0	0.0	244.1	0.0	0.0	0.0
O2	0.0	0.0	816.6	816.6	228.2	0.0	332.6	332.6	0.0
N2	0.0	0.0	3080.8	3080.8	3080.9	0.0	1254.6	1254.6	0.0
CO2	154.4	154.4	1.3	1.3	599.0	154.7	0.5	0.5	0.0
CO	495.8	495.8	0.0	0.0	0.0	496.2	0.0	0.0	0.0
H2O	1202.3	1202.3	40.0	40.0	205.6	1202.3	16.3	16.3	0.0
CH4	182.7	182.7	0.0	0.0	0.0	181.9	0.0	0.0	0.0
H2S	1.2	1.2	0.0	0.0	0.0	1.0	0.0	0.0	0.0
NH3	5.0	5.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	5.7	5.7	0.0	0.0	0.0	5.3	0.0	0.0	0.0
C2H4	53.0	53.0	0.0	0.0	0.0	53.1	0.0	0.0	0.0
C2H2	4.9	4.9	0.0	0.0	0.0	4.1	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	10780.9	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	DRYRAIR	DRYRAIR2	DRYWOOD	FLUENAIR	FROMHT	FROMLT	FROMPRIM	GAS1A
From block:	AIRCOMP2	AIRCOMP2	DRY2	DRYRMIX	HTSHIFT	LTSHIFT	GSTMGEN	B4
To block	AIRCOMP2	DRYRMIX	DRYRSEP	DRY1	LTCOOL	PSACOO	HTCOOL	
Mole Flow	KMOL/HR							
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6
H2	0.0	0.0	0.0	0.0	1546.0	1633.2	1274.4	244.1
O2	4705.0	4705.0	4933.3	4933.3	0.0	0.0	0.0	0.0
N2	17749.5	17749.5	20830.4	20830.4	2.1	2.1	2.1	0.0
CO2	7.5	7.5	606.4	606.4	812.7	900.0	541.2	154.7
CO	0.0	0.0	0.0	0.0	116.4	29.1	387.9	496.2
H2O	230.3	230.3	2274.8	435.9	1610.4	1523.1	1881.9	1202.3
CH4	0.0	0.0	0.0	0.0	74.5	74.5	74.5	181.9
H2S	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0
NH3	0.0	0.0	0.0	0.0	0.2	0.2	0.2	4.3
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.1
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name From block: To block	Mole Flow KMOL/HR	GAS2A INTER2A	GAS2B INTER2B	GASIFSTM GSTMGEN FEEDMIX	GASWAT DRYRSEP	GFEED FEEDMIX GASIFIER	GSTMIN GSTMGEN	H2PROD RECSPLT	H2PURIFY PSA RECSPLT
TAR		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2		0.0	0.0	0.0	0.0	0.0	0.0	1268.4	2067.2
O2		332.6	332.6	0.0	4933.3	0.0	0.0	0.0	0.0
N2		1254.6	1254.6	0.0	20830.4	0.0	0.0	0.0	0.0
CO2		0.5	0.5	0.0	606.4	0.0	0.0	0.0	0.0
CO		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O		16.3	16.3	943.0	2274.8	943.0	943.0	0.0	0.0
CH4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2S		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
SO3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI		0.0	0.0	0.0	0.0	10727.4	0.0	0.0	0.0
CARBON		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name From block: To block	H2RECYCL RECSPLT RECMIX	HCOMBAIR AIRHEAT CHARFURN	HI MODEL2	HO MODEL2	HOTIN MODEL1	HOTOUT MODEL1	KOWATER B1 B5	MIDWOOD WOODSEP DRY2
Mole Flow KMOL/HR								
TAR	0.0	0.0	0.0	0.0	4.6	4.6	0.0	0.0
H2	798.8	0.0	0.0	0.0	252.8	252.8	0.0	0.0
O2	0.0	816.6	50.4	50.4	0.0	0.0	0.0	0.0
N2	0.0	3080.8	1500.9	1500.9	0.0	0.0	0.0	0.0
CO2	0.0	1.3	1004.6	1004.6	154.4	154.4	0.0	0.0
CO	0.0	0.0	0.0	0.0	495.8	495.8	0.0	0.0
H2O	0.0	40.0	535.1	535.1	1202.3	1202.3	1202.3	0.0
CH4	0.0	0.0	0.0	0.0	182.7	182.7	0.0	0.0
H2S	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0
NH3	0.0	0.0	0.0	0.0	5.0	5.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	5.7	5.7	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	53.0	53.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	4.9	4.9	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	OFFAIR1	OFFAIR2	OFFFLUE1	OFFFLUE2	OFFFLUE3	OFFGAS	REFSTM	REFSTMA
From block:	OFFCOMPR	OFFCOMB	OFFCOMB	COMBPOOL	STMGEN6	PSA	REFSTM	
To block	OFFCOMPR	OFFCOMB	COMBPOOL	STMGEN6	STMGEN6	OFFCOMB	PRIMARY	WATPUMP
Mole Flow KMOL/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	364.8	0.0	0.0
O2	397.8	397.8	50.2	50.2	50.2	0.0	0.0	0.0
N2	1500.6	1500.6	1502.6	1502.6	1502.6	2.1	0.0	0.0
CO2	0.6	0.6	1004.2	1004.2	1004.2	900.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	29.1	0.0	0.0
H2O	19.5	19.5	538.2	538.2	538.2	3.8	1344.4	1344.4
CH4	0.0	0.0	0.0	0.0	0.0	74.5	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.9	0.9	0.9	0.0	0.0	0.0
SO3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name From block: To block	REFSTMB WATPUMP REFSTM	SAND SANDSPLT FEEDMIX	SANDPURG SANDSPLT	SANDSUPP CHARFURN	STEAM1A STMFLASH	STEAM2A INTER2A	STEAM2B INTER2B	STEAM4 STMGEN6
Mole Flow KMOL/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O	1344.4	0.0	0.0	0.0	884.3	133.2	113.7	891.1
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	10727.4	53.9	53.5	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name From block: To block	STEAM5 PSACOO1	STEAM6 LTCCOOL	STMWAT B6 STMFLASH	SYNCOLD SYNCOOL1 B1	SYNCOMP B2	SYNGAS CHARSEP SYNCOOL1	SYNREFRM PRIMARY GSTMGEN	TOCOMPR B1 SYNCOMPR
Mole Flow KMOL/HR								
TAR	0.0	0.0	0.0	4.6	1.2	4.6	0.0	4.6
H2	0.0	0.0	0.0	244.1	244.1	244.1	1274.4	244.1
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0
CO2	0.0	0.0	0.0	154.7	154.7	154.7	541.2	154.7
CO	0.0	0.0	0.0	496.2	496.2	496.2	387.9	496.2
H2O	1777.6	669.1	1886.0	1202.3	0.0	1202.3	1881.9	0.0
CH4	0.0	0.0	0.0	181.9	181.9	181.9	74.5	181.9
H2S	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
NH3	0.0	0.0	0.0	4.3	4.3	4.3	0.2	4.3
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	5.3	5.3	5.3	0.0	5.3
C2H4	0.0	0.0	0.0	53.1	53.1	53.1	0.0	53.1
C2H2	0.0	0.0	0.0	4.1	4.1	4.1	0.0	4.1
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	TOHT	TOLT	TOPSAA	TOPSAB	TOREFHOT	WAT1A	WETDAIR	WOOD
From block:	HTCOOL	LTCOOL	PSACOO	RECMIX	REFHTR	STMFLASH	DRY1	
To block	HTSHIFT	LTSHIFT	RECMIX	PSA	PRIMARY		DRY2	FEEDMIX
Mole Flow	KMOL/HR							
TAR	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0
H2	1274.4	1546.0	1633.2	2432.0	244.1	0.0	0.0	0.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	4933.3	0.0
N2	2.1	2.1	2.1	2.1	0.0	0.0	20830.4	0.0
CO2	541.2	812.7	900.0	900.0	154.7	0.0	606.4	0.0
CO	387.9	116.4	29.1	29.1	496.2	0.0	0.0	0.0
H2O	1881.9	1610.4	3.8	3.8	1202.3	1001.7	2274.8	0.0
CH4	74.5	74.5	74.5	74.5	181.9	0.0	0.0	0.0
H2S	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
NH3	0.2	0.2	0.2	0.2	4.3	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	53.1	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name From block: To block	Mole Flow	KMOL/HR	WOODGAS GASIFIER CHARSEP	WOODWAT WOODSEP DRY1
TAR	4.6	0.0		
H2	244.1	0.0		
O2	0.0	0.0		
N2	0.0	0.0		
CO2	154.7	0.0		
CO	496.2	0.0		
H2O	1202.3	1838.9		
CH4	181.9	0.0		
H2S	1.0	0.0		
NH3	4.3	0.0		
COS	0.0	0.0		
SO2	0.0	0.0		
SO3	0.0	0.0		
NO2	0.0	0.0		
NO	0.0	0.0		
PHENOL	0.0	0.0		
C6H6	0.0	0.0		
C2H6	5.3	0.0		
C2H4	53.1	0.0		
C2H2	4.1	0.0		
O2SI	10727.4	0.0		
CARBON	0.0	0.0		

Stream name	145	160	165	188	189	196	205	207
From block:	PUMP1	PUMP4	PUMP5	B13	PSACOO	B3	SYNCOMPR	B2
To block	B6	INTER2A	INTER2B	STMGEN6		LTCOO	B2	REFHTR
Temperature C	77.5	15.4	15.4	15.4	23.9	17.3	87.8	108.7
Pressure N/SQM	1.24E+06	7.93E+05	7.93E+05	7.93E+05	2.51E+06	3.45E+06	1.38E+05	3.65E+06
Vapor Frac	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Mole Flow KMOL/HR	1886.0	133.2	113.7	891.1	1519.3	669.1	3.4	2351.6
Mass Flow KG/HR	33976.3	2399.6	2049.2	16053.8	27371.2	12054.5	431.5	48225.9
Volume Flow CUM/HR	46.9	3.2	2.7	21.1	27.4	15.9	1.5	1068.4
Enthalpy MMBTU/HR	-508.2	-36.6	-31.2	-244.7	-411.7	-183.6	0.3	-435.1
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	429.2	586.3
H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	492.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	0.0	0.0	1.5	6808.4
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.2	13898.3
H2O	33976.3	2399.6	2049.2	16053.8	27371.2	12054.5	0.0	21659.9
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2918.9
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.2
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	73.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	159.1
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1488.9
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	107.9
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	208	212	ARWOOD	ASHSAND	BFW1A	BFW2A	BFW2B	BFW4
From block:	B5	B7	WOODSEP	COMBSPLT	PUMP1	PUMP4	PUMP5	B13
To block	B2	PSACOO	WOODSEP	SANDSPLT	PUMP1	PUMP4	PUMP5	B13
Temperature C	93.3	15.4	15.0	0.0	76.7	15.0	15.0	15.0
Pressure N/SQM	3.65E+06	7.93E+05	1.01E+05	1.31E+05	2.07E+05	2.07E+05	2.07E+05	2.07E+05
Vapor Frac	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mole Flow KMOL/HR	1202.3	1777.6	1838.9	0.0	1886.0	133.2	113.7	891.1
Mass Flow KG/HR	21659.9	32024.2	33127.5	0.0	33976.3	2399.6	2049.2	16053.8
Volume Flow CUM/HR	30.3	42.1	43.6	0.0	46.8	3.2	2.7	21.1
Enthalpy MMBTU/HR	-322.3	-488.1	-505.0	0.0	-508.3	-36.6	-31.2	-244.7
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O	21659.9	32024.2	33127.5	0.0	33976.3	2399.6	2049.2	16053.8
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	647782.3	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	42471.2	0.0	0.0	0.0	0.0	0.0
ASH	0.0	0.0	0.0	347.8	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	BFW5	BFW6	CHAR	CHARCOMP	CHARFLUE	CI	CO	COLDIN
From block:	B7	B3	CHARSEPT	CHARDEC	COMBSPLT	MODEL2	MODEL2	MODEL1
To block			CHARDEC	CHARFURN	DRYRMIX			MODEL2
Temperature C	15.0	15.0	0.0	825.3	982.2	15.0	537.8	108.9
Pressure N/SQM	2.07E+05	1.01E+05	1.38E+05	1.38E+05	1.31E+05	2.07E+05	2.07E+05	3.65E+06
Vapor Frac	0.0	0.0	0.0	1.0	1.0	0.0	1.0	0.5
Mole Flow KMOL/HR	1777.6	669.1	0.0	257.9	4113.8	1343.8	1343.8	2362.4
Mass Flow KG/HR	32024.2	12054.5	0.0	3286.3	123679.8	24208.1	24208.1	48288.8
Volume Flow CUM/HR	42.1	15.8	0.0	17083.3	327877.8	31.8	43744.4	1079.1
Enthalpy MMBTU/HR	-488.1	-183.8	0.0	6.0	-141.9	-369.0	-284.6	-434.8
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	594.6
H2	0.0	0.0	0.0	333.8	0.0	0.0	0.0	509.6
O2	0.0	0.0	0.0	2948.3	7303.6	0.0	0.0	0.0
N2	0.0	0.0	0.0	4.2	86306.9	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	26360.2	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6795.3
H2O	32024.2	12054.5	0.0	0.0	3703.5	24208.1	24208.1	19887.8
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21659.9
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2930.5
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.5
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.9
SO2	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	169.9
O2SI	0.0	0.0	644565.4	0.0	0.0	0.0	0.0	1486.5
CARBON	0.0	0.0	0.4	644565.4	0.0	0.0	0.0	127.4
WOOD	0.0	0.0	0.0	7178.5	0.0	0.0	0.0	0.0
ASH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	347.8	0.0	0.0	0.0	0.0
			10815.0	0.0	0.0	0.0	0.0	0.0

Stream name	COLDOUT MODEL1	COMBAIR AIRCOMP1	COMBAIR2 AIRCOMP1 AIRHEAT	COMBPROD CHARFURN COMBSPLT	COOLED1A B4	COOLED2A INTER2A	COOLED2B INTER2B	DRIED DRYRSEP
From block:								
To block								
Temperature C	120.5	15.0	52.3	982.2	87.8	65.6	65.6	0.0
Pressure N/SQM	3.65E+06	1.01E+05	1.38E+05	1.31E+05	3.13E+05	5.03E+05	1.12E+06	1.01E+05
Vapor Frac	0.5	1.0	1.0	1.0	0.6	1.0	1.0	0.0
Mole Flow KMOL/HR	2362.4	3938.7	3938.7	4113.8	2351.5	1603.9	1603.9	0.0
Mass Flow KG/HR	48288.8	113211.7	113211.7	123679.8	48225.1	46102.9	46102.9	0.0
Volume Flow CUM/HR	1132.1	93112.1	77299.2	327877.8	13527.3	8984.5	4037.2	0.0
Enthalpy MMBTU/HR	-432.2	-10.8	-6.7	-141.9	-428.8	-2.2	-2.2	0.0
Mass Flow KG/HR								
TAR	594.6	0.0	0.0	0.0	586.3	0.0	0.0	0.0
H2	509.6	0.0	0.0	0.0	492.0	0.0	0.0	0.0
O2	0.0	26131.7	26131.7	7303.6	0.0	10641.5	10641.5	0.0
N2	0.0	86302.6	86302.6	86306.9	0.0	35144.8	35144.8	0.0
CO2	6795.3	57.2	57.2	26360.2	6808.3	23.3	23.3	0.0
CO	13887.8	0.0	0.0	0.0	13898.0	0.0	0.0	0.0
H2O	21659.9	720.2	720.2	3703.5	21659.5	293.3	293.3	0.0
CH4	2930.5	0.0	0.0	0.0	2918.9	0.0	0.0	0.0
H2S	42.5	0.0	0.0	0.0	33.2	0.0	0.0	0.0
NH3	84.9	0.0	0.0	0.0	73.0	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	169.9	0.0	0.0	0.0	159.1	0.0	0.0	0.0
C2H4	1486.5	0.0	0.0	0.0	1488.9	0.0	0.0	0.0
C2H2	127.4	0.0	0.0	0.0	107.9	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	647782.3	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42471.2
ASH	0.0	0.0	0.0	347.8	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	DRYRAIR	DRYRAIR2	DRYWOOD	FLUENAIR	FROMHT	FROMLT	FROMPRIM	GAS1A
From block:	AIRCOMP2	AIRCOMP2	DRY2	DRYRMIX	HTSHIFT	LTSHIFT	GSTMGEN	B4
To block	AIRCOMP2	DRYRMIX	DRYRSEP	DRY1	LTCOOL	PSACOOOL	HTCOOL	
Temperature C	15.0	15.0	68.4	186.9	434.8	221.0	466.0	203.3
Pressure N/SQM	1.01E+05	1.31E+05	1.01E+05	1.31E+05	2.95E+06	2.51E+06	3.47E+06	3.13E+05
Vapor Frac	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Mole Flow KMOL/HR	22692.3	22692.3	28645.0	26806.1	4163.1	4163.1	4163.1	2351.5
Mass Flow KG/HR	652259.6	652259.6	809067.0	775939.4	72445.0	72445.0	72445.0	48225.1
Volume Flow CUM/HR	536457.4	414915.9	802583.3	788174.6	8310.2	6722.5	7371.3	29646.5
Enthalpy MMBTU/HR	-62.0	-62.1	-712.8	-204.0	-633.9	-668.1	-619.8	-381.0
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	586.3
H2	0.0	0.0	0.0	0.0	3116.5	3292.4	2569.1	492.0
O2	150555.4	150555.4	157859.0	157859.0	0.0	0.0	0.0	0.0
N2	497225.3	497225.3	583532.1	583532.1	57.7	57.7	57.7	0.0
CO2	329.6	329.6	26689.7	26689.7	35768.6	39609.6	23818.8	6808.3
CO	0.0	0.0	0.0	0.0	3259.5	814.9	10865.1	13898.0
H2O	4149.4	4149.4	40980.5	7853.0	29011.7	27439.4	33903.3	21659.5
CH4	0.0	0.0	0.0	0.0	1194.6	1194.6	1194.6	2918.9
H2S	0.0	0.0	0.0	0.0	32.7	32.7	32.7	33.2
NH3	0.0	0.0	0.0	0.0	2.8	2.8	2.8	73.0
COS	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.0
SO2	0.0	0.0	5.6	5.6	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.1	0.1	0.1	159.1
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1488.9
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	107.9
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASH	0.0	0.0	42471.2	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	GAS2A	GAS2B	GASIFSTM	GASWAT	GFEED	GSTMEN	H2PROD	H2PURIFY
From block:	INTER2A	INTER2B	GSTMEN	DRYRSEP	FEEDMIX	GSTMEN	RECSPLT	RECSPLT
To block	INTER2A	INTER2B	FEEDMIX	DRYRSEP	GASIFIER	GSTMEN	RECSPLT	RECSPLT
Temperature C	212.7	190.0	537.8	68.4	854.7	15.0	23.4	23.4
Pressure N/SQM	5.03E+05	1.12E+06	2.07E+05	1.01E+05	1.72E+05	2.07E+05	2.51E+06	2.51E+06
Vapor Frac	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
Mole Flow KMOL/HR	1603.9	1603.9	943.0	28645.0	943.0	943.0	1268.4	2067.2
Mass Flow KG/HR	46102.9	46102.9	16988.1	809067.0	16988.1	16988.1	2557.0	4167.2
Volume Flow CUM/HR	12905.4	5535.6	30697.9	802583.3	51296.0	22.3	1266.4	2063.9
Enthalpy MMBTU/HR	4.5	3.4	-199.7	-712.8	-188.1	-259.0	0.0	-0.1
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	0.0	2557.0	4167.2
O2	10641.5	10641.5	0.0	157859.0	0.0	0.0	0.0	0.0
N2	35144.8	35144.8	0.0	583532.1	0.0	0.0	0.0	0.0
CO2	23.3	23.3	0.0	26689.7	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O	293.3	293.3	16988.1	40980.5	16988.1	16988.1	0.0	0.0
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	644565.4	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
ASH	0.0	0.0	0.0	0.0	42470.4	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	346.5	0.0	0.0	0.0
					0.4	0.0	0.0	0.0

Stream name	H2RECYCL	HCOMBAIR	HI	HO	HOTIN	HOTOUT	KOWATER	MIDWOOD
From block:	RECSPLT	AIRHEAT	MODEL2	MODEL2	MODEL1	MODEL1	B1	WOODSEP
To block	RECMIX	CHARFURN	MODEL2	MODEL2	MODEL1	MODEL1	B5	DRY2
Temperature C	23.4	52.3	946.7	225.4	825.3	800.0	90.6	0.0
Pressure N/SQM	2.51E+06	1.38E+05	2.50E+06	2.50E+06	1.38E+05	1.38E+05	1.38E+05	1.01E+05
Vapor Frac	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Mole Flow KMOL/HR	798.8	3938.7	3091.1	3091.1	2362.4	2362.4	1202.3	0.0
Mass Flow KG/HR	1610.2	113211.7	97512.0	97512.0	48288.8	48288.8	21659.9	0.0
Volume Flow CUM/HR	797.5	77299.2	12618.0	5113.1	156495.9	152893.6	30.2	0.0
Enthalpy MMBTU/HR	0.0	-6.7	-393.5	-477.9	-324.2	-326.7	-322.7	0.0
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	594.6	594.6	0.0	0.0
H2	1610.2	0.0	0.0	0.0	509.6	509.6	0.0	0.0
O2	0.0	26131.7	1613.9	1613.9	0.0	0.0	0.0	0.0
N2	0.0	86302.6	42045.7	42045.7	0.0	0.0	0.0	0.0
CO2	0.0	57.2	44211.6	44211.6	6795.3	6795.3	0.0	0.0
CO	0.0	0.0	0.0	0.0	13887.8	13887.8	0.0	0.0
H2O	0.0	720.2	9640.8	9640.8	21659.9	21659.9	21659.9	0.0
CH4	0.0	0.0	0.0	0.0	2930.5	2930.5	0.0	0.0
H2S	0.0	0.0	0.0	0.0	42.5	42.5	0.0	0.0
NH3	0.0	0.0	0.0	0.0	84.9	84.9	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	169.9	169.9	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	1486.5	1486.5	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	127.4	127.4	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42471.2
ASH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	OFFAIR1	OFFAIR2	OFFFLUE1	OFFFLUE2	OFFFLUE3	OFFGAS	REFSTM	REFSTMA
From block:	OFFCOMPR	OFFCOMB	OFFCOMB	COMBPOOL	STMGEN6	PSA	REFSTM	REFSTMA
To block	OFFCOMPR	OFFCOMB	COMBPOOL	COMBPOOL	STMGEN6	OFFCOMB	PRIMARY	WATPUMP
Temperature C	15.0	189.3	950.4	238.3	27.8	23.4	537.8	15.0
Pressure N/SQM	1.01E+05	2.50E+06	2.50E+06	2.50E+06	2.50E+06	2.51E+06	2.50E+06	2.07E+05
Vapor Frac	1.0	1.0	1.0	1.0	0.8	1.0	1.0	0.0
Mole Flow KMOL/HR	1918.4	1918.4	3096.3	3096.3	3096.3	1375.4	1344.4	1344.4
Mass Flow KG/HR	55142.6	55142.6	97659.3	97659.3	97659.3	42516.8	24219.1	24219.1
Volume Flow CUM/HR	45352.6	2986.4	12677.7	5260.0	2496.7	1271.7	3564.5	31.8
Enthalpy MMBTU/HR	-5.2	4.1	-393.7	-477.4	-522.6	-345.7	-285.3	-369.2
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	735.4	0.0	0.0
O2	12728.1	12728.1	1604.8	1604.8	1604.8	0.0	0.0	0.0
N2	42035.8	42035.8	42093.4	42093.4	42093.4	57.7	0.0	0.0
CO2	27.9	27.9	44195.8	44195.8	44195.8	39609.6	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	814.9	0.0	0.0
H2O	350.8	350.8	9695.9	9695.9	9695.9	68.2	24219.1	24219.1
CH4	0.0	0.0	0.0	0.0	0.0	1194.6	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	32.7	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
SO2	0.0	0.0	55.0	55.0	55.0	0.0	0.0	0.0
SO3	0.0	0.0	9.2	9.2	9.2	0.0	0.0	0.0
NO2	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
NO	0.0	0.0	5.2	5.2	5.2	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	REFSTMB	SAND	SANDPURG	SANDSUPP	STEAM1A	STEAM2A	STEAM2B	STEAM4
From block:	WATPUMP	SANDSPLT	SANDSPLT	CHARFURN	STMFLASH	INTER2A	INTER2B	STMGEN6
To block	REFSTM	FEEDMIX	SANDSPLT	CHARFURN	STMFLASH	INTER2A	INTER2B	STMGEN6
Temperature C	16.6	0.0	0.0	15.0	175.4	177.6	170.4	204.2
Pressure N/SQM	2.50E+06	1.31E+05	1.31E+05	1.38E+05	8.96E+05	7.93E+05	7.93E+05	7.93E+05
Vapor Frac	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0
Mole Flow KMOL/HR	1344.4	0.0	0.0	0.0	884.3	133.2	113.7	891.1
Mass Flow KG/HR	24219.1	0.0	0.0	0.4	15931.0	2399.6	2049.2	16053.8
Volume Flow CUM/HR	31.9	0.0	0.0	0.0	3510.0	604.4	506.9	4310.8
Enthalpy MMBTU/HR	-368.9	0.0	0.0	0.0	-198.8	-29.9	-25.6	-199.4
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2O	24219.1	0.0	0.0	0.4	15931.0	2399.6	2049.2	16053.8
CH4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O2SI	0.0	644565.4	3238.9	3216.9	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASH	0.0	346.1	1.7	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	STEAM5 PSACOOOL	STEAM6 LTCOOOL	STMWAT B6 STMFLASH	SYNCOOL1 B1	SYNCOMP1 B2	SYNGAS CHARSEP SYNCOOL1	SYNREFRM PRIMARY GSTMGEN	TOCOMPR B1 SYNCOMPR
From block:								
To block								
Temperature C	182.2	254.5	189.3	90.6	200.7	825.3	850.0	90.6
Pressure N/SQM	7.93E+05	3.45E+06	1.24E+06	1.38E+05	3.65E+06	1.38E+05	3.47E+06	1.38E+05
Vapor Frac	1.0	1.0	0.4	0.9	1.0	1.0	1.0	1.0
Mole Flow KMOL/HR	1777.6	669.1	1886.0	2351.6	1145.8	2351.6	4163.1	1149.3
Mass Flow KG/HR	32024.2	12054.5	33976.3	48225.9	26134.5	48225.9	72445.0	26566.1
Volume Flow CUM/HR	8160.0	753.5	2483.4	47175.6	1251.8	155777.0	11264.9	25201.6
Enthalpy MMBTU/HR	-399.1	-149.4	-460.4	-397.6	-113.0	-324.7	-560.6	-116.6
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	586.3	157.0	586.3	0.0	586.3
H2	0.0	0.0	0.0	492.0	492.0	492.0	2569.1	492.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	0.0	0.0	0.0	0.0	0.0	0.0	57.7	0.0
CO2	0.0	0.0	0.0	6808.4	6806.9	6808.4	23818.8	6808.4
CO	0.0	0.0	0.0	13898.3	13898.1	13898.3	10865.1	13898.3
H2O	32024.2	12054.5	33976.3	21659.9	0.0	21659.9	33903.3	0.0
CH4	0.0	0.0	0.0	2918.9	2918.8	2918.9	1194.6	2918.9
H2S	0.0	0.0	0.0	33.2	33.1	33.2	32.7	33.2
NH3	0.0	0.0	0.0	73.0	72.9	73.0	2.8	73.0
COS	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.0	0.0	0.0	159.1	159.1	159.1	0.1	159.1
C2H4	0.0	0.0	0.0	1488.9	1488.7	1488.9	0.0	1488.9
C2H2	0.0	0.0	0.0	107.9	107.8	107.9	0.0	107.9
O2SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Stream name	WOODGAS	WOODWAT
From block:	GASIFIER	WOODSEP
To block	CHARSEP	DRY1
Temperature C	825.3	15.0
Pressure N/SQM	1.38E+05	1.01E+05
Vapor Frac	1.0	0.0
Mole Flow KMOL/HR	2351.6	1838.9
Mass Flow KG/HR	48225.9	33127.5
Volume Flow CUM/HR	155777.0	43.6
Enthalpy MMBTU/HR	-324.7	-505.0
Mass Flow KG/HR		
TAR	586.3	0.0
H2	492.0	0.0
O2	0.0	0.0
N2	0.0	0.0
CO2	6808.4	0.0
CO	13898.3	0.0
H2O	21659.9	33127.5
CH4	2918.9	0.0
H2S	33.2	0.0
NH3	73.0	0.0
COS	0.0	0.0
SO2	0.0	0.0
SO3	0.0	0.0
NO2	0.0	0.0
NO	0.0	0.0
PHENOL	0.0	0.0
C6H6	0.0	0.0
C2H6	159.1	0.0
C2H4	1488.9	0.0
C2H2	107.9	0.0
O2SI	644565.4	0.0
CARBON	0.4	0.0
WOOD	0.0	0.0
ASH	0.0	0.0
CHAR	10815.0	0.0

Stream name	TOHT	TOLT	TOPSAA	TOPSAB	TORFHOT	WAT1A	WETDAIR	WOOD
From block:	HTCOOL	LTCOOL	PSACOO	RECMIX	REFHTR	STMFLASH	DRY1	FEEDMIX
To block	HTSHIFT	LTSHIFT	RECMIX	PSA	PRIMARY		DRY2	
Temperature C	370.0	200.0	23.9	23.4	800.0	175.4	73.1	68.3
Pressure N/SQM	3.47E+06	2.95E+06	2.51E+06	2.51E+06	3.65E+06	8.96E+05	1.01E+05	1.72E+05
Vapor Frac	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Mole Flow KMOL/HR	4163.1	4163.1	2643.8	3442.6	2351.6	1001.7	28645.0	0.0
Mass Flow KG/HR	72445.0	72445.0	45073.8	46684.0	48225.9	18045.3	809067.0	0.0
Volume Flow CUM/HR	6377.5	5426.1	2583.9	3385.2	5776.2	27.8	813671.3	0.0
Enthalpy MMBTU/HR	-633.9	-668.1	-345.4	-345.4	-327.4	-261.6	-709.0	0.0
Mass Flow KG/HR								
TAR	0.0	0.0	0.0	0.0	586.3	0.0	0.0	0.0
H2	2569.1	3116.5	3292.4	4902.6	492.0	0.0	0.0	0.0
O2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N2	57.7	57.7	57.7	57.7	0.0	0.0	157859.0	0.0
CO2	23818.8	35768.6	39609.6	39609.6	6808.4	0.0	583532.1	0.0
CO	10865.1	3259.5	814.9	814.9	13898.3	0.0	26689.7	0.0
H2O	33903.3	29011.7	68.2	68.2	21659.9	18045.3	0.0	0.0
CH4	1194.6	1194.6	1194.6	1194.6	2918.9	0.0	40980.5	0.0
H2S	32.7	32.7	32.7	32.7	33.2	0.0	0.0	0.0
NH3	2.8	2.8	2.8	2.8	73.0	0.0	0.0	0.0
COS	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0
SO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0
NO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHENOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C6H6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C2H6	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
C2H4	0.0	0.0	0.0	0.0	159.1	0.0	0.0	0.0
C2H2	0.0	0.0	0.0	0.0	1488.9	0.0	0.0	0.0
O2SI	0.0	0.0	0.0	0.0	107.9	0.0	0.0	0.0
CARBON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WOOD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
ASH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42470.4
CHAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

REPORT DOCUMENTATION PAGE

Form Approved
OMB NO. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE August 1995	3. REPORT TYPE AND DATES COVERED Technical Report	
4. TITLE AND SUBTITLE Technical and Economic Assessment of Producing Hydrogen by Reforming Syngas from the Battelle Indirectly Heated Biomass Gasifier.		5. FUNDING NUMBERS (C) (TA) HY51.4041	
6. AUTHOR(S) Margaret K. Mann		7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	
8. PERFORMING ORGANIZATION REPORT NUMBER DE95009275		9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) National Renewable Energy Laboratory 1617 Cole Boulevard Golden, CO 80401-3393	
10. SPONSORING/MONITORING AGENCY REPORT NUMBER NREL/TP-431-8143		11. SUPPLEMENTARY NOTES	
12a. DISTRIBUTION/AVAILABILITY STATEMENT National Technical Information Service U.S. Department of Commerce 5285 Port Royal Road Springfield, VA 22161		12b. DISTRIBUTION CODE UC-1311	
13. ABSTRACT (<i>Maximum 200 words</i>) Author gives new information on the technical and economic factors surrounding hydrogen production at the Battelle Laboratories gasifier.			
14. SUBJECT TERMS biomass, gasifiers, hydrogen production		15. NUMBER OF PAGES 126	
16. PRICE CODE		17. SECURITY CLASSIFICATION OF REPORT Unclassified	
18. SECURITY CLASSIFICATION OF THIS PAGE		19. SECURITY CLASSIFICATION OF ABSTRACT	
20. LIMITATION OF ABSTRACT			