

Heat & Material Balance - CASE 1						
Stream ID		1	2	3	4	5
Stream Name		Reducing Gas Inlet	Reducing Gas Outlet	NG from B.L	Tail Gas from B.L	Cooling Tail Gas from B.L
Temperature (°C)		85	950	25	38	
Pressure (barg)		10.15	8.35	15.00	2.50	
Vapor Frac.		1	1	1	1	
	Ignition Temperature (°C)	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %	
Hydrogen	500	46.961	46.961	0.000	50.471	
Methane	537	24.437	24.437	93.900	15.971	
Ethane	515	0.257	0.257	3.260	0.000	
Propane	450	0.059	0.059	0.690	0.000	
Butane	365	0.018	0.018	0.270	0.000	
Pentane	260	0.006	0.006	0.090	0.000	
Hexane	234	0.000	0.000	0.000	0.000	
Carbon monoxide	605	11.084	11.084	0.000	12.619	
Carbon dioxide	-	1.598	1.598	0.000	8.906	
Nitrogen	-	10.470	10.470	1.790	11.132	
H2S	232	0.000	0.000	0.001	0.002	
Argon	-	0.000	0.000	0.000	0.000	
Ethylene	543	0.000	0.000	0.000	0.000	
SO2	-	0.000	0.000	0.000	0.000	
Oxygen	-	0.000	0.000	0.000	0.000	

Heat & Material Balance - CASE 2						
Stream ID		1	2	3	4	5
Stream Name		Reducing Gas Inlet	Reducing Gas Outlet	NG from B.L	Tail Gas from B.L	Cooling Tail Gas from B.L
Temperature (°C)		81	935	25	38	
Pressure (barg)		9.8	8.2	15.0	2.5	
Vapor Frac.		1	1	1	1	
	Ignition Temperature (°C)	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %	
Hydrogen	500	51.475	51.475	0.000	52.220	
Methane	537	26.108	26.108	93.900	20.793	
Ethane	515	0.211	0.211	3.260	0.000	
Propane	450	0.049	0.049	0.690	0.000	
Butane	365	0.015	0.015	0.270	0.000	
Pentane	260	0.005	0.005	0.090	0.000	
Hexane	234	0.000	0.000	0.000	0.000	
Carbon monoxide	605	7.103	7.103	0.000	8.568	
Carbon dioxide	-	1.422	1.422	0.000	7.344	
Nitrogen	-	9.072	9.072	1.790	10.185	
H2S	232	0.000	0.000	0.001	0.002	
Argon	-	0.000	0.000	0.000	0.000	
Ethylene	543	0.000	0.000	0.000	0.000	
SO2	-	0.000	0.000	0.000	0.000	
Oxygen	-	0.000	0.000	0.000	0.000	

Heat & Material Balance - CASE 3						
Stream ID		1	2	3	4	5
Stream Name		Reducing Gas Inlet	Reducing Gas Outlet	NG from B.L	Tail Gas from B.L	Cooling Tail Gas from B.L
Temperature (°C)		45.0	910.0	25.0	38.0	39.5
Pressure (barg)		7.97	7.40	15.00	2.50	2.50
Vapor Frac.		1	1	1	1	1
	Ignition Temperature (°C)	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %	Component Vol. Fraction %
Hydrogen	500	92.667	92.667	0.000	89.437	6.707
Methane	537	3.030	3.030	93.900	4.368	83.805
Ethane	515	0.000	0.000	3.260	0.000	0.279
Propane	450	0.000	0.000	0.690	0.000	0.038
Butane	365	0.000	0.000	0.270	0.000	0.003
Pentane	260	0.000	0.000	0.090	0.000	0.000
Hexane	234	0.000	0.000	0.000	0.000	0.000
Carbon monoxide	605	0.394	0.394	0.000	0.568	0.001
Carbon dioxide	-	0.373	0.373	0.000	0.538	0.001
Nitrogen	-	2.939	2.939	1.790	4.237	8.324
H2S	232	0.000	0.000	0.001	0.002	0.000
Argon	-	0.000	0.000	0.000	0.000	0.000
Ethylene	543	0.000	0.000	0.000	0.000	0.000
SO2	-	0.000	0.000	0.000	0.000	0.000
Oxygen	-	0.000	0.000	0.000	0.000	0.000