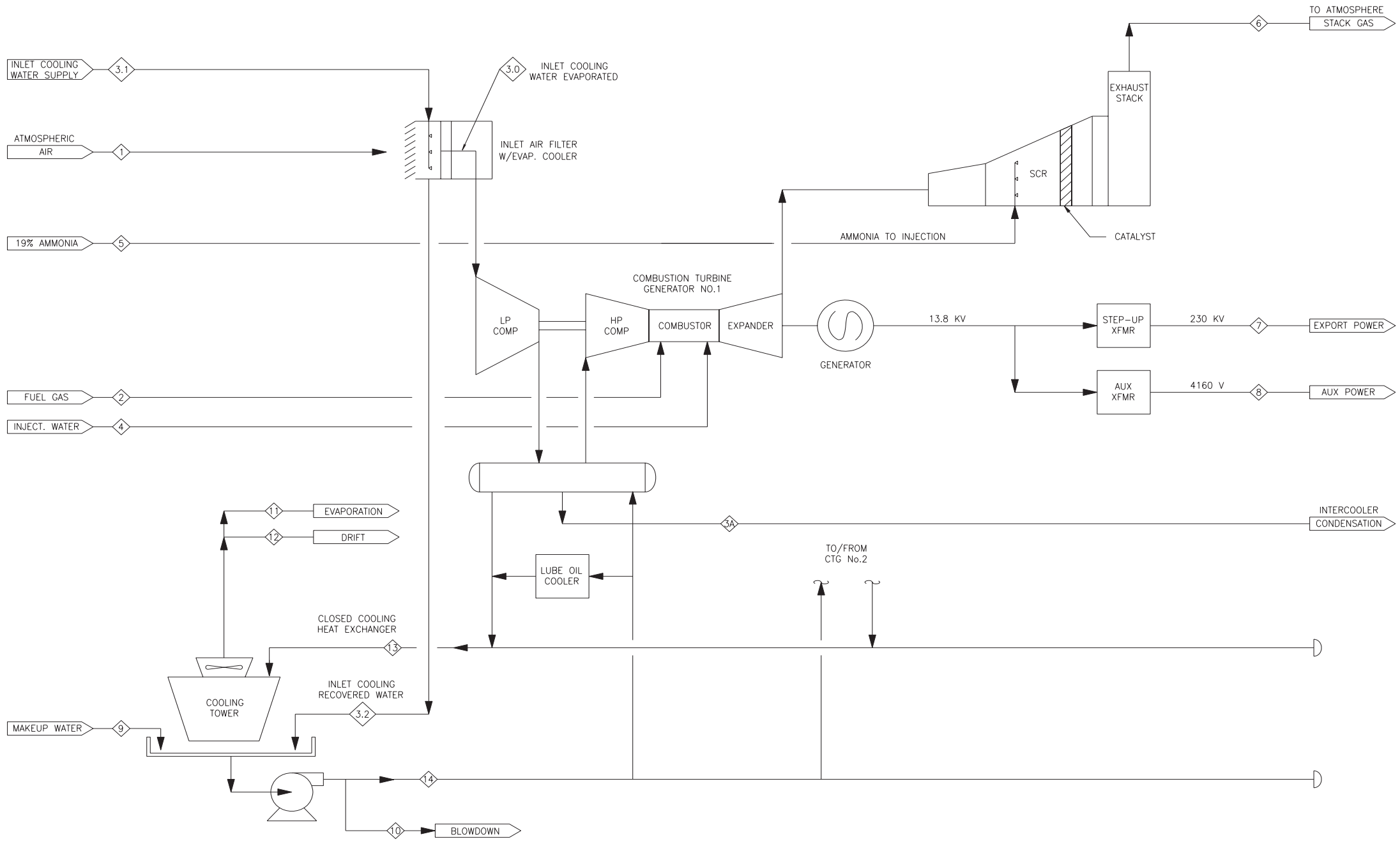
HEAT AND MASS BALANCES

NOTES

1. STREAM DESIGNATION 6
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 102,297 KW EACH
3. AMBIENT CONDITION 63.3°F DB/55.6°F WB
4. VALUES ARE FOR CTG'S AT 100% LOAD WITHOUT INLET EVAPORATIVE COOLING



HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR											TWO (2) COMBUSTION TURBINE GENERATORS																
	UNITS	1	2	3.0	3.1	3.2	3A	4	5	6	7	8	1	2	3.0	3.1	3.2	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,670,036	39,562	0	0	0	0	31,963	230	1,669,071	—	—	3,340,072	79,124	0	0	0	0	63,926	460	3,338,142	—	—	195,771	48,908	146,828	—	6,891,684	6,891,684
FLOW	gpm	—	—	0	0	0	0	63.9	0.5	—	—	—	—	—	0	0	0	0	128	1	—	—	—	392	98	294	0.1	13,800	13,800
TEMPERATURE	°F	63.3	212					80	80	787	—	—	63.3	212					80	80	787	—	—	65	75.6	—	—	104.4	75.6
LHV HEAT INPUT	mmBtu/hr		820.6											1,641															
GROSS POWER	KW										100,047	2,250										200,094	4,500						
Gr.LHV HEAT RATE	Btu/kwhr										8,202											8,202							

REV	DESCRIPTION	DWN	CHK	APP	DATE
A	ISSUED FOR AFC PERMIT	DNL	MJS	SMG	08-18-06

KIEWIT INDUSTRIAL CO.
A Kiewit Company

BULLARD ENERGY CENTER LLC

Bibb and associates
8455 Lenexa Drive
Lenexa, Kansas 66214

HEAT AND MASS BALANCE
AVERAGE AMBIENT

	by	date
DESIGNED	MJS	08-18-06
DRAWN	DNL	08-18-06
CHECKED	REB	08-18-06
APPROVED	SMG	08-18-06

DRAWING NUMBER
2006-026-HMBA-001

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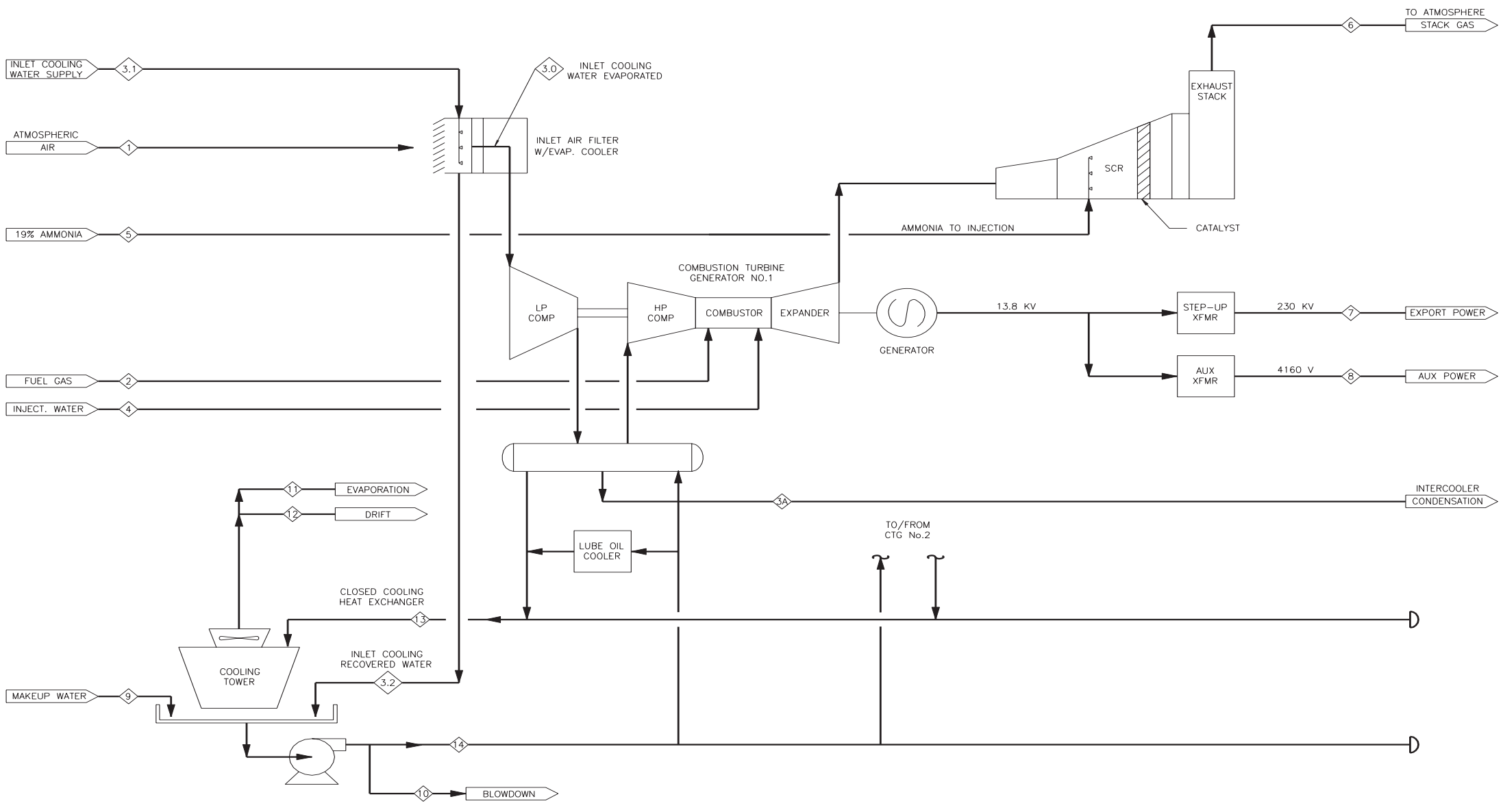

NOTES

1. STREAM DESIGNATION 6
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 101,118 KW EACH
3. AMBIENT CONDITION 16.8°F DB/15.8°F WB
4. VALUES ARE FOR CTG'S AT 100% LOAD

HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR											TWO (2) COMBUSTION TURBINE GENERATORS																
	UNITS	1	2	3.0	3.1	3.2	3A	4	5	6	7	8	1	2	3.0	3.1	3.2	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,711,561	38,496	0	0	0	0	32,544	224	1,710,622	—	—	3,423,122	76,992	0	0	0	0	65,088	448	3,421,244	—	—	116,697	29,140	87,523	—	6,893,651	6,893,651
FLOW	gpm	—	—	0	0	0	0	65.1	0.4	—	—	—	—	—	0	0	0	0	130	0.8	—	—	—	233	58	175	0.1	13,800	13,800
TEMPERATURE	°F	16.8	212					60	60	741	—	—	16.8	212					60	60	741	—	—	50	73.6	—	—	96	73.6
LHV HEAT INPUT	mmBtu/hr		798.5											1,597															
GROSS POWER	KW										98,868	2,250										197,736	4,500						
Gr.LHV HEAT RATE	Btu/kwhr										8,077											8,077							

REV	DESCRIPTION	DWN	CHK	APP	DATE
0	ISSUED FOR AFC PERMIT	DNL	MJS	SMG	08-18-06

KIEWIT INDUSTRIAL CO.
A Kiewit Company

BULLARD ENERGY CENTER LLC

Bibb and associates
8455 Lenexa Drive
Lenexa, Kansas 66214

HEAT AND MASS BALANCE
COLD AMBIENT

	by	date
DESIGNED	MJS	08-18-06
DRAWN	DNL	08-18-06
CHECKED	REB	08-18-06
APPROVED	SMG	08-18-06

DRAWING NUMBER
2006-026-HMBC-001

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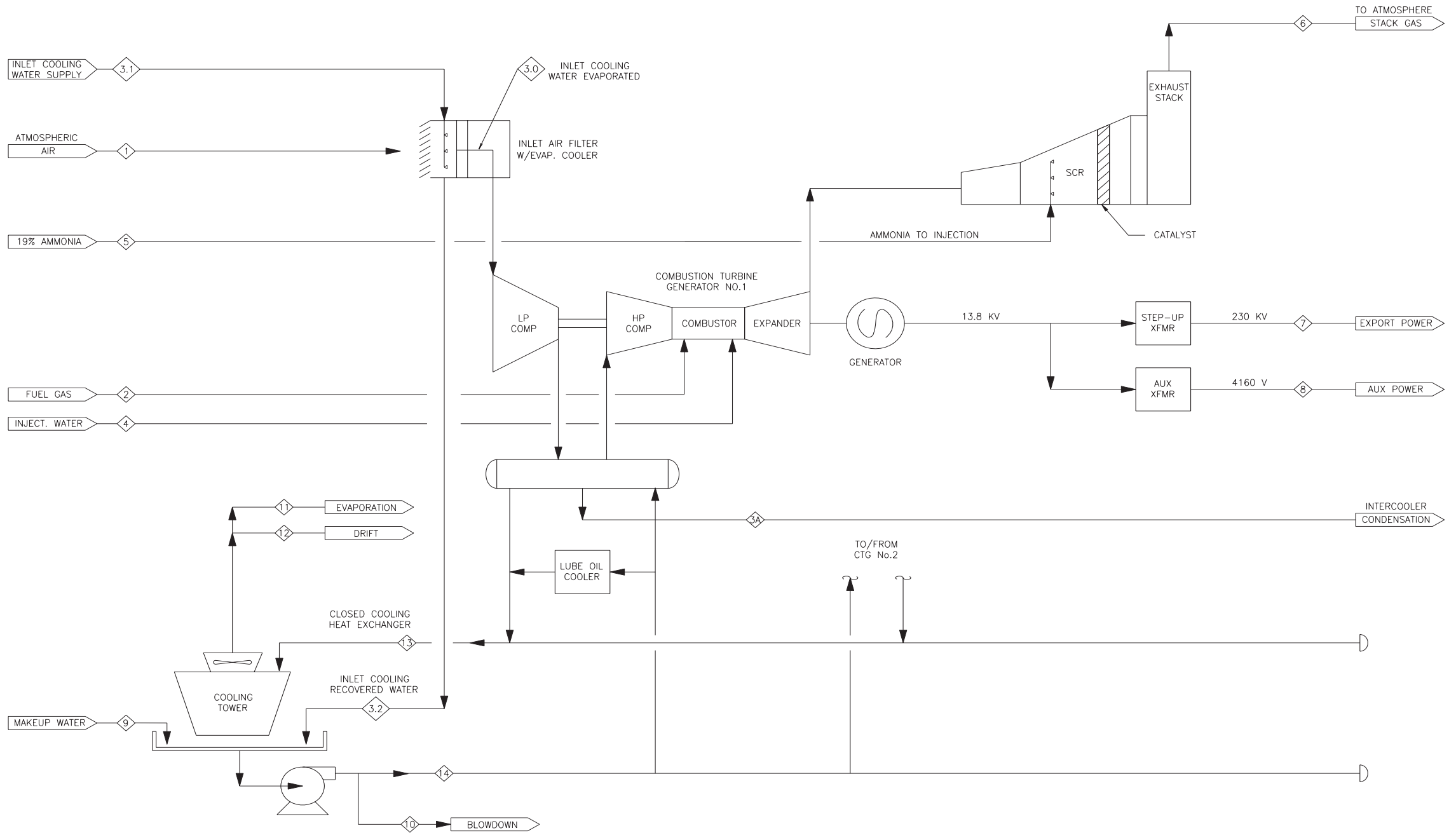
NOTES

1. STREAM DESIGNATION 6
2. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT 100% LOAD AND THE GIVEN AMBIENT CONDITION IS 95,461 KW EACH
3. AMBIENT CONDITION 114°F DB/74°F WB
4. VALUES ARE FOR CTG'S AT 100% LOAD WITH EVAPORATIVE COOLING ON



HEAT AND MATERIAL BALANCE FOR NOTE 3 AMBIENT CONDITION

		ONE COMBUSTION TURBINE GENERATOR											TWO (2) COMBUSTION TURBINE GENERATORS																
	UNITS	1	2	3.0	3.1	3.2	3A	4	5	6	7	8	1	2	3.0	3.1	3.2	3A	4	5	6	7	8	9	10	11	12	13	14
FLOW	lb/hr	1,514,399	37,510	11,822	67,500	55,678	7,200	27,948	218	1,584,697	—	—	3,028,797	75,020	23,645	135,000	111,355	14,400	55,896	436	3,169,394	—	—	297,401	74,316	223,051	—	6,880,011	6,880,011
FLOW	gpm	—	—	24	135	111	14.4	55.9	0.4	—	—	—	—	—	47	270	223	29	112	0.8	—	—	—	595	149	446	0.1	13,800	13,800
TEMPERATURE	°F	114	212	80	80	74	85	80	80	801	—	—	114	212	80	80	74	85	80	80	801	—	—	85	86.4	—	—	118.1	86.4
LHV HEAT INPUT	mmBtu/hr		778.1											1,556															
GROSS POWER	KW										93,211	2,250										186,422	4,500						
Gr.LHV HEAT RATE	Btu/kwhr										8,347											8,347							

REV	DESCRIPTION	DWN	CHK	APP	DATE
0	ISSUED FOR AFC PERMIT	DNL	MJS	SMG	08-18-06

KIEWIT INDUSTRIAL CO.
A Kiewit Company

BULLARD ENERGY CENTER LLC

Bibb and associates
8455 Lenexa Drive
Lenexa, Kansas 66214

FIGURE 3.4-4

HEAT AND MASS BALANCE
HOT AMBIENT

	by	date
DESIGNED	SMG	08-18-06
DRAWN	DNL	08-18-06
CHECKED	REB	08-18-06
APPROVED	SMG	08-18-06

DRAWING NUMBER
2006-026-HMBH-001

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