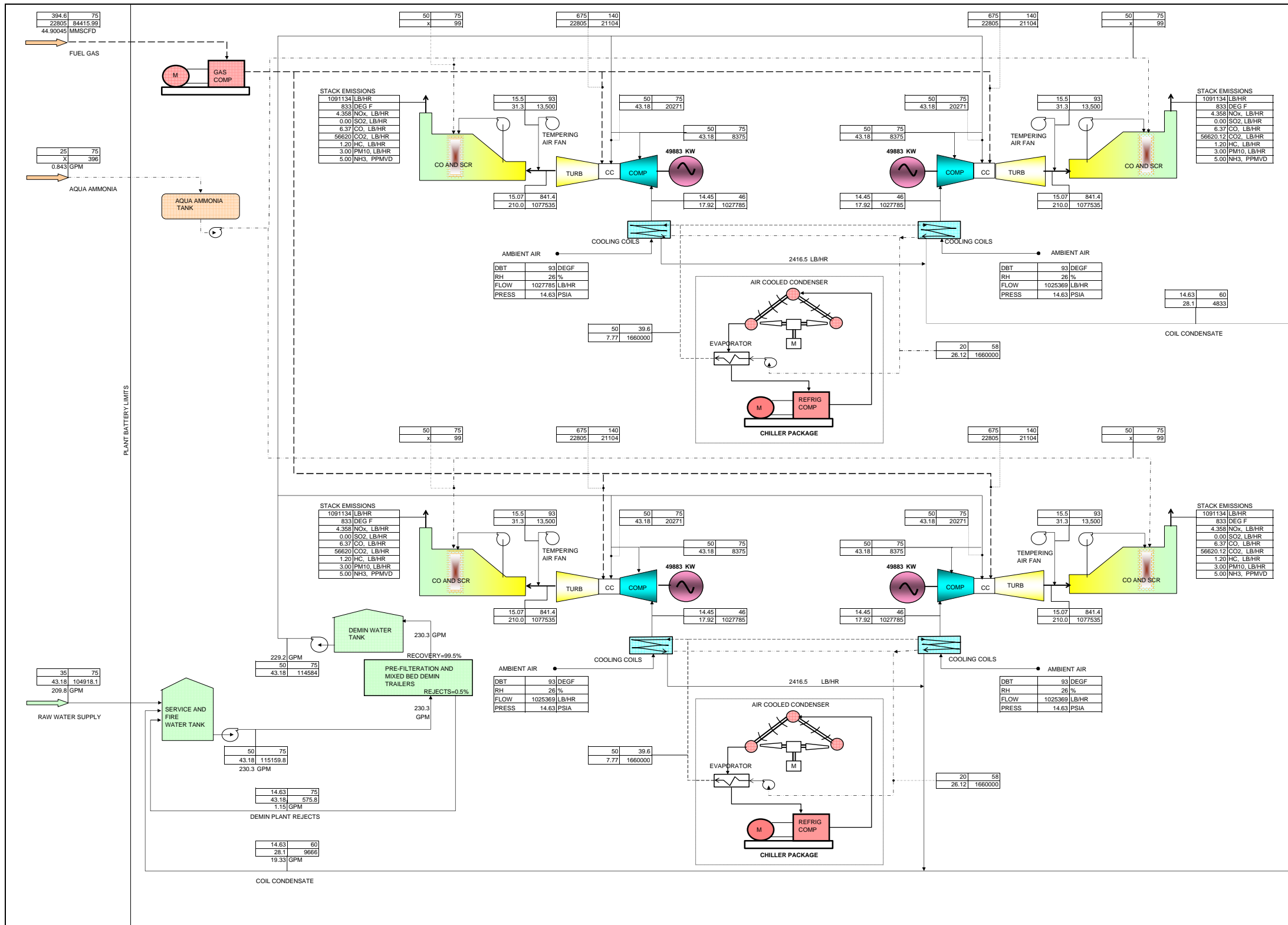


APPENDIX 2B

# Heat and Mass Balance Calculations

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HEAT BALANCE AT PEAK JULY AMBIENT CONDITIONS, 100% BASE LOAD



- NOTES
1. THE SCR TEMPERING AIR FANS OPERATE TO MAINTAIN THE FLUE GAS TEMPERATURE BELOW 850DEGF
  2. FUEL GAS SUPPLY PRESSURE TO SITE IS ASSUMED AT 380PSIG
  3. GAS TURBINE LUBE OIL COOLERS WILL BE AIR COOLED
  4. DILUTION AIR FLOWS FOR SCR ARE NOT SHOWN
  5. DEMINERALIZER REGENERATION WILL BE OFF SITE
  6. AIR COOLED CHILLER POWER UTILIZATION FACTOR-1.36 KW/TON OF REFRIGERATION

**STACK EMISSION LIMITS**

NOx	2.5PPMVD @ 15% O2
CO	6.0 PPMVD @ 15% O2
VOC	2.0PPMVD @ 15% O2
NH3 SLIP	5.0 PPMVD @ 15% O2
PM-10	3.0 LB/HR

**WATER CONSUMPTION SUMMARY**

DEMIN WATER , GPM	229.2
RAW WATER SUPPLY TO SITE, GPM	209.8
COOLING TOWER MAKEUP	0.00
POWER AUGMENTATION, PER ENGINE, GPM	16.75
WASTE WATER FROM SITE, GPM	0.00

**PLANT PERFORMANCE SUMMARY-ESTIMATE**

GAS TURBINE GROSS OUTPUT , KW/UNIT	49883
NUMBER OF GAS TURBINES	4
TOTAL GROSS OUTPUT, KW	199533.4
PLANT AUXILIARY LOSSES, KW	11514
230KV TRANSMISSION LINE LOSSES, KW	25
PLANT NET OUTPUT, KW	187994.2
FUEL INPUT/ UNIT, MMBTU/HR (HHV)	481.28
TOTAL PLANT FUEL INPUT, MMBTU/HR (HHV)	1925.107
NET PLANT HEAT RATE, BTU/KWH (HHV)	10240.24
NET PLANT HEAT RATE, BTU/KWH (LHV)	9241.1

**PARAMETERS**

PSIA	F
BTU/LB	PPH

REV	DESCRIPTION	MECH	PE	PM	DATE
A	FOR PG&E BID PURPOSE	PR	GH	ML	6/26/2008

REFERENCE DOCUMENTS
1. GES APPS VERSION 3.7.1

DESIGN CASE: BASE LOAD (100% MCR)

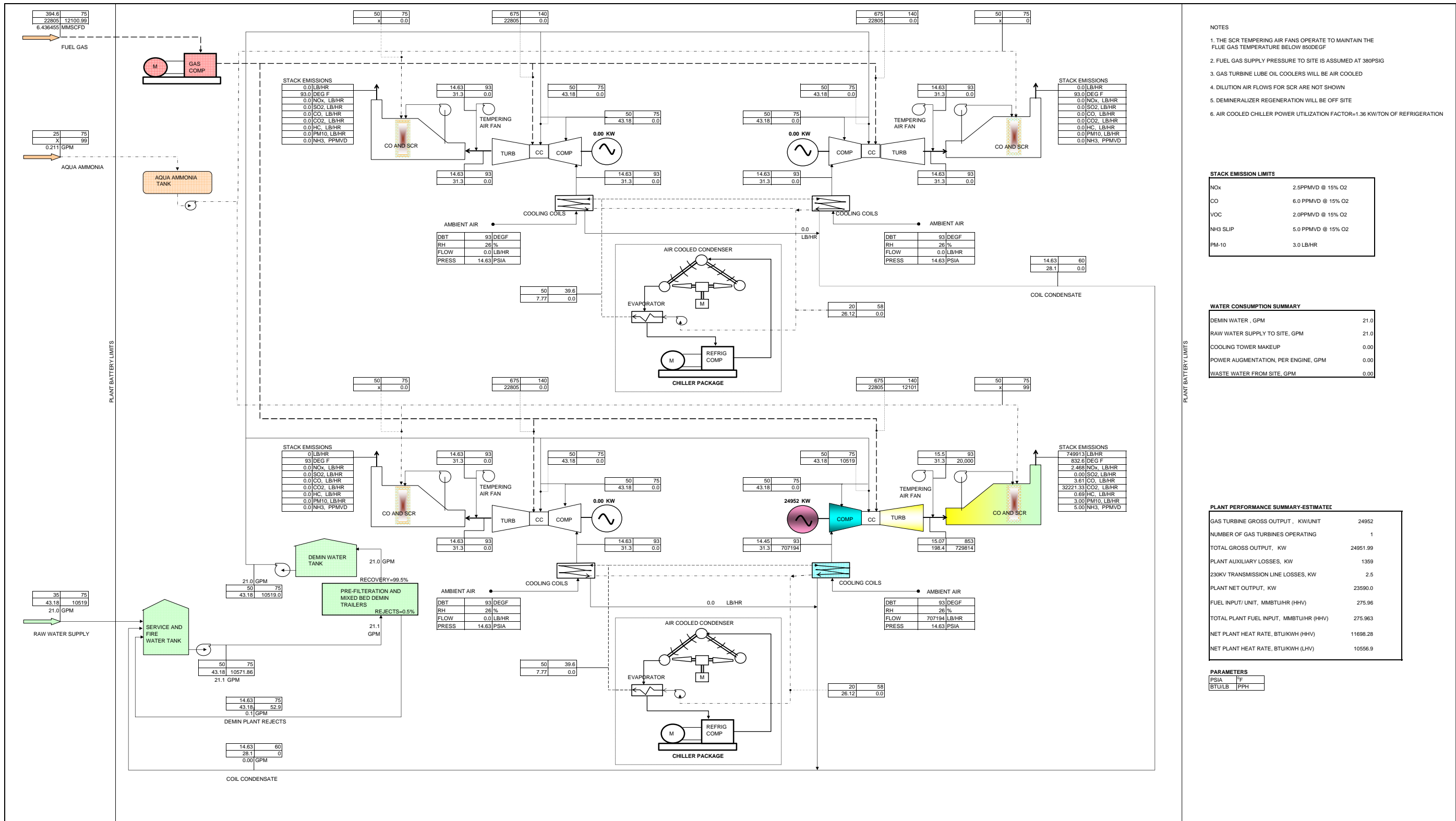
CONF: 4xLM6000 PC SPRNT A/CLD CHLR	AMB PRESS	14.63 PSIA
DRY BULB TEMP: 93.00 Deg F	WET BULB TEMP:	67.50 DEG F
AIR CLD CHILLER AUX POWER: 6773KW	TOTAL SPRNT INJ:	67.00 GPM

**DIAMOND GENERATING CORPORATION**  
 PROJECT LOCATION: BYRON, CA  
 PROJECT TITLE: DGC KELSO CT  
 HEAT AND MASS BALANCE DIAGRAM  
 4 x LM6000 PC SPRINT, AIR COOLED CHILLER  
 DRAWING NO: 114677/MC/03-07-01

POWER ENGINEERS

Rev. A

HEAT BALANCE AT PEAK JULY AMBIENT CONDITIONS, MINIMUM LOAD



- NOTES
1. THE SCR TEMPERING AIR FANS OPERATE TO MAINTAIN THE FLUE GAS TEMPERATURE BELOW 850DEGF
  2. FUEL GAS SUPPLY PRESSURE TO SITE IS ASSUMED AT 380PSIG
  3. GAS TURBINE LUBE OIL COOLERS WILL BE AIR COOLED
  4. DILUTION AIR FLOWS FOR SCR ARE NOT SHOWN
  5. DEMINERALIZER REGENERATION WILL BE OFF SITE
  6. AIR COOLED CHILLER POWER UTILIZATION FACTOR=1.36 KW/TON OF REFRIGERATION

**STACK EMISSION LIMITS**

NOx	2.5PPMVD @ 15% O2
CO	6.0 PPMVD @ 15% O2
VOC	2.0PPMVD @ 15% O2
NH3 SLIP	5.0 PPMVD @ 15% O2
PM-10	3.0 LB/HR

**WATER CONSUMPTION SUMMARY**

DEMIN WATER , GPM	21.0
RAW WATER SUPPLY TO SITE, GPM	21.0
COOLING TOWER MAKEUP	0.00
POWER AUGMENTATION, PER ENGINE, GPM	0.00
WASTE WATER FROM SITE, GPM	0.00

**PLANT PERFORMANCE SUMMARY-ESTIMATE**

GAS TURBINE GROSS OUTPUT , KW/UNIT	24952
NUMBER OF GAS TURBINES OPERATING	1
TOTAL GROSS OUTPUT, KW	24951.99
PLANT AUXILIARY LOSSES, KW	1359
230KV TRANSMISSION LINE LOSSES, KW	2.5
PLANT NET OUTPUT, KW	23590.0
FUEL INPUT/ UNIT, MMBTU/HR (HHV)	275.96
TOTAL PLANT FUEL INPUT, MMBTU/HR (HHV)	275.963
NET PLANT HEAT RATE, BTU/KWH (HHV)	11698.28
NET PLANT HEAT RATE, BTU/KWH (LHV)	10556.9

**PARAMETERS**

PSIA	°F
BTU/LB	PPH

REV	DESCRIPTION	MECH	PE	PM	DATE
A	FOR PG&E BID PURPOSE	PR	GH	ML	6/26/2008

REFERENCE DOCUMENTS
1. GES APPS VERSION 3.7.1

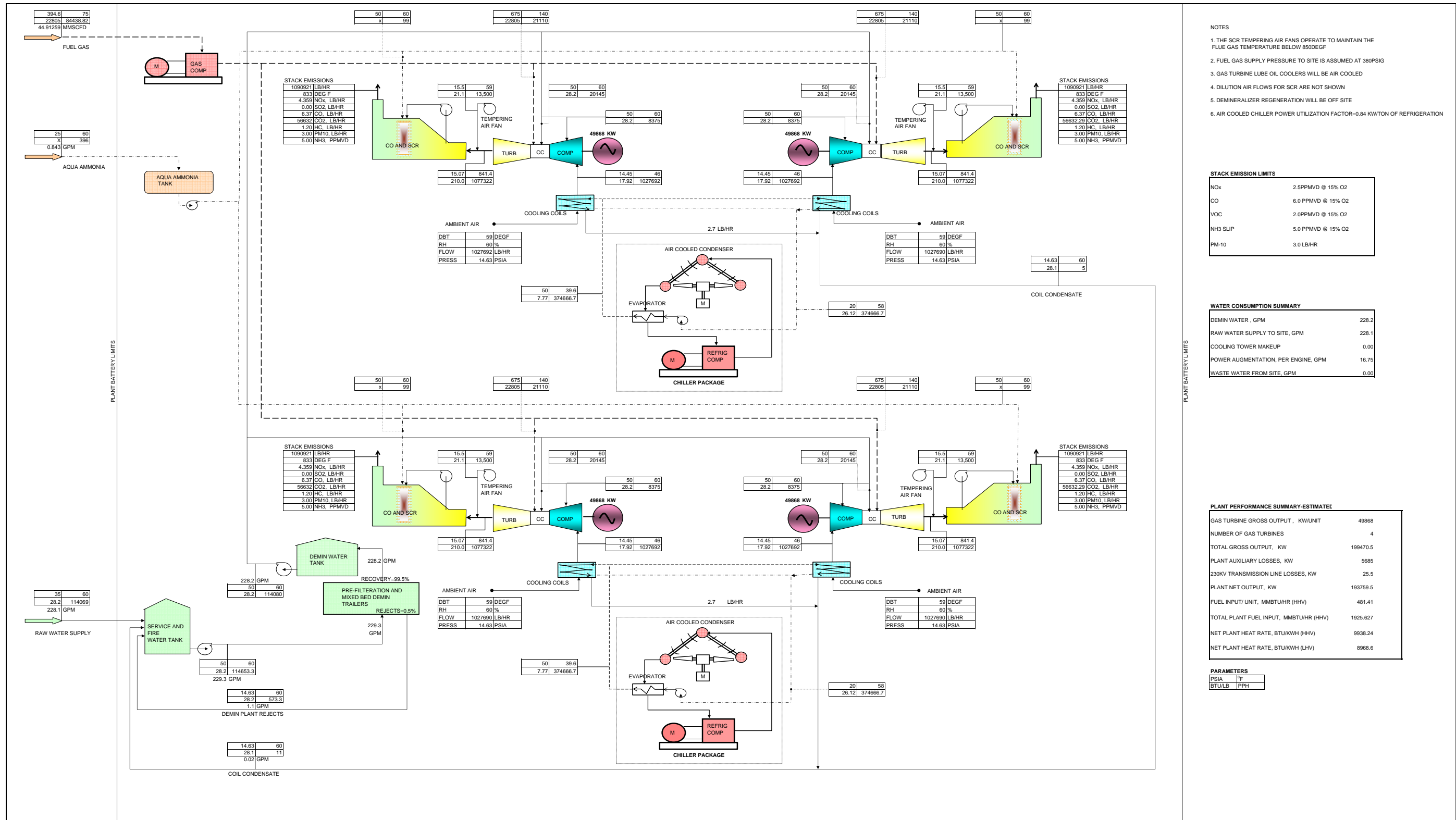
Design Case: AT MINIMUM LOAD (1 CTG AT 50% LOAD)

CONF: 4xLM6000 PC SPRINT A/CLD CHLR	AMB PRESS	14.63 PSIA
DRY BULB TEMP: 93.00 Deg F	WET BULB TEMP:	67.50 DEG F
AIR CLD CHILLER AUX POWER: 0.0KW	TOTAL SPRINT INJ:	0.00 GPM

**DIAMOND GENERATING CORPORATION**  
 PROJECT LOCATION: BYRON, CA  
 PROJECT TITLE: DGC KELSO CT  
 HEAT AND MASS BALANCE DIAGRAM  
 4 x LM6000 PC SPRINT, AIR COOLED CHILLER  
 DRAWING NO: 114677/MC/03-07-04

Rev. A

HEAT BALANCE AT ISO AMBIENT CONDITIONS, 100% BASE LOAD



- NOTES
1. THE SCR TEMPERING AIR FANS OPERATE TO MAINTAIN THE FLUE GAS TEMPERATURE BELOW 850DEGF
  2. FUEL GAS SUPPLY PRESSURE TO SITE IS ASSUMED AT 380PSIG
  3. GAS TURBINE LUBE OIL COOLERS WILL BE AIR COOLED
  4. DILUTION AIR FLOWS FOR SCR ARE NOT SHOWN
  5. DEMINERALIZER REGENERATION WILL BE OFF SITE
  6. AIR COOLED CHILLER POWER UTILIZATION FACTOR=0.84 KW/TON OF REFRIGERATION

**STACK EMISSION LIMITS**

NOx	2.5PPMVD @ 15% O2
CO	6.0 PPMVD @ 15% O2
VOC	2.0PPMVD @ 15% O2
NH3 SLIP	5.0 PPMVD @ 15% O2
PM-10	3.0 LB/HR

**WATER CONSUMPTION SUMMARY**

DEMIN WATER , GPM	228.2
RAW WATER SUPPLY TO SITE, GPM	228.1
COOLING TOWER MAKEUP	0.00
POWER AUGMENTATION, PER ENGINE, GPM	16.75
WASTE WATER FROM SITE, GPM	0.00

**PLANT PERFORMANCE SUMMARY-ESTIMATE**

GAS TURBINE GROSS OUTPUT , KW/UNIT	49868
NUMBER OF GAS TURBINES	4
TOTAL GROSS OUTPUT, KW	199470.5
PLANT AUXILIARY LOSSES, KW	5685
230KV TRANSMISSION LINE LOSSES, KW	25.5
PLANT NET OUTPUT, KW	193759.5
FUEL INPUT/ UNIT, MMBTU/HR (HHV)	481.41
TOTAL PLANT FUEL INPUT, MMBTU/HR (HHV)	1925.627
NET PLANT HEAT RATE, BTU/KWH (HHV)	9938.24
NET PLANT HEAT RATE, BTU/KWH (LHV)	8968.6

**PARAMETERS**

PSIA	°F
BTU/LB	PPH

REV	DESCRIPTION	MECH	PE	PM	DATE
A	FOR PG&E BID PURPOSE	PR	GH	ML	6/26/2008

REFERENCE DOCUMENTS
1. GES APPS VERSION 3.7.1

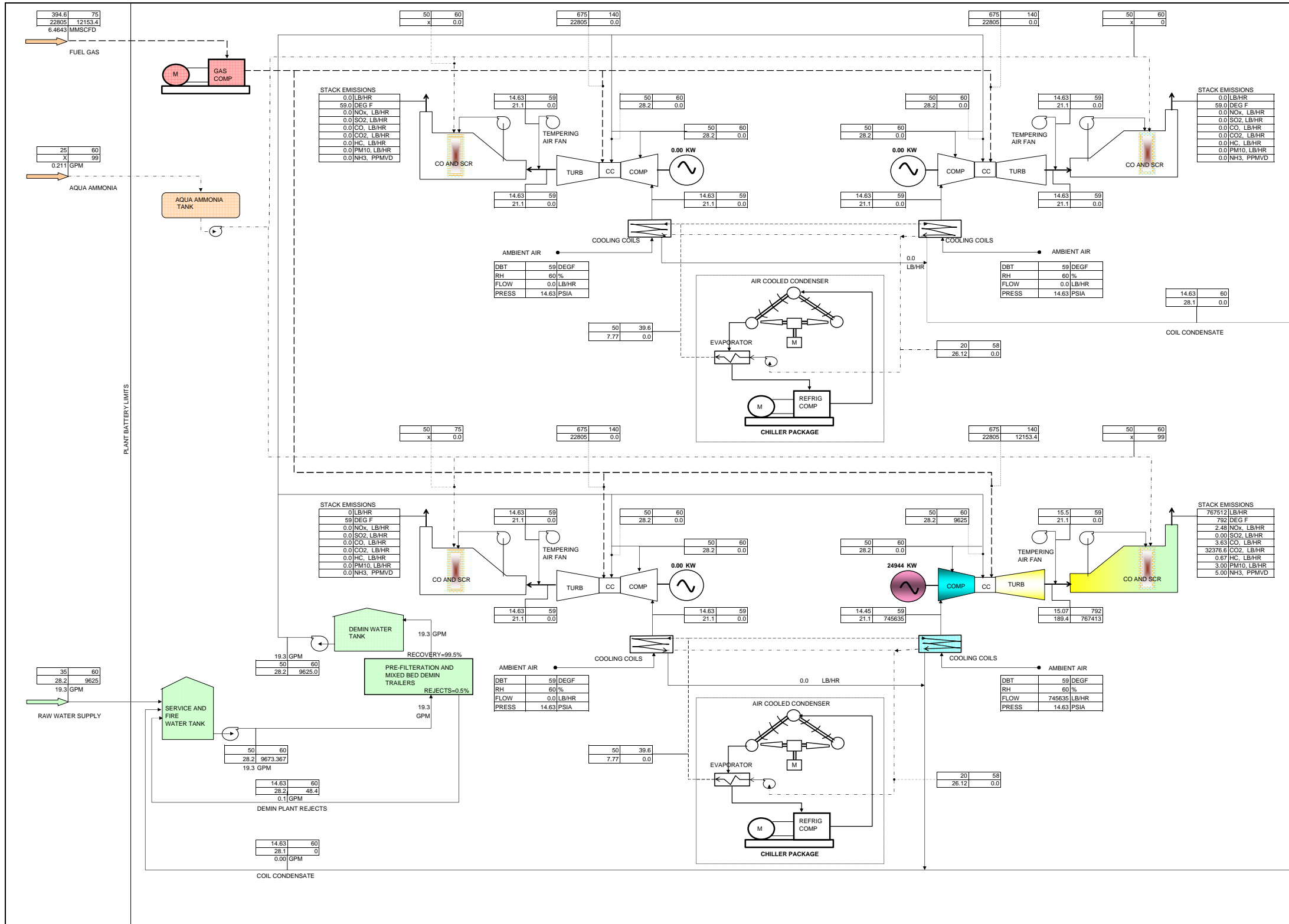
DESIGN CASE: BASE LOAD (100%MC'R)

CONF: 4xLM6000 PC SPRNT A/CLD CLR	AMB PRESS	14.63 PSIA
DRY BULB TEMP: 59.00 Deg F	WET BULB TEMP:	51.50 DEG F
AIR CLD CHILLER AUX POWER: 944KW	TOTAL SPRNT INJ:	67.00 GPM

**DIAMOND GENERATING CORPORATION**  
 PROJECT LOCATION: BYRON, CA  
 PROJECT TITLE: DGC KELSO CT  
 HEAT AND MASS BALANCE DIAGRAM  
 4 x LM6000 PC SPRINT, AIR COOLED CHILLER  
 DRAWING NO:114677/MC/03-00-01

Rev. A

HEAT BALANCE AT ISO AMBIENT CONDITIONS, MINIMUM LOAD



- NOTES
1. THE SCR TEMPERING AIR FANS OPERATE TO MAINTAIN THE FLUE GAS TEMPERATURE BELOW 850DEGF
  2. FUEL GAS SUPPLY PRESSURE TO SITE IS ASSUMED AT 380PSIG
  3. GAS TURBINE LUBE OIL COOLERS WILL BE AIR COOLED
  4. DILUTION AIR FLOWS FOR SCR ARE NOT SHOWN
  5. DEMINERALIZER REGENERATION WILL BE OFF SITE
  6. AIR COOLED CHILLER POWER UTILIZATION FACTOR=0.84 KW/TON OF REFRIGERATION

**STACK EMISSION LIMITS**

NOx	2.5PPMVD @ 15% O2
CO	6.0 PPMVD @ 15% O2
VOC	2.0PPMVD @ 15% O2
NH3 SLIP	5.0 PPMVD @ 15% O2
PM-10	3.0 LB/HR

**WATER CONSUMPTION SUMMARY**

DEMIN WATER , GPM	19.3
RAW WATER SUPPLY TO SITE, GPM	19.3
COOLING TOWER MAKEUP	0.00
POWER AUGMENTATION, PER ENGINE, GPM	0.00
WASTE WATER FROM SITE, GPM	0.00

**PLANT PERFORMANCE SUMMARY-ESTIMATE**

GAS TURBINE GROSS OUTPUT , KW/UNIT	24944
NUMBER OF GAS TURBINES OPERATING	1
TOTAL GROSS OUTPUT, KW	24944.13
PLANT AUXILIARY LOSSES, KW	1359
230KV TRANSMISSION LINE LOSSES, KW	5
PLANT NET OUTPUT, KW	23579.7
FUEL INPUT/ UNIT, MMBTU/HR (HHV)	277.16
TOTAL PLANT FUEL INPUT, MMBTU/HR (HHV)	277.16
NET PLANT HEAT RATE, BTU/KWH (HHV)	11754.07
NET PLANT HEAT RATE, BTU/KWH (LHV)	10607.3

**PARAMETERS**

PSIA	°F
BTU/LB	PPH

REV	DESCRIPTION	MECH	PE	PM	DATE
A	FOR PG&E BID PURPOSE	PR	GH	ML	6/26/2008

REFERENCE DOCUMENTS
1. GES APPS VERSION 3.7.1

Design Case: AT MINIMUM LOAD (1 CTG AT 50% LOAD)

CONF: 4xLM6000 PC SPRINT A/CLD CHLR	AMB PRESS	14.63 PSIA
DRY BULB TEMP: 59.00 Deg F	WET BULB TEMP:	51.50 DEG F
AIR CLD CHILLER AUX POWER: 0.0KW	TOTAL SPRINT INJ:	0.00 GPM

**DIAMOND GENERATING CORPORATION**  
 PROJECT LOCATION: BYRON, CA  
 PROJECT TITLE: DGC KELSO CT  
 HEAT AND MASS BALANCE DIAGRAM  
 4 x LM6000 PC SPRINT, AIR COOLED CHILLER  
 DRAWING NO:114677/MC/03-00-04

POWER ENGINEERS

Rev. A