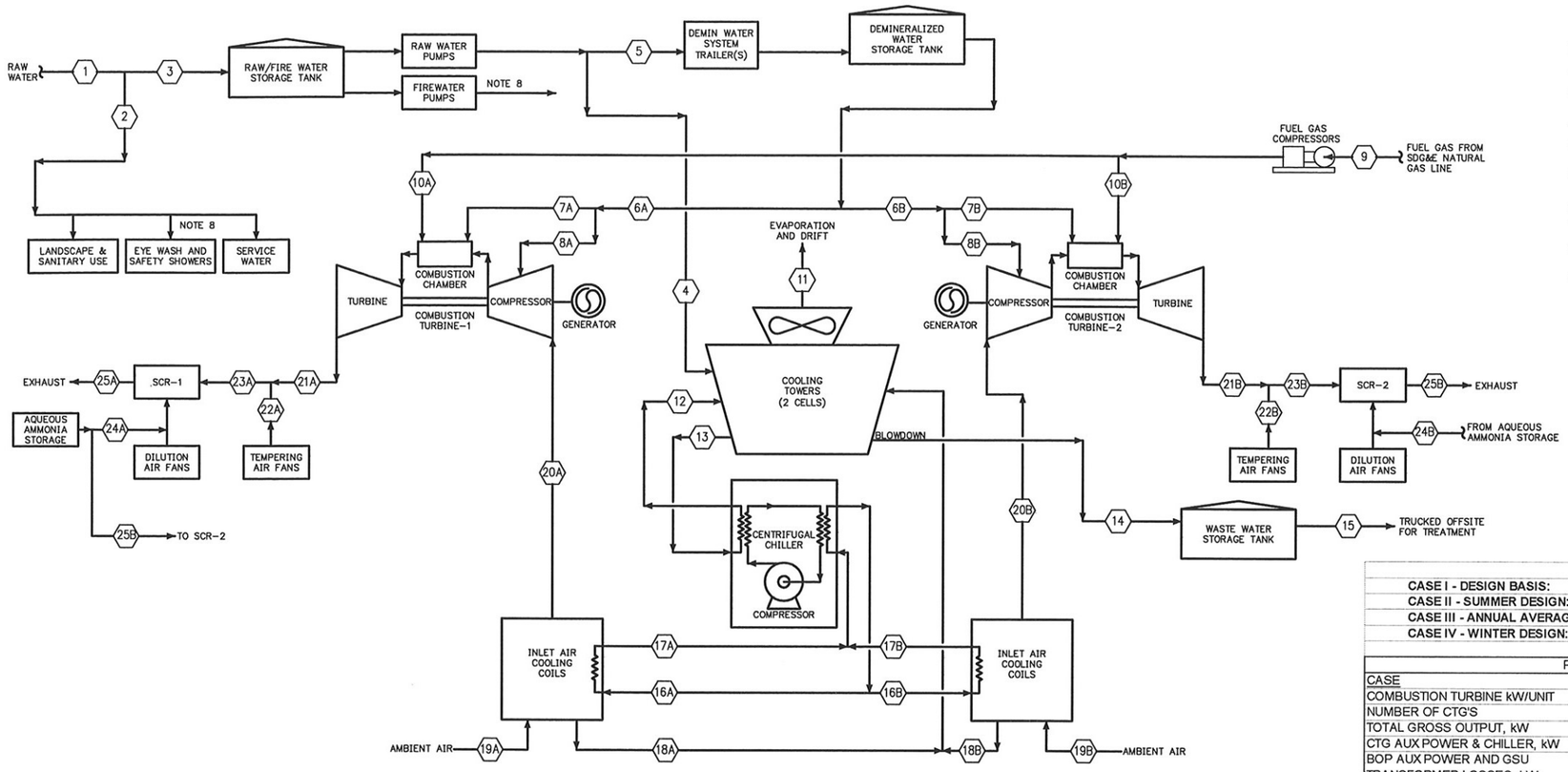

NOTES:

1. FUEL GAS LHV = 950 BTU/SCF.
2. THE VALUES LISTED ON THIS DRAWING ARE BASED ON LM 6000 SPRINT COMBUSTION TURBINES FIRING NATURAL GAS.
3. ELEVATION = 410 FT. ABOVE MEAN SEA LEVEL.
4. COOLING TOWER BLOWDOWN BASED ON 1.5 CYCLES OF CONCENTRATION.
5. EMISSIONS ARE GUARANTEED VALUES FOR COOLING TOWERS AT BASE LOAD OPERATION.
6. AUXILIARY LOADS ARE PRELIMINARY.
7. FLOWS INICATED ARE DERIVED FROM PRELIMINARY DOCUMENTS.
8. FLOW FOR FIREWATER PUMPS AND FOR EYE WASH AND SAFETY SHOWERS IS TYPICALLY ZERO.
9. BOP AUX POWER LOADS:
   A) TRANSFORMER LOSSES = 505 Kw
   B) GAS COMPRESSORS = 2 x 425 HP
   C) DEMIN PUMP = 2 x 25 HP
   D) AIR COMPRESSOR = 45 HP
   E) AREA LIGHTING, HVAC AND MISC LOADS = 115 Kw
   TOTAL = 1,325 Kw

CASE I - DESIGN BASIS:	86 F (DBT),	70.5 F (WBT),	47% RH
CASE II - SUMMER DESIGN:	102 F (DBT),	70.2 F (WBT),	20% RH
CASE III - ANNUAL AVERAGE:	65 F (DBT),	59.9 F (WBT),	75% RH
CASE IV - WINTER DESIGN:	27 F (DBT),	27.0 F (WBT),	100% RH

PERFORMANCE SUMMARY

CASE	I	II	III	IV
COMBUSTION TURBINE kW/UNIT	50,751	50,409	50,409	49,453
NUMBER OF CTG'S	2	2	2	2
TOTAL GROSS OUTPUT, kW	101,502	100,818	100,818	98,906
CTG AUX POWER & CHILLER, kW	3,415	3,420	2,115	955
BOP AUX POWER AND GSU TRANSFORMER LOSSES, kW	1,325	1,325	1,325	1,325
NET PLANT, kW	96,762	96,073	97,378	96,626
FUEL INPUT/UNIT MMBTU/HR (LHV)	433.0	430.1	430.1	418.8
TOTAL FUEL INPUT/MMBTU/HR (LHV)	866.0	860.2	860.2	837.6
NET PLANT HEAT RATE				
BTU/KWH (LHV)	8,532	8,533	8,533	8,468
BTU/KWH (HHV)	9,471	9,472	9,472	9,399

STREAM NO.	1				2				3				4				5				6 A/B				7 A/B			
CASE	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
FLOW RATE (LB/HR)	142,700	149,209	122,672	95,133	30,042	30,042	30,042	20,028	112,658	119,167	92,630	75,105	37,553	44,062	17,525	0	75,105	75,105	75,105	75,105	28,803	28,527	28,527	24,925	20,516	20,240	20,240	21,179
FLOW RATE (GPM)	285	298	245	190	60	60	60	40	225	238	185	150	75	88	35	0	150	150	150	150	57.53	56.97	56.97	49.78	40.97	40.42	40.42	42.30
TEMP (F)	55	60	55	50	55	60	55	50	55	60	55	50	55	60	55	NA	70	75	70	65	70	75	70	65	100	100	100	100

STREAM NO.	8 A/B				9				10 A/B				11				12				13				14			
CASE	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
FLOW RATE (LB/HR)	8,287	8,287	8,287	3,746	45,580	45,278	45,278	44,084	22,790	22,639	22,639	22,042	42,084	40,577	20,539	0	LATER	LATER	LATER	0	LATER	LATER	LATER	0	8,512	8,011	4,006	0
FLOW RATE (GPM)	16.55	16.55	16.55	7.48	-	-	-	-	-	-	-	-	84	81	41	0	LATER	LATER	LATER	0	LATER	LATER	LATER	0	17	16	8	0
TEMP (F)	100	100	100	100	77	77	77	77	151	151	151	151	-	-	-	-	LATER	LATER	LATER	NA	LATER	LATER	LATER	NA	LATER	LATER	LATER	NA

STREAM NO.	15				16 A/B				17 A/B				18 A/B				19 A/B				20 A/B			
CASE	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
FLOW RATE (LB/HR)	8,512	8,011	4,006	0	2,254,151	2,189,561	1,144,100	0	2,254,151	2,189,561	1,144,100	0	6,509	2,253	3,755	0	1,037,880	1,032,480	1,033,920	1,063,800	1,030,320	1,030,320	1,030,320	1,063,800
FLOW RATE (GPM)	17	16	8	0	4502	4373	2285	0	4502	4373	2285	0	13	4.5	7.5	0	-	-	-	-	-	-	-	-
TEMP (F)	LATER	LATER	LATER	NA	46	46	46	NA	57	57	57	NA	70	70	60	NA	85	102	65	27	46	46	46	27

STREAM NO.	21 A/B				22 A/B				23 A/B				24 A/B				25 A/B			
CASE	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
FLOW RATE (LB/HR)	1,072,059	1,072,059	1,072,059	1,083,773	77,127	74,215	81,246	0	1,149,186	1,146,274	1,153,305	1,083,773	93	93	93	93	LATER	LATER	LATER	LATER
FLOW RATE (GPM)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TEMP (F)	840	840	840	837	91	107	70	32	787	790	783	837	-	-	-	-	787	790	783	837
EMISSIONS																				
NOx, PPMVD, 15% 02	25	25	25	25					25	25	25	25					2.5	2.5	2.5	2.5
NOx, PPH	44	43	43	42					44	43	43	42					4.34	4.34	4.34	4.36
CO, PPMVD, 15% O2	20	20	20	41					20	20	20	41					6.0	6.0	6.0	6.0
CO, PPH	21.3	21.2	21.2	41.8					21.3	21.2	21.2	41.8					6.34	6.34	6.34	6.36
PM 10 PARTICULATES	-	-	-	-					-	-	-	-					4.0	4.0	4.0	4.0
NH3 SLIP, LB/HR PPMVD 15% O2	-	-	-	-					-	-	-	-					5.0	5.0	5.0	5.0

REV.	DATE	DESCRIPTION	DWN	CHK
0	07-06-07	ISSUED – CEC PERMIT APPLICATION	SMG	LFB

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Sega®
Engineers – Architects – Technicians
Design – Construction – Field Service
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J-POWER GROUP
J-POWER USA Development Co., Ltd

ORANGE GROVE PROJECT

PROCESS FLOW DIAGRAM

DESIGN BY: L. BEIL	CHECKED BY: L. BEIL
DRAWN BY: S. GOETZ	DATE: 6-6-07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098
CADD FILE NAME: 07098-P&ID-01.dwg	
DRAWING NO. FIGURE 2B-1	REV. 0

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