

PROJECT COSTS AND SCHEDULE

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7.0 PROJECT COSTS AND SCHEDULE

7.1 PROJECT COSTS

The total project costs for the Polk Power Station Unit 1 are summarized in Table 7.1. These represent the total of actual costs to date plus estimated costs to completion. The values are actual dollar expenditures with no escalation. Costs are summed from the planning phase in 1991 through the commencement of commercial operation in 1996; of course, the bulk of the expenditures will be incurred in the detailed engineering and construction phase from April 1993 to July 1996.

Table 7.1

**Polk Power Station Unit 1
IGCC Project Cost Estimate**

Description	Total Project Estimate
Project Management (includes preliminary and detailed engineering and procurement)	54,904,397
Environmental/Permitting	5,284,138
Sitework Engineering	868,074
Construction Management	8,301,800
Spare Parts	1,230,000
Expenses Incurred Prior to TEC-DOE Cooperative Agreement	4,679,950
Operator Training	5,242,100
Hot Gas Cleanup Facilities	18,690,324
Sulfuric Acid Plant	20,691,833
Cold Gas Cleanup Facilities	13,440,674
Gasification Plant, including Air Separation Unit	159,572,394
Steam and Combustion Turbines and Fuel Oil Supply	88,067,419
Heat Recovery Steam Generator	39,749,506
Plant Electrical	18,965,307
Sitework and Buildings - Engr. and Misc.	8,920,505
Site Reclamation and Development	39,131,413
Land Acquisition Costs	20,855,039
Plant Utilities and Support Systems	36,298,935
TEC Administrative and General	<u>5,946,671</u>
Subtotal	550,840,479
Less DOE Reimbursements	<u>(110,253,224)</u>
Grand Total	440,587,255

7.2 PROJECT SCHEDULE

Listed below are key project milestones and their dates.

Milestone	Date
Petition filed with Florida Public Service Commission (FPSC) to determine Need for Electrical Power Plant and Related facilities	September 5, 1991
Architect/Engineer (A/E) selected for development of Preliminary Engineering Package (PEP)	March 1, 1992
U.S. Department of Energy (DOE) approved Amendment M001 to the Cooperative Agreement between DOE and TEC	March 2, 1992
FPSC issued order to approve Need for Polk Power Station Unit #1	March 5, 1992
Submitted Environmental Information Volume to EPA	June 8, 1992
Submitted Site Certification Application to Florida Department of Environmental Regulation	July 31, 1992
Awarded Combined Cycle System Contracts	November 6, 1992
PEP Complete	December 7, 1992
Awarded Air Separation Unit Turnkey Contract	April 14, 1993
Awarded Contract for Detailed Engineering	April 22, 1993
Awarded Syngas Cooling System Contracts	May 25, 1993
Awarded Hot Gas Cleanup System (HGCU) Design Contract	June 2, 1993
Awarded Construction Management Contract	June 24, 1993
Site Certification Application, approved	January 25, 1994
Begin Site Development Work	May 2, 1994
Award Sulfuric Acid Plant Contract	May 10, 1994
Award Brine Concentration System Contract	June 1, 1994
Receive Army Corp. of Engineers 404 Permit	July 15, 1994
Begin Foundation Construction	November 1, 1994
Complete HGCU Detailed Engineering	December 30, 1994
Begin ASU Foundation Construction	January 1, 1995
Begin Construction 230KV Switchyard	January 1, 1995
Complete A/E Detailed Engineering	January 30, 1995
Deliver Combustion Turbine & Generator	February 15, 1995
Begin Gasification Structure Erection	March 1, 1995
Begin Sulfuric Acid Plant Construction	March 1, 1995
Deliver Main Air Compressor	March 15, 1995
Deliver Steam Turbine & Generator	May 1, 1995
Deliver Radiant Syngas Cooler	May 15, 1995
Energize 230KV Switchyard	July 1, 1995
Startup of Air Separation Unit	September 15, 1995

Milestone

Date

Startup of Combined Cycle Equipment
Startup of Gasification System
IGCC Commercial Operation Date

December 1, 1995
March 1, 1996
July 1, 1996

HEAT AND MATERIAL BALANCES



8.0 HEAT AND MATERIAL BALANCES

Heat and material balances are provided for two cases: (1) normal operating case on Pittsburgh #8 coal (with 2.57% sulfur) and HGCU not in operation (Table 8.1) and (2) normal operating case on Pittsburgh #8 coal (with 2.57% sulfur) and HGCU in operation (Table 8.2). The flow diagram stream numbers refer to those of the block flow diagram (Figure 5-3-1).

Table 8.1 HEAT AND MATERIAL BALANCE
NORMAL OPERATING CASE

FLOW DIAGRAM STREAM NO.	1*	2*	3	4	5	6
TEXACO STREAM ID DESCRIPTION	103 SLURRY WATER TO MILL	102 COAL TO MILL	301 OXYGEN TO BURNER	414 N2 TO CT	G1** RAW SYNGAS TO HGCU	HP STEAM TO HRSG
PHASE FLUID RATES, LB-MOL/HR	LIQUID	MIXED	VAPOR	VAPOR		VAPOR
1 CO	0.000	0.000	0.000	0.000		0.000
2 H2	0.000	0.000	0.000	0.000		0.000
3 CO2	0.000	0.000	0.000	0.000		0.000
4 H2O	4089.228	437.200	0.000	0.000		25709.131
5 CH4	0.000	0.000	0.000	0.000		0.000
6 Ar	0.000	0.000	186.240	0.000		0.000
7 N2	0.000	0.000	68.875	17714.299		0.000
8 H2S	0.000	0.000	0.000	0.000		0.000
9 COS	0.000	0.000	0.000	0.000		0.000
10 O2	0.000	0.000	4847.200	178.920		0.000
11 NH3	0.000	0.000	0.000	0.000		0.000
12 H2SO4	0.000	0.000	0.000	0.000		0.000
13 SO2	0.000	0.000	0.000	0.000		0.000
14 SO3	0.000	0.000	0.000	0.000		0.000
TOTAL FLUID, LB-MOL/HR	4089.228	437.200	5102.315	17893.219	0.000	25709.131
NMW SOLID RATES, LB/HR						
15 COAL	0.000	158292.984	0.000	0.000		0.000
16 SLAG	0.000	0.000	0.000	0.000		0.000
17 CHAR	0.000	0.000	0.000	0.000		0.000
18 NACI	0.000	0.000	0.000	0.000		0.000
19 NH4CL	0.000	0.000	0.000	0.000		0.000
20 NH4COOH	0.000	0.000	0.000	0.000		0.000
21 OTHER	0.000	0.000	0.000	0.000		0.000
TOTAL NMW SOLID, LB/HR	0.000	158292.984	0.000	0.000	0.000	0.000
TOTAL RATE, LB/HR	73668.586	166169.266	164473.922	501964.375		463150.000
TEMPERATURE, °F	183.759	90.000	222.000	635.961		610.000
PRESSURE, PSIA	34.700	14.700		270.000		1665.000
ENTHALPY, MM BTU/HR	5.792	-32.636	8.631	72.124		542.765
MOLECULAR WEIGHT (1)	18.015	18.015	32.235	28.053		18.015
MOLE FRAC VAPOR (1)	0.000	0.000	1.000	1.000		1.000
MOLE FRAC LIQUID (1)	1.000	1.000	0.000	0.000		0.000
WEIGHT FRAC NMW SOLID	0.000	0.953	0.000	0.000		0.000
VAPOR						
M FT3/HR	N/A	N/A	69.286	786.758		
CP, BTU/LB-°F	N/A	N/A	0.231	0.258		
DENSITY, LB/M FT3	N/A	N/A	2373.836	638.013		
TH COND, BTU/HR-FT-°F	N/A	N/A	0.01865	0.02634		
VISCOSITY, cP	N/A	N/A	0.02494	0.02975		
LIQUID						
GAL/MIN	156.708	15.974	N/A	N/A		N/A
CP, BTU/LB-°F	0.995	1.053	N/A	N/A		N/A
DENSITY, LB/FT3	58.610	61.472	N/A	N/A		N/A
SURFACE TENSION, DYNE/CM	61.2494	71.3790	N/A	N/A		N/A
TH COND, BTU/HR-FT-°F	0.38565	0.35598	N/A	N/A		N/A
VISCOSITY, cP	0.32739	0.75906	N/A	N/A		N/A
SOLID						
CP, BTU/LB-°F	N/A	0.250	N/A	N/A		N/A
DENSITY, LB/FT3	N/A	84.000	N/A	N/A		N/A

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.1 HEAT AND MATERIAL BALANCE
NORMAL OPERATING CASE

FLOW DIAGRAM STREAM NO.	7	8	9	10	11	12
TEXACO STREAM ID DESCRIPTION	G5** CLEAN SYNGAS TO CT	R10** SO2 TO SULFURIC ACID	607 SYNGAS TO ACID GAS WASH	411 CLNGAS TO CT	1313 ACID GAS TO SAP	905 SLAG FROM DEWATERING PIT
PHASE			VAPOR	VAPOR	VAPOR	MIXED
FLUID RATES, LB-MOL/HR						
1 CO			7964.922	7960.294	1.543	0.000
2 H2			5565.913	5562.700	1.107	0.000
3 CO2			2048.682	1641.074	406.239	0.000
4 H2O			63.161	75.262	27.765	617.254
5 CH4			29.694	29.585	0.007	0.000
6 Ar			186.160	186.006	0.000	0.000
7 N2			1013.188	1012.490	0.157	0.000
8 H2S			122.891	0.140	122.613	0.000
9 COS			3.094	2.099	0.015	0.000
10 O2			0.000	0.000	0.000	0.000
11 NH3			0.000	0.000	0.000	0.000
12 H2SO4			0.000	0.000	0.000	0.000
13 SO2			0.000	0.000	0.000	0.000
14 SO3			0.000	0.000	0.000	0.000
TOTAL FLUID, LB-MOL/HR	0.000	0.000	16997.705	16469.650	559.446	617.254
NMW SOLID RATES, LB/HR						
15 COAL			0.000	0.000	0.000	0.000
16 SLAG			0.000	0.000	0.000	11119.999
17 CHAR			0.000	0.000	0.000	0.000
18 NaCl			0.000	0.000	0.000	45.890
19 NH4Cl			0.000	0.000	0.000	0.000
20 NH4COOH			0.000	0.000	0.000	0.000
21 OTHER			0.000	0.000	0.000	0.000
TOTAL NMW SOLID, LB/HR	0.000	0.000	0.000	0.000	0.000	11165.889
TOTAL RATE, LB/HR			366291.031	344163.375	22608.457	22285.891
TEMPERATURE, °F			105.000	641.785	110.000	177.301
PRESSURE, PSIA			317.500	300.000	25.700	14.700
ENTHALPY, MM BTU/HR			24.461	87.174	0.195	-2.719
MOLECULAR WEIGHT (1)			21.549	20.897	40.412	18.015
MOLE FRAC VAPOR (1)			1.000	1.000	1.000	0.000
MOLE FRAC LIQUID (1)			0.000	0.000	0.000	1.000
WEIGHT FRAC NMW SOLID			0.000	0.000	0.000	0.501
VAPOR						
M FT3/HR			325.590	654.728	132.943	N/A
CP, BTU/LB-°F			0.344	0.364	0.218	N/A
DENSITY, LB/M FT3			1125.002	525.656	170.061	N/A
TH COND, BTU/HR-FT-°F			0.03228	0.05134	0.01000	N/A
VISCOSITY, cP			0.01635	0.02774	0.01500	N/A
LIQUID						
GAL/MIN			N/A	N/A	N/A	23.573
CP, BTU/LB-°F			N/A	N/A	N/A	0.997
DENSITY, LB/FT3			N/A	N/A	N/A	58.812
SURFACE TENSION, DYNE/CM			N/A	N/A	N/A	61.9422
TH COND, BTU/HR-FT-°F			N/A	N/A	N/A	0.38422
VISCOSITY, cP			N/A	N/A	N/A	0.34182
SOLID						
CP, BTU/LB-°F			N/A	N/A	N/A	0.250
DENSITY, LB/FT3			N/A	N/A	N/A	149.929

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.1 HEAT AND MATERIAL BALANCE
NORMAL OPERATING CASE

FLOW DIAGRAM STREAM NO.	13	14	15	16	17	18
TEXACO STREAM ID DESCRIPTION	1003 FINES FROM DEWATERING PIT	1102 EVAPORATOR FEED	1108 EVAP COND. RETURN	1211 DRY SOLIDS TO LANDFILL	709 SOUR GAS FROM VAC PUMP	98% H2SO4 PRODUCT
PHASE	MIXED	MIXED	MIXED	MIXED	VAPOR	LIQUID
FLUID RATES, LB-MOL/HR						
1 CO	0.000	0.000	0.000	0.000	0.822	
2 H2	0.000	0.000	0.000	0.000	0.675	
3 CO2	0.000	0.315	0.034	0.000	2.125	
4 H2O	205.742	2990.840	2965.974	0.687	0.743	
5 CH4	0.000	0.000	0.000	0.000	0.004	
6 Ar	0.000	0.000	0.000	0.000	0.025	
7 N2	0.000	0.000	0.000	0.000	0.077	
8 H2S	0.000	0.254	0.101	0.000	0.448	
9 COS	0.000	0.000	0.000	0.000	0.004	
10 O2	0.000	0.000	0.000	0.000	0.000	
11 NH3	0.000	0.800	0.548	0.000	0.000	
12 H2SO4	0.000	0.000	0.000	0.000	0.000	
13 SO2	0.000	0.000	0.000	0.000	0.000	
14 SO3	0.000	0.000	0.000	0.000	0.000	
TOTAL FLUID, LB-MOL/HR	205.742	2992.209	2966.657	0.687	4.923	0.000
NMW SOLID RATES, LB/HR						
15 COAL	0.000	0.000	0.000	0.000	0.000	0.000
16 SLAG	0.000	0.000	0.000	0.000	0.000	0.000
17 CHAR	3706.499	0.000	0.000	0.000	0.000	0.000
18 NACL	0.000	4.000	0.000	3.966	0.000	0.000
19 NH4CL	0.000	206.500	0.000	204.712	0.000	0.000
20 NH4COOH	0.000	20.800	9.550	10.441	0.000	0.000
21 OTHER	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL NMW SOLID, LB/HR	3706.499	231.300	9.550	219.119	0.000	0.000
TOTAL RATE, LB/HR	7413.000	54148.262	53456.648	231.488	150.020	5825.000
TEMPERATURE, °F	180.261	205.000	209.402	213.382	150.000	104.000
PRESSURE, PSIA	14.700	17.000	50.000	15.100	25.000	14.700
ENTHALPY, MM BTU/HR	-0.886	9.516	9.754	-0.082	0.035	
MOLECULAR WEIGHT (1)	18.015	18.019	18.016	18.015	30.477	
MOLE FRAC VAPOR (1)	0.000	0.000	0.000	0.000	1.000	0.000
MOLE FRAC LIQUID (1)	1.000	1.000	1.000	1.000	0.000	1.000
WEIGHT FRAC NMW SOLID	0.500	0.004	0.000	0.947	0.000	0.000
VAPOR						
M FT3/HR	N/A	N/A	N/A	N/A	1.284	N/A
CP, BTU/LB-°F	N/A	N/A	N/A	N/A	0.273	N/A
DENSITY, LB/M FT3	N/A	N/A	N/A	N/A	116.857	N/A
TH COND, BTU/HR-FT-°F	N/A	N/A	N/A	N/A	0.02063	N/A
VISCOSITY, cP	N/A	N/A	N/A	N/A	0.01604	N/A
LIQUID						
GAL/MIN	7.870	116.073	115.331	N/A	N/A	6.000
CP, BTU/LB-°F	0.996	0.991	0.990	N/A	N/A	
DENSITY, LB/FT3	58.719	57.913	57.777	N/A	N/A	121.039
SURFACE TENSION, DYNE/CM	61.6246	58.9210	61.0558	N/A	N/A	
TH COND, BTU/HR-FT-°F	0.38489	0.38492	0.38956	N/A	N/A	
VISCOSITY, cP	0.33506	0.28710	0.28006	N/A	N/A	
SOLID						
CP, BTU/LB-°F	0.250	0.249	0.250	0.249	N/A	N/A
DENSITY, LB/FT3	150.000	95.694	80.300	96.554	N/A	N/A

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.1 HEAT AND MATERIAL BALANCE
NORMAL OPERATING CASE

FLOW DIAGRAM STREAM NO. 19

TEXACO STREAM ID
DESCRIPTION OFFGAS

PHASE		VAPOR
FLUID RATES, LB-MOL/HR		
1	CO	0.000
2	H2	0.000
3	CO2	435.500
4	H2O	0.000
5	CH4	0.000
6	Ar	0.000
7	N2	741.900
8	H2S	0.000
9	COS	0.000
10	O2	35.200
11	NH3	0.000
12	H2SO4	0.000
13	SO2	0.100
14	SO3	0.000
TOTAL FLUID, LB-MOL/HR		1212.700

NMW SOLID RATES, LB/HR		
15	COAL	0.000
16	SLAG	0.000
17	CHAR	0.000
18	NACl	0.000
19	NH4CL	0.000
20	NH4COOH	0.000
21	OTHER	0.000
TOTAL NMW SOLID, LB/HR		0.000

TOTAL RATE, LB/HR 41085.000

TEMPERATURE, °F	176.000
PRESSURE, PSIA	14.700
ENTHALPY, MM BTU/HR	
MOLECULAR WEIGHT (1)	33.879
MOLE FRAC VAPOR (1)	1.000
MOLE FRAC LIQUID (1)	0.000
WEIGHT FRAC NMW SOLID	0.000

VAPOR
M FT3/HR
CP, BTU/LB-°F
DENSITY, LB/M FT3
TH COND, BTU/HR-FT-°F
VISCOSITY, cP

LIQUID	
GAL/MIN	N/A
CP, BTU/LB-°F	N/A
DENSITY, LB/FT3	N/A
SURFACE TENSION, DYNE/CM	N/A
TH COND, BTU/HR-FT-°F	N/A
VISCOSITY, cP	N/A

SOLID	
CP, BTU/LB-°F	N/A
DENSITY, LB/FT3	N/A

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.2 HEAT AND MATERIAL BALANCE
90% CGCU/10% HGCU OPERATING CASE

FLOW DIAGRAM STREAM NO.	1*	2*	3	4	5	6
TEXACO STREAM ID DESCRIPTION	103 SLURRY WATER TO MILL	102 COAL TO MILL	301 OXYGEN TO BURNER	414 N2 TO CT	G1** RAW SYNGAS TO HGCU	HP STEAM TO HRSG
PHASE	LIQUID	MIXED	VAPOR	VAPOR	MIXED	VAPOR
FLUID RATES, LB-MOL/HR						
1 CO	0.000	0.000	0.000	0.000	762.000	0.000
2 H2	0.000	0.000	0.000	0.000	571.000	0.000
3 CO2	0.000	0.000	0.000	0.000	261.000	0.000
4 H2O	4089.228	437.200	0.000	0.000	383.000	25709.131
5 CH4	0.000	0.000	0.000	0.000	3.000	0.000
6 Ar	0.000	0.000	186.240	0.000	0.000	0.000
7 N2	0.000	0.000	68.875	17714.299	120.000	0.000
8 H2S	0.000	0.000	0.000	0.000	17.200	0.000
9 COS	0.000	0.000	0.000	0.000	0.800	0.000
10 O2	0.000	0.000	4847.200	178.920		0.000
11 NH3	0.000	0.000	0.000	0.000	3.000	0.000
12 H2SO4	0.000	0.000	0.000	0.000		0.000
13 SO2	0.000	0.000	0.000	0.000		0.000
14 SO3	0.000	0.000	0.000	0.000		0.000
TOTAL FLUID, LB-MOL/HR	4089.228	437.200	5102.315	17893.219	2121.000	25709.131
NMW SOLID RATES, LB/HR						
15 COAL	0.000	158292.984	0.000	0.000		0.000
16 SLAG	0.000	0.000	0.000	0.000		0.000
17 CHAR	0.000	0.000	0.000	0.000		0.000
18 NACI	0.000	0.000	0.000	0.000		0.000
19 NH4CL	0.000	0.000	0.000	0.000		0.000
20 NH4COOH	0.000	0.000	0.000	0.000		0.000
21 OTHER	0.000	0.000	0.000	0.000		0.000
TOTAL NMW SOLID, LB/HR	0.000	158292.984	0.000	0.000	258.000	0.000
TOTAL RATE, LB/HR	73668.586	166169.266	164473.922	501964.375	45258.000	463150.000
TEMPERATURE, °F	183.759	90.000	222.000	635.961	900.000	610.000
PRESSURE, PSIA	34.700	14.700		270.000	405.000	1665.000
ENTHALPY, MM BTU/HR	5.792	-32.636	8.631	72.124		542.765
MOLECULAR WEIGHT (1)	18.015	18.015	32.235	28.053		18.015
MOLE FRAC VAPOR (1)	0.000	0.000	1.000	1.000	1.000	1.000
MOLE FRAC LIQUID (1)	1.000	1.000	0.000	0.000	0.000	0.000
WEIGHT FRAC NMW SOLID	0.000	0.953	0.000	0.000	0.006	0.000
VAPOR						
M FT3/HR	N/A	N/A	69.286	786.758	1.272	
CP, BTU/LB-°F	N/A	N/A	0.231	0.258		
DENSITY, LB/M FT3	N/A	N/A	2373.836	638.013	589.600	
TH COND, BTU/HR-FT-°F	N/A	N/A	0.01865	0.02634		
VISCOSITY, cP	N/A	N/A	0.02494	0.02975		
LIQUID						
GAL/MIN	156.708	15.974	N/A	N/A	N/A	N/A
CP, BTU/LB-°F	0.995	1.053	N/A	N/A	N/A	N/A
DENSITY, LB/FT3	58.610	61.472	N/A	N/A	N/A	N/A
SURFACE TENSION, DYNE/CM	61.2494	71.3790	N/A	N/A	N/A	N/A
TH COND, BTU/HR-FT-°F	0.38565	0.35598	N/A	N/A	N/A	N/A
VISCOSITY, cP	0.32739	0.75906	N/A	N/A	N/A	N/A
SOLID						
CP, BTU/LB-°F	N/A	0.250	N/A	N/A		N/A
DENSITY, LB/FT3	N/A	84.000	N/A	N/A		N/A

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.2 (cont'd) HEAT AND MATERIAL BALANCE
90% CGCU/10% HGCU OPERATING CASE

FLOW DIAGRAM STREAM NO.	7	8	9	10	11	12
TEXACO STREAM ID DESCRIPTION	G5** CLEAN SYNGAS TO CT	R10** SO2 TO SULFURIC ACID	607 SYNGAS TO ACID GAS WASH	411 CLNGAS TO CT	1313 ACID GAS TO SAP	905 SLAG FROM DEWATERING PIT
PHASE	VAPOR	VAPOR	VAPOR	VAPOR	VAPOR	MIXED
FLUID RATES, LB-MOL/HR						
1 CO	757.000		7168.430	7164.265	1.389	0.000
2 H2	575.000		5009.322	5006.430	0.996	0.000
3 CO2	268.000	0.000	1843.814	1476.967	365.615	0.000
4 H2O	397.000	0.000	56.845	67.736	24.989	617.254
5 CH4	3.000		26.725	26.627	0.006	0.000
6 Ar	0.000	0.000	167.544	167.405	0.000	0.000
7 N2	124.000	146.600	911.869	911.241	0.141	0.000
8 H2S	0.200		110.602	0.126	110.352	0.000
9 COS	0.000		2.785	1.889	0.014	0.000
10 O2		2.200	0.000	0.000	0.000	0.000
11 NH3	3.000		0.000	0.000	0.000	0.000
12 H2SO4			0.000	0.000	0.000	0.000
13 SO2		17.900	0.000	0.000	0.000	0.000
14 SO3			0.000	0.000	0.000	0.000
TOTAL FLUID, LB-MOL/HR	2127.200	166.700	15297.935	14822.685	503.501	617.254
NMW SOLID RATES, LB/HR						
15 COAL			0.000	0.000	0.000	0.000
16 SLAG			0.000	0.000	0.000	11119.999
17 CHAR			0.000	0.000	0.000	0.000
18 NaCl			0.000	0.000	0.000	45.890
19 NH4Cl			0.000	0.000	0.000	0.000
20 NH4COOH			0.000	0.000	0.000	0.000
21 OTHER			0.000	0.000	0.000	0.000
TOTAL NMW SOLID, LB/HR	0.000	0.000	0.000	0.000	0.000	11165.889
TOTAL RATE, LB/HR	44877.000	5319.000	329655.191	309749.648	20347.499	22285.891
TEMPERATURE, °F	901.000	600.000	105.000	641.785	110.000	177.301
PRESSURE, PSIA	387.200	100.000	317.500	300.000	25.700	14.700
ENTHALPY, MM BTU/HR			22.015	78.457	0.176	-2.719
MOLECULAR WEIGHT (1)			21.549	20.897	40.412	18.015
MOLE FRAC VAPOR (1)	1.000	1.000	1.000	1.000	1.000	0.000
MOLE FRAC LIQUID (1)	0.000	0.000	0.000	0.000	0.000	1.000
WEIGHT FRAC NMW SOLID	0.000	0.000	0.000	0.000	0.000	0.501
VAPOR						
M FT3/HR	1.335	0.315	293.026	589.263	119.648	N/A
CP, BTU/LB-°F			0.344	0.364	0.218	N/A
DENSITY, LB/M FT3	560.400	281.200	1125.002	525.656	170.061	N/A
TH COND, BTU/HR-FT-°F			0.03228	0.05134	0.01000	N/A
VISCOSITY, cP			0.01635	0.02774	0.01500	N/A
LIQUID						
GAL/MIN	N/A	N/A	N/A	N/A	N/A	23.573
CP, BTU/LB-°F	N/A	N/A	N/A	N/A	N/A	0.997
DENSITY, LB/FT3	N/A	N/A	N/A	N/A	N/A	58.812
SURFACE TENSION, DYNE/CM	N/A	N/A	N/A	N/A	N/A	61.9422
TH COND, BTU/HR-FT-°F	N/A	N/A	N/A	N/A	N/A	0.38422
VISCOSITY, cP	N/A	N/A	N/A	N/A	N/A	0.34182
SOLID						
CP, BTU/LB-°F	N/A	N/A	N/A	N/A	N/A	0.250
DENSITY, LB/FT3	N/A	N/A	N/A	N/A	N/A	149.929

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.2 (cont'd) HEAT AND MATERIAL BALANCE
90% CGCU/10% HGCU OPERATING CASE

FLOW DIAGRAM STREAM NO.	13	14	15	16	17	18
TEXACO STREAM ID DESCRIPTION	1003 FINES FROM DEWATERING PIT	1102 EVAPORATOR FEED	1108 EVAP COND. RETURN	1211 DRY SOLIDS TO LANDFILL	709 SOUR GAS FROM VAC PUMP	98% H2SO4 PRODUCT.
PHASE	MIXED	MIXED	MIXED	MIXED	VAPOR	LIQUID
FLUID RATES, LB-MOL/HR						
1 CO	0.000	0.000	0.000	0.000	0.822	
2 H2	0.000	0.000	0.000	0.000	0.675	
3 CO2	0.000	0.315	0.034	0.000	2.125	
4 H2O	205.742	2990.840	2965.974	0.687	0.743	
5 CH4	0.000	0.000	0.000	0.000	0.004	
6 Ar	0.000	0.000	0.000	0.000	0.025	
7 N2	0.000	0.000	0.000	0.000	0.077	
8 H2S	0.000	0.254	0.101	0.000	0.448	
9 COS	0.000	0.000	0.000	0.000	0.004	
10 O2	0.000	0.000	0.000	0.000	0.000	
11 NH3	0.000	0.800	0.548	0.000	0.000	
12 H2SO4	0.000	0.000	0.000	0.000	* 0.000	
13 SO2	0.000	0.000	0.000	0.000	0.000	
14 SO3	0.000	0.000	0.000	0.000	0.000	
TOTAL FLUID, LB-MOL/HR	205.742	2992.209	2966.657	0.687	4.923	0.000
NMW SOLID RATES, LB/HR						
15 COAL	0.000	0.000	0.000	0.000	0.000	0.000
16 SLAG	0.000	0.000	0.000	0.000	0.000	0.000
17 CHAR	3706.499	0.000	0.000	0.000	0.000	0.000
18 NaCl	0.000	4.000	0.000	3.966	0.000	0.000
19 NH4Cl	0.000	206.500	0.000	204.712	0.000	0.000
20 NH4COOH	0.000	20.800	9.550	10.441	0.000	0.000
21 OTHER	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL NMW SOLID, LB/HR	3706.499	231.300	9.550	219.119	0.000	0.000
TOTAL RATE, LB/HR	7413.000	54148.262	53456.648	231.488	150.020	5825.000
TEMPERATURE, °F	180.261	205.000	209.402	213.382	150.000	104.000
PRESSURE, PSIA	14.700	17.000	50.000	15.100	25.000	14.700
ENTHALPY, MM BTU/HR	-0.886	9.516	9.754	-0.082	0.035	
MOLECULAR WEIGHT (1)	18.015	18.019	18.016	18.015	30.477	
MOLE FRAC VAPOR (1)	0.000	0.000	0.000	0.000	1.000	0.000
MOLE FRAC LIQUID (1)	1.000	1.000	1.000	1.000	0.000	1.000
WEIGHT FRAC NMW SOLID	0.500	0.004	0.000	0.947	0.000	0.000
VAPOR						
M FT3/HR	N/A	N/A	N/A	N/A	1.284	N/A
CP, BTU/LB-°F	N/A	N/A	N/A	N/A	0.273	N/A
DENSITY, LB/M FT3	N/A	N/A	N/A	N/A	116.857	N/A
TH COND, BTU/HR-FT-°F	N/A	N/A	N/A	N/A	0.02063	N/A
VISCOSITY, cP	N/A	N/A	N/A	N/A	0.01604	N/A
LIQUID						
GAL/MIN	7.870	116.073	115.331	N/A	N/A	6.000
CP, BTU/LB-°F	0.996	0.991	0.990	N/A	N/A	
DENSITY, LB/FT3	58.719	57.913	57.777	N/A	N/A	121.039
SURFACE TENSION, DYNE/CM	61.6246	58.9210	61.0558	N/A	N/A	
TH COND, BTU/HR-FT-°F	0.38489	0.38492	0.38956	N/A	N/A	
VISCOSITY, cP	0.33506	0.28710	0.28006	N/A	N/A	
SOLID						
CP, BTU/LB-°F	0.250	0.249	0.250	0.249	N/A	N/A
DENSITY, LB/FT3	150.000	95.694	80.300	96.554	N/A	N/A

NOTES/REMARKS:

- (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
- * DOUBLED FLOW LISTED IN TEXACO PEP
- ** GEESI STREAM NUMBER

Table 8.2 (cont'd) HEAT AND MATERIAL BALANCE
 90% CGCU/10% HGCU OPERATING CASE

FLOW DIAGRAM STREAM NO. 19

TEXACO STREAM ID
 DESCRIPTION OFFGAS

PHASE		VAPOR
FLUID RATES, LB-MOL/HR		
1	CO	0.000
2	H2	0.000
3	CO2	435.500
4	H2O	0.000
5	CH4	0.000
6	Ar	0.000
7	N2	741.900
8	H2S	0.000
9	COS	0.000
10	O2	35.200
11	NH3	0.000
12	H2SO4	0.000
13	SO2	0.100
14	SO3	0.000
TOTAL FLUID, LB-MOL/HR		1212.700

NMW SOLID RATES, LB/HR		
15	COAL	0.000
16	SLAG	0.000
17	CHAR	0.000
18	NACl	0.000
19	NH4CL	0.000
20	NH4COOH	0.000
21	OTHER	0.000
TOTAL NMW SOLID, LB/HR		0.000

TOTAL RATE, LB/HR 41085.000

TEMPERATURE, °F	176.000
PRESSURE, PSIA	14.700
ENTHALPY, MM BTU/HR	
MOLECULAR WEIGHT (1)	33.879
MOLE FRAC VAPOR (1)	1.000
MOLE FRAC LIQUID (1)	0.000
WEIGHT FRAC NMW SOLID	0.000

VAPOR
 M FT3/HR
 CP, BTU/LB-°F
 DENSITY, LB/M FT3
 TH COND, BTU/HR-FT-°F
 VISCOSITY, cP

LIQUID	
GAL/MIN	N/A
CP, BTU/LB-°F	N/A
DENSITY, LB/FT3	N/A
SURFACE TENSION, DYNE/CM	N/A
TH COND, BTU/HR-FT-°F	N/A
VISCOSITY, cP	N/A

SOLID	
CP, BTU/LB-°F	N/A
DENSITY, LB/FT3	N/A

NOTES/REMARKS: (1) NON-MOLECULAR WEIGHT SOLIDS FREE BASIS
 * DOUBLED FLOW LISTED IN TEXACO PEP
 ** GEESI STREAM NUMBER

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GENERAL ARRANGEMENT DRAWINGS



9.0 GENERAL ARRANGEMENT DRAWINGS

9.1 SITE PLOT PLAN

92127-EM-001B IGCC Unit Overall Plot Plan

9.2 GASIFICATION STRUCTURE ARRANGEMENT

92127-SK-011 Gasifier Planning Study

9.3 POWER BLOCK ARRANGEMENT DRAWINGS

92127-EM-161A Area Plot Plan
Power Block

M010 Equipment Arrangement (Sheet 1)
Equipment Arrangement (Sheet 2)
Sections and Elevations

9.4 AIR SEPARATION UNIT PLOT PLAN

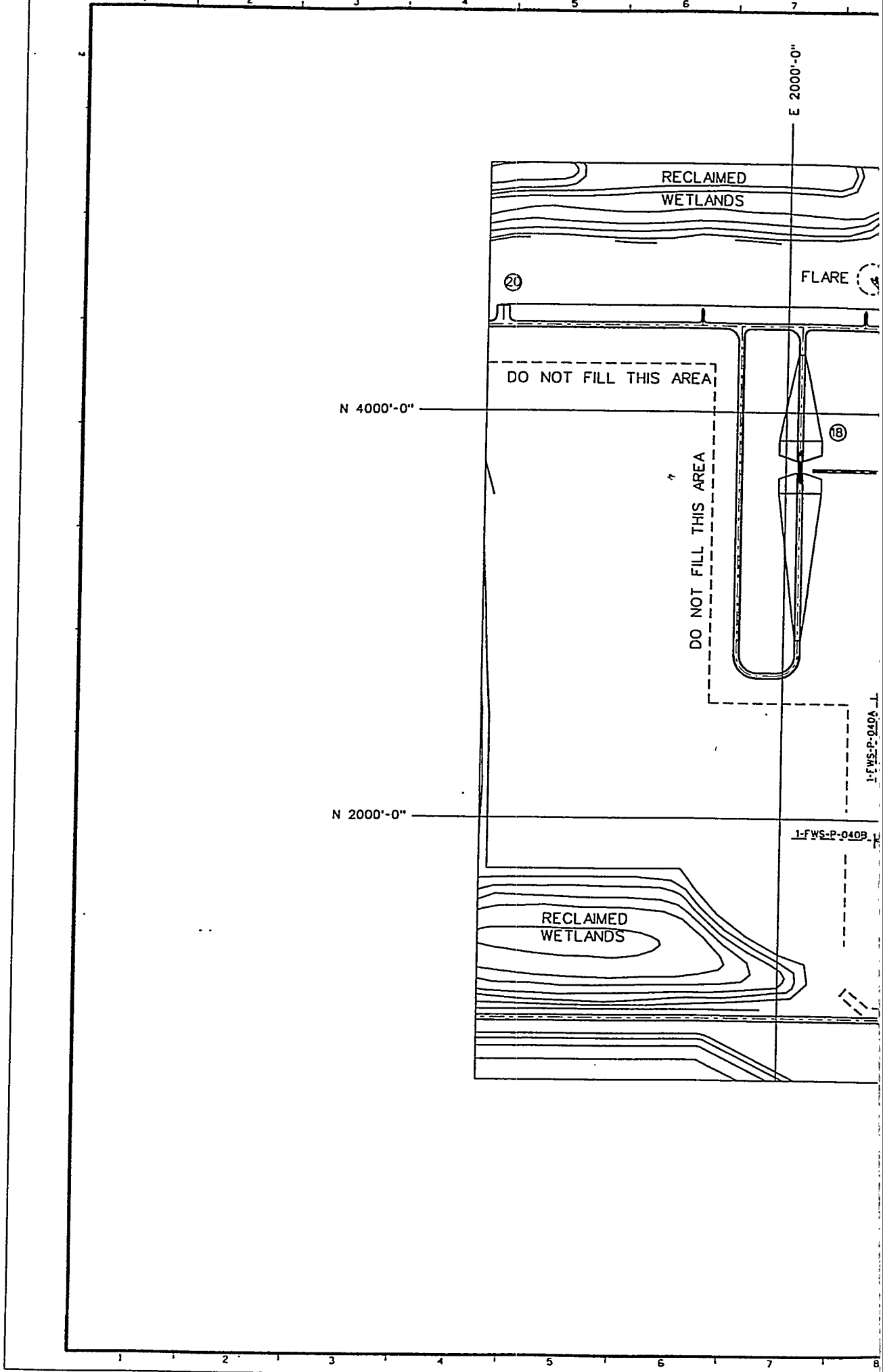
9.5 HOT GAS CLEANUP ELEVATIONS

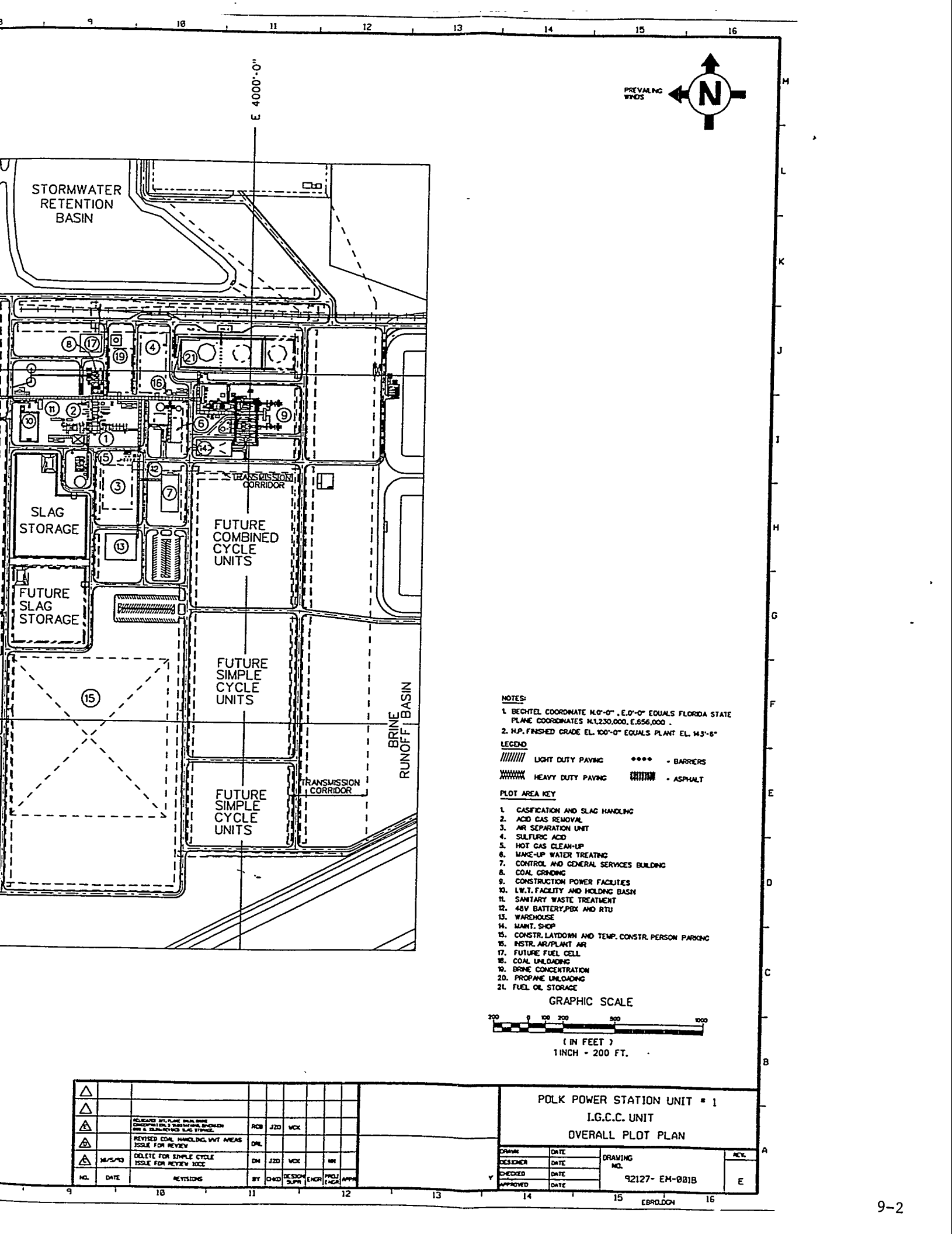
1-M-35-2T General Arrangement
Elevation View @ Column Rows 1 & 2

1-M-35-2U General Arrangement
Elevation View @ Column Row 4

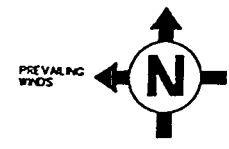
1-M-35-2V General Arrangement
Elevation View @ Column Rows 5&F

1-M-35-2W Elevation View @ Column Rows B&E





E 4000'-0"



STORMWATER
RETENTION
BASIN

SLAG
STORAGE

FUTURE
SLAG
STORAGE

FUTURE
COMBINED
CYCLE
UNITS

FUTURE
SIMPLE
CYCLE
UNITS

FUTURE
SIMPLE
CYCLE
UNITS

TRANSMISSION
CORRIDOR

TRANSMISSION
CORRIDOR

BRINE
RUNOFF BASIN

NOTES:

1. BECHTEL COORDINATE N.0'-0" , E.0'-0" EQUALS FLORIDA STATE PLANE COORDINATES N.1,230,000, E.656,000 .
2. H.P. FINISHED GRADE EL. 100'-0" EQUALS PLANT EL. 43'-6"

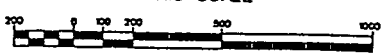
LEGEND

- ////// LIGHT DUTY PAVING **** - BARRIERS
 ===== HEAVY DUTY PAVING [|||||] - ASPHALT

PLOT AREA KEY

1. GASIFICATION AND SLAG HANDLING
2. ACID GAS REMOVAL
3. AIR SEPARATION UNIT
4. SULFURIC ACID
5. HOT GAS CLEAN-UP
6. MAKE-UP WATER TREATING
7. CONTROL AND GENERAL SERVICES BUILDING
8. COAL GRINDING
9. CONSTRUCTION POWER FACILITIES
10. L.W.T. FACILITY AND HOLDING BASIN
11. SANITARY WASTE TREATMENT
12. 48V BATTERY, PBX AND RTU
13. WAREHOUSE
14. MAINT. SHOP
15. CONSTR. LAYDOWN AND TEMP. CONSTR. PERSON PARKING
16. INSTR. AIR/PLANT AIR
17. FUTURE FUEL CELL
18. COAL UNLOADING
19. BRINE CONCENTRATION
20. PROPANE UNLOADING
21. FUEL OIL STORAGE

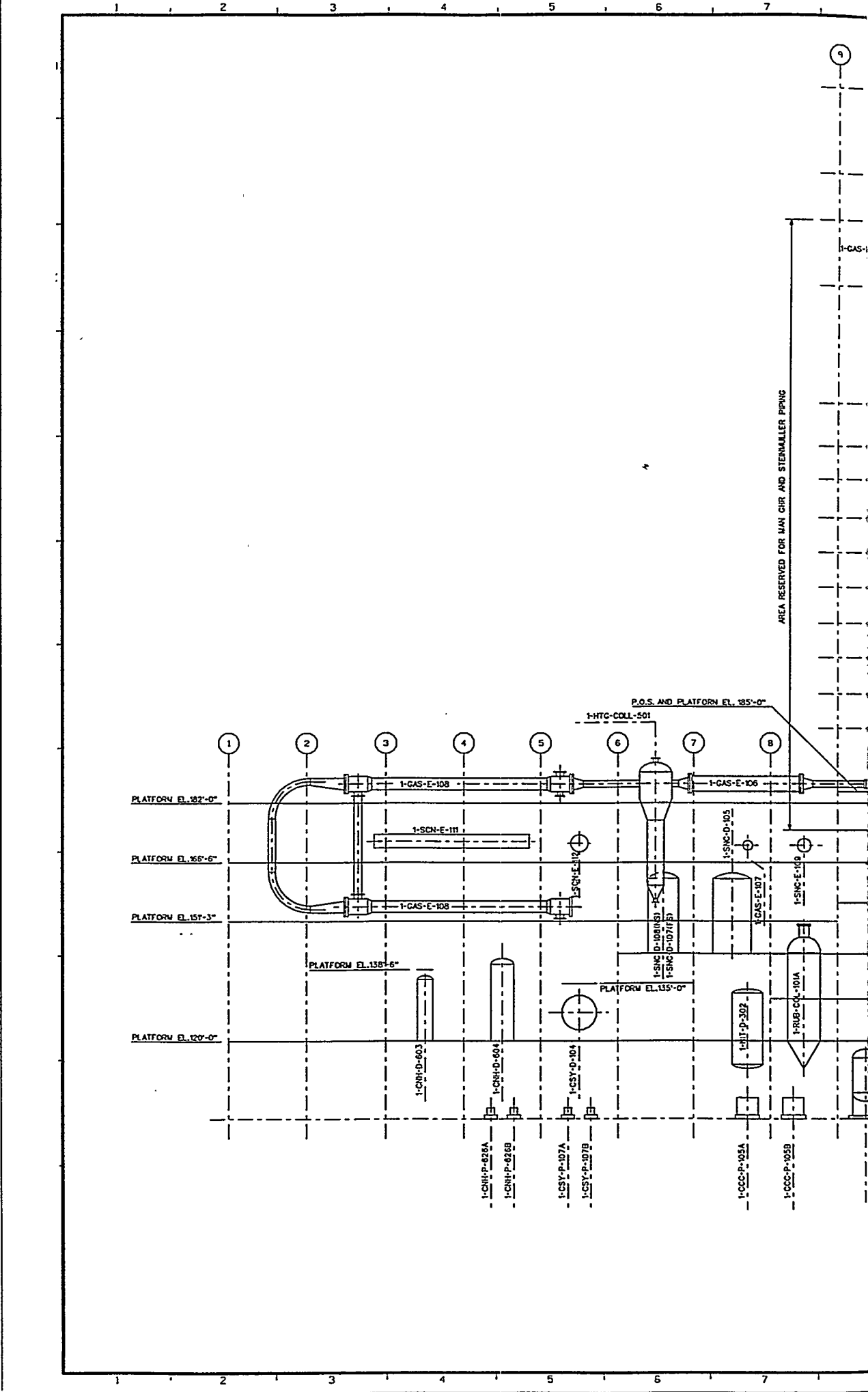
GRAPHIC SCALE



(IN FEET)
1 INCH = 200 FT.

△														
△														
△		REMOVED BY PLANE AND BEING												
△		DISPOSED IN 3 SUBSTANCES, SPECIALLY												
△		AND A SUPPLEMENTAL SLAG STORAGE.												
△		REVISED COAL HANDLING UNIT AREAS												
△		ISSUE FOR REVIEW												
△	10/5/70	DELETE FOR SIMPLE CYCLE												
△		ISSUE FOR REVIEW 1000												
NO.	DATE	REVISIONS	BY	CHKD	DESIGN	ENGR	PROJ	APPR						
					SUPR									

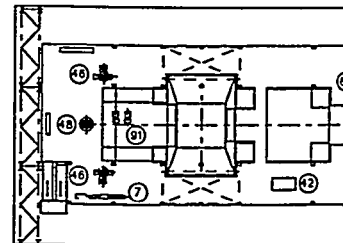
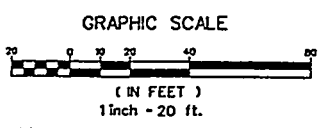
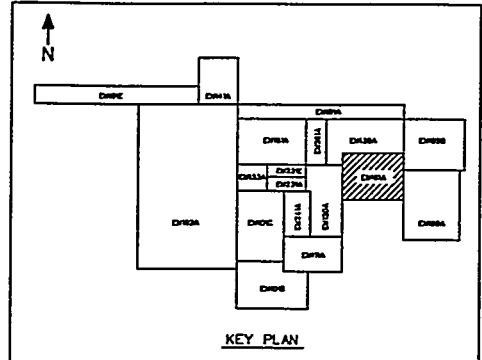
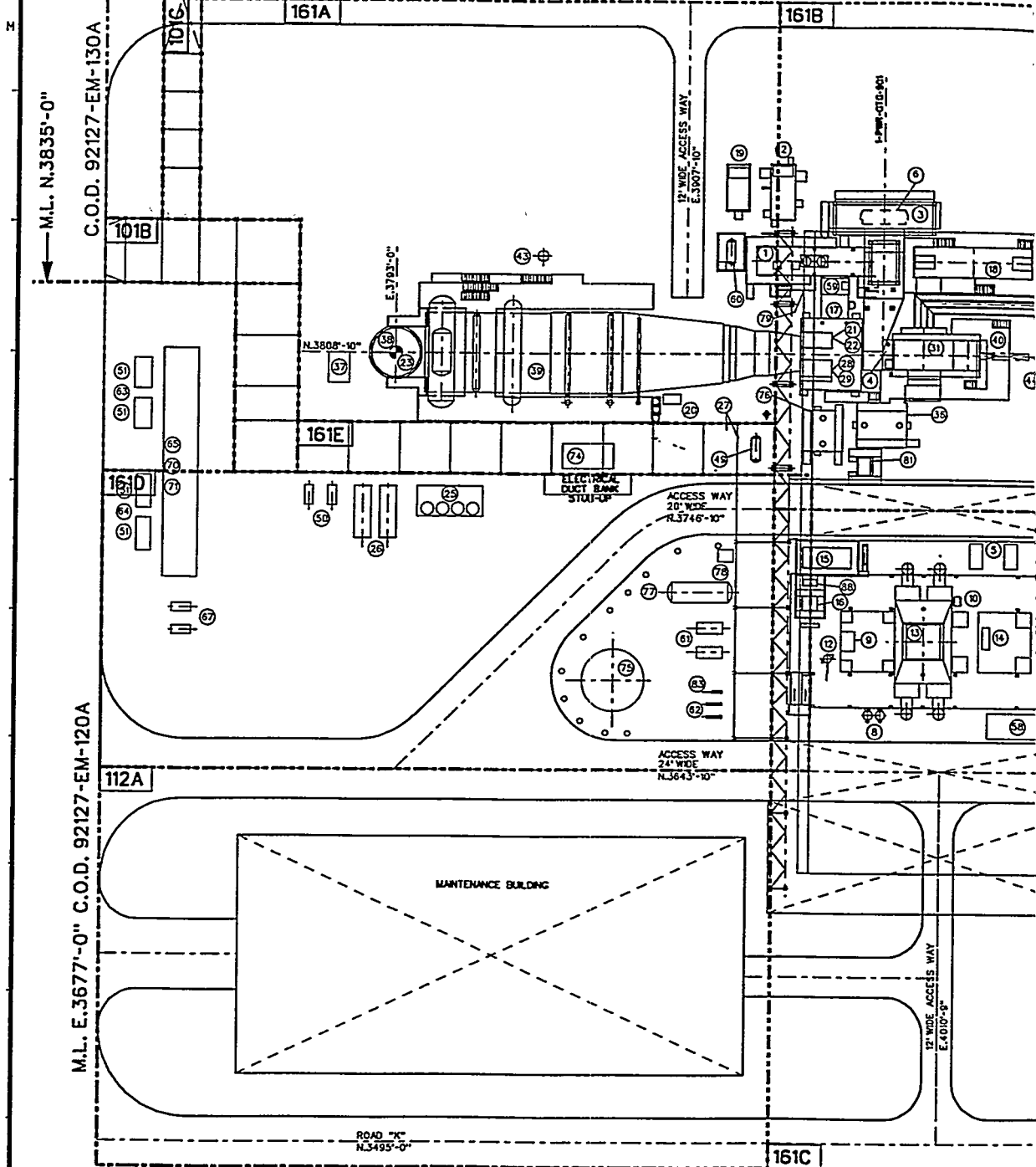
POLK POWER STATION UNIT # 1 I.G.C.C. UNIT OVERALL PLOT PLAN			
DRWEN	DATE	DRAWING	REV.
DESIGNED	DATE	NO.	
CHECKED	DATE	92127- EM-001B	E
APPROVED	DATE		



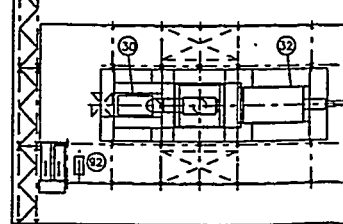
M.L. N.3835'-0"

C.O.D. 92127-EM-130A

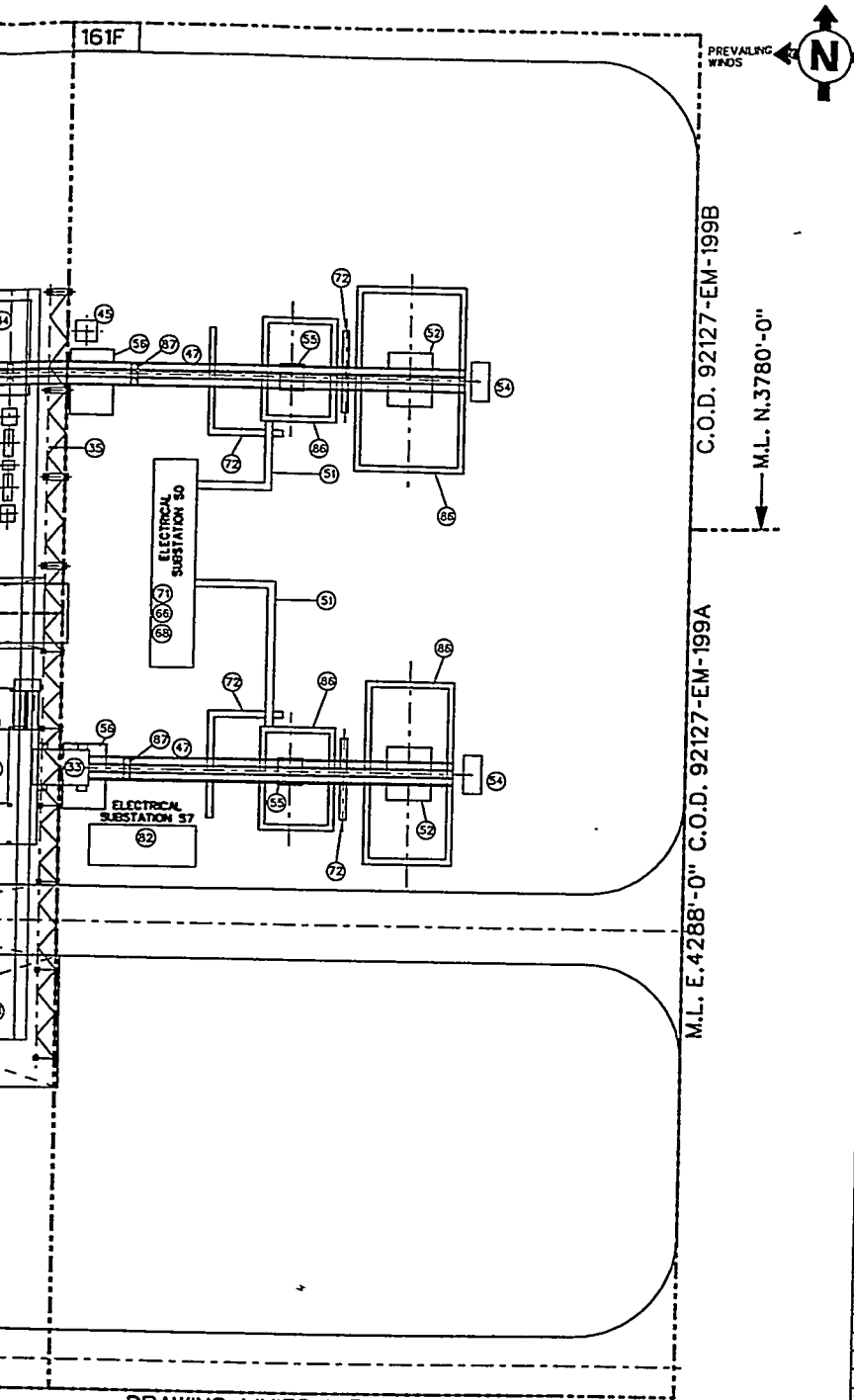
M.L. E.3677'-0" C.O.D. 92127-EM-120A



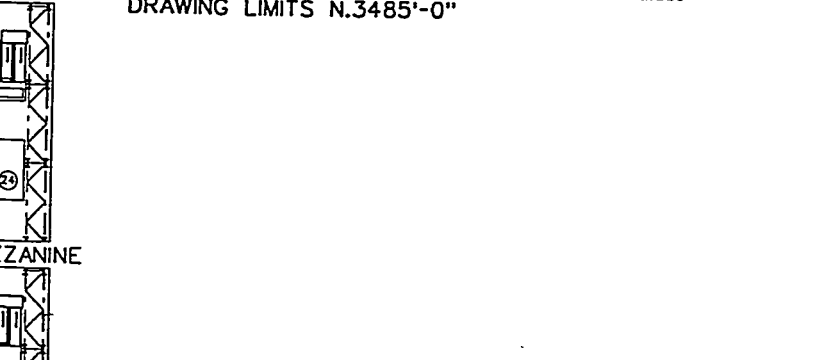
PLAN VIEW STEAM TURBINE



PLAN VIEW STEAM TURBINE OPERATING



EQUIPMENT #	ITEM	DESCRIPTION
	1	GT.ACCESSORY MODULE
	2	GT.WATER INJECTION SKID
	3	GT. AR INLET COMPARTMENT
	4	GT. LOAD COMPARTMENT
1-ARS-P-901A/B	5	ST.VACUUM PUMP SKID
	6	GT. CO2 SKID
	7	ST. CLAND SEAL CONDENSER
	8	ST. CONDENSATE PUMPS
	9	ST. HYDRAULIC POWER UNIT
	10	ST.BEARING DRN.ENLARGMT. EXHSTR.
	11	
1-DET-D-902	12	CONDENSATE RECEIVER TANK
1-PWR-E-901	13	ST. CONDENSER
	14	ST. SEAL OIL UNIT
	15	ST. L.O. STORAGE RESERVOIR
	16	ST. L.O. CONDENSER
	17	GT. INTERCONNECTING MODULE
	18	GT. PECC & MARK V CONTROL CAB
	19	GT. WATER WASH SKID
1-DET-P-901A/B	20	CONDENSATE RETURN UNIT
	21	GT. #2 BEARING BLOWERS
	22	GT. EXHAUST FRAME BLOWERS
	23	HRSG STACK CLOSURE DAMPER
	24	ST.GE. NEUTRAL GROUNDING COMPARTM.
	25	CHEMICAL INJECTION SKID
1-FWT-P-901A/B	26	FEEDWATER TRANSFER PUMPS
	27	PPE RACK
1-PWR-GTC-901	28	GAS TURBINE COMPARTMENT
	29	GT. COMPARTMENT VENT FANS
1-PWR-STG-901	30	STEAM TURBINE
	31	GAS TURBINE GENERATOR
	32	STEAM TURBINE GENERATOR
	33	STG. BUS ACC. COMPARTMENT (BAC)
	34	GT. BUS ACC. COMPARTMENT (BAC)
	35	OVERHEAD CRANE
	36	GT. SYNGAS FUEL SKID
	37	CONTINUOUS EMISSION MONITOR SYST.
	38	HRSG EXHAUST STACK
1-SHP-SC-901	39	HEAT RECOVERY STEAM GENERATOR
	40	GAS TURBINE WALKWAY
	41	STEAM TURBINE OPERATING FLOOR
	42	ST. HYDROGEN CONTROL CABINET
1-DET-D-901	43	HRSG BLOWDOWN TANK
	44	GT. ISOL./EXCIT. TRANSFORMERS
	45	GT. DC. LINK REACTOR
	46	RE-HEAT INTERCEPT VALVES
	47	ISOLATED PHASE BUS DUCT
	48	MAN STEAM STOP VALVE
1-CCC-TK-901	49	AUX. COOL. WTR. EXPANSION TANK
1-HOL-P-901A/B	50	L.P. ECONOMIZER RECRIC. PUMPS
	51	NON SEGREGATED PHASE BUS DUCT
	52	GENERATOR STEP-UP TRANSFORMERS
	53	POWER BLOCK LAYDOWN SHED
	54	GSU DEAD END TOWERS
	55	STATION AUX. TRANSFORMERS
	56	GENERATOR BREAKERS
	57	DISCONNECT SWITCHES
	58	ST. GEN. CONTROL COMPARTMENT
	59	GT. LUBE OIL DEWASTER
1-DET-TK-901	60	GT. DRAWS TANK
1-CCC-E-901A/B	61	AUX. COOLING WTR. HEAT EXCHGR.
1-CCC-P-901A/B	62	CLOSED CIRCUIT COOL. WTR. PUMPS
1-NS-XS1A/B	63	4160V TRANSFORMERS
1-NS-XS1A/B	64	480V TRANSFORMERS
1-NS-SWCA	65	4160 V SWITCHGEAR
1-NS-SWCA	66	13.8 KV SWITCHGEAR
1-NS-SWCA1A/B	67	13.8KV FUSED SWITCH GEAR LINEUP
1-NS-MCC-1STA/2	68	STATION 480V MCCS
1-NS-MCC-1STA/2	69	STEAM TURBINE MCC
1-NS-US1	70	480V SWITCHGEAR
	71	REMOTE DCS INTERFACE CABINETS
	72	FIREWALL
	73	
1-WTS-A-901	74	WATER SAMPLING ANALYSIS PANEL
1-CHH-TK-901	75	CONDENSATE STORAGE TANK
	76	GT. NITROGEN SKID
1-LOS-TK-901	77	ST. CLEAN AND DIRTY L.O. TANK
1-LOS-P-901	78	ST. LUBE OIL TRANSFER PUMP SKID
	79	GT. AR PROCESS SKID
	80	
	81	GT. HYDRAULIC POWER UNIT
	82	ELECTRICAL SUBSTATION S7
1-CHH-P-902	83	CONDENSATE MAKE-UP PUMP
	84	
	85	
	86	TRANS. SUMP W/GRATE/ NO RACK
	87	LINE POTENTIAL TRANSFORMERS
1-PRW-STC-901	88	ST. L.O. FILTER
	89	
	90	CONT. CAB
	91	RETURN VALVES
	92	CLAND EXHAUSTER



NO.	DATE	REVISIONS	BY	CHKD.	DESIGN SUPR.	ENGR.	PROJ. ENGR.	APPR.
△								
△		ISSUE FOR INFORMATION	MRK					
△	11/30/93	ISSUE FOR DESIGN	DM	AB	JZO		JB	
△	10/6/93	ISSUE FOR REVIEW	DM	JZO	WCK		WAB	

POLK POWER STATION UNIT # 1
AREA PLOT PLAN
POWER BLOCK

DRAWN BY	DATE	DRAWING NO.	REV.
DESIGNED BY	DATE	92127-EM-161A	C
CHECKED	DATE		
APPROVED	DATE		

A

B

C

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E

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40 SEE NOTE 2

C 3M.2

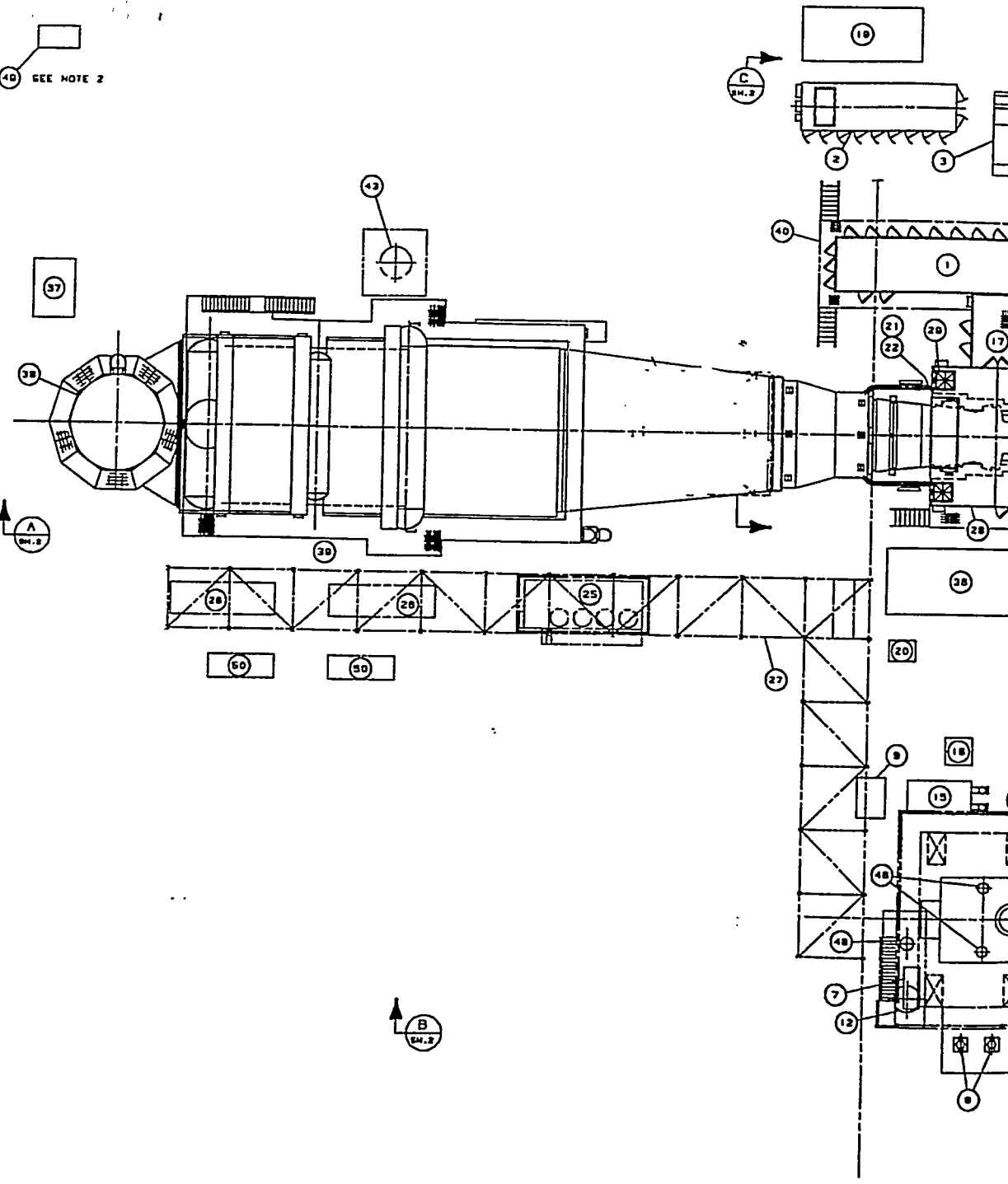
A 3M.2

B 3M.2

5/6/92

NO.	1
DATE	5/6/92
BY	
CHKD BY	
REVISION	
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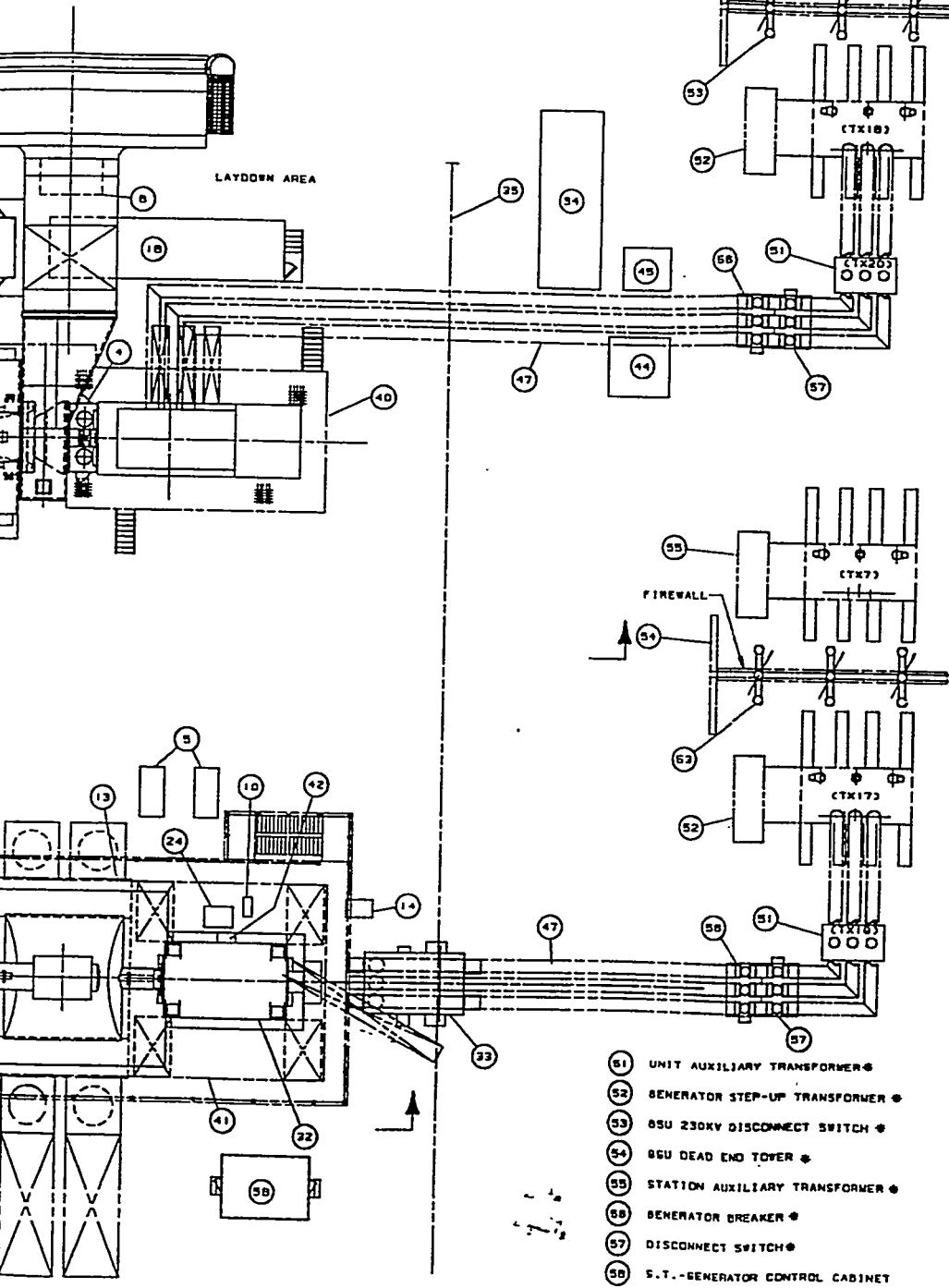


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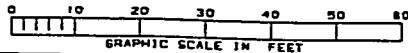
1. EQUIPMENT DENOTED BY SOLID LINES IS PROVIDED BY BE.
- EQUIPMENT DENOTED BY PHANTOM LINES IS PROVIDED BY OTHERS.
2. FUEL FORWARDING SKID (49) TO BE LOCATED ADJACENT TO FUEL OIL STORAGE BY EPC. MAX PRESSURE DROP TO CONNECTION AT GAS TURBINE IS 15 PSI.

LEGEND

- 1 ACCESSORY MODULE
- 2 WATER INJECTION SKID
- 3 B.T. AIR INLET COMPARTMENT
- 4 B.T. LOAD COMPARTMENT
- 5 VACUUM PUMPS *
- 6 CO₂ SKID
- 7 BLAND SEAL CONDENSER
- 8 CONDENSATE PUMPS *
- 9 HYDRAULIC POWER UNIT
- 10 S.T. BEARING DRAIN ENLARGEMENT EXHAUST
- 12 CONDENSATE RECEIVER TANK *
- 13 CONDENSER *
- 14 S/T SEAL OIL UNIT
- 15 S.T. LUBE OIL STORAGE TANK
- 16 S.T. LUBE OIL CONDITIONER
- 17 B.T. INTERCONNECTION MODULE
- 18 P.E.C.C. & MARK V CONTROL CAB
- 19 WATER WASH SKID
- 20 CONDENSATE RETURN UNIT *
- 21 *2 BEARING BLOWERS
- 22 EXHAUST FRAME BLOWERS
- 23 STACK CLOSURE DAMPER
- 24 S.T. GENERATOR NEUTRAL GROUNDING COMPARTMENT
- 25 CHEMICAL INJECTION SKID *
- 26 FEEDWATER TRANSFER PUMPS *
- 27 PIPE RACK *
- 28 GAS TURBINE COMPARTMENT
- 29 B.T. COMPARTMENT VENT FANS
- 30 STEAM TURBINE
- 31 D.T. GENERATOR
- 32 S.T. GENERATOR
- 33 S.T. GENERATOR EXCITATION COMPARTMENT
- 34 ST GENERATOR OAC/SEC
- 35 OVERHEAD CRANE *
- 36 SYNGAS FUEL SKID
- 37 CONTINUOUS EMISSION MONITORING SYSTEM (C.E.M.S.)
- 38 HRSS EXHAUST STACK
- 39 HEAT RECOVERY STEAM GENERATOR (H.R.S.G.)
- 40 G.T. WALKWAY *
- 41 S.T. OPERATING PLATFORM *
- 42 S.T. HYDROGEN CONTROL CABINET
- 43 HRSS BLOWDOWN TANK *
- 44 ISOLATION AND EXCITATION TRANSFORMER.
- 45 DC LINK REACTOR
- 46 INTERCEPT VALVES
- 47 ISOLATED PHASE BUS DUCT *
- 48 MAIN STM. STOP VALVE
- 49 FUEL FORWARDING SKID
- 50 L.F. ECONOMIZER RECIRC. * PUMPS

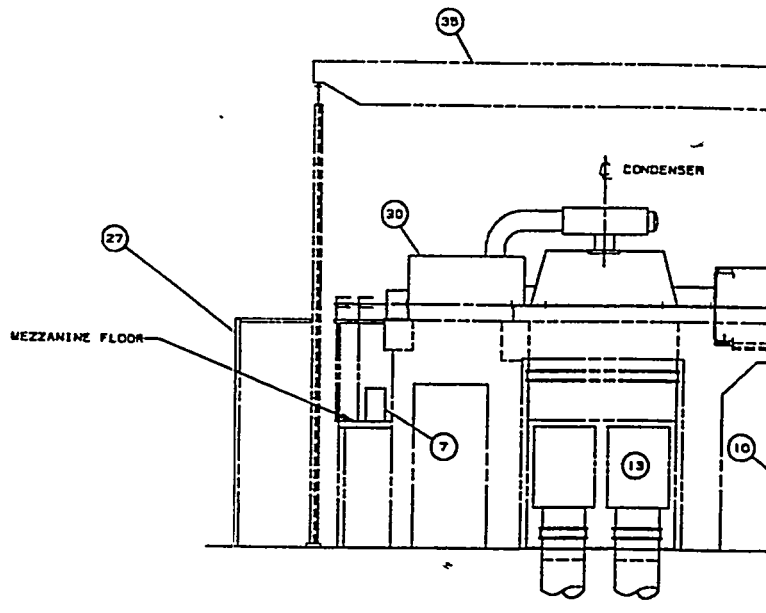


- 51 UNIT AUXILIARY TRANSFORMER *
- 52 GENERATOR STEP-UP TRANSFORMER *
- 53 BSU 230KV DISCONNECT SWITCH *
- 54 BSU DEAD END TOWER *
- 55 STATION AUXILIARY TRANSFORMER *
- 56 GENERATOR BREAKER *
- 57 DISCONNECT SWITCH *
- 58 S.T.-GENERATOR CONTROL CABINET

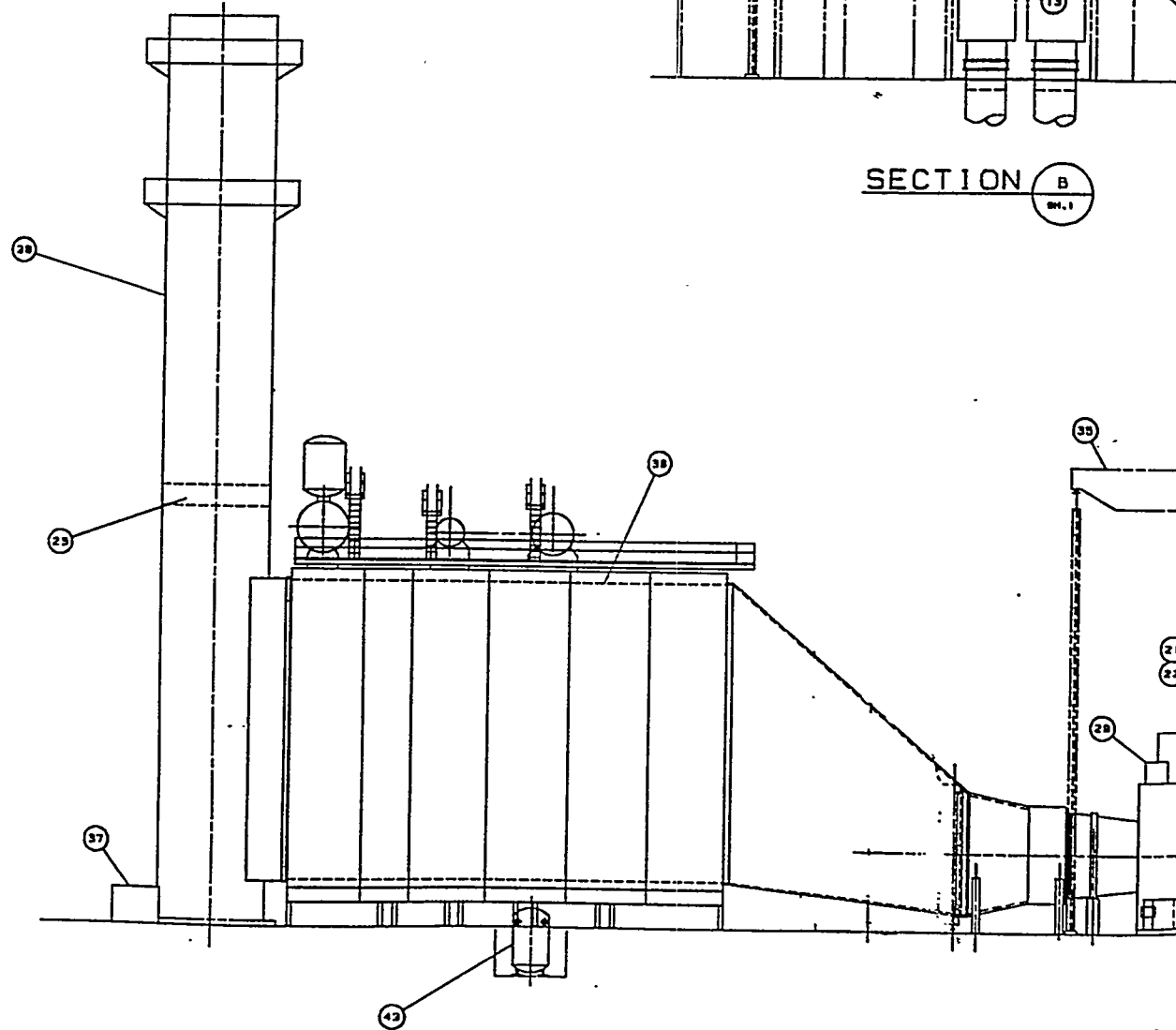


PRELIMINARY 5/5/02		BY OTHERS	
EQUIPMENT ARRANGEMENT			
STA8 107F			
POLK POWER STATION - UNIT NO. 1			
TAMPA ELECTRIC COMPANY			
16CC PROJECT			
DATE	BY	NO.	REV.
5/5/02	DMJ	1	1
5/5/02	DMJ	2	1
5/5/02	DMJ	3	1
5/5/02	DMJ	4	1
5/5/02	DMJ	5	1
5/5/02	DMJ	6	1
5/5/02	DMJ	7	1
5/5/02	DMJ	8	1
5/5/02	DMJ	9	1
5/5/02	DMJ	10	1
5/5/02	DMJ	11	1
5/5/02	DMJ	12	1
5/5/02	DMJ	13	1

A
B
C
D
E
F
H
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K



SECTION B
SH. 1

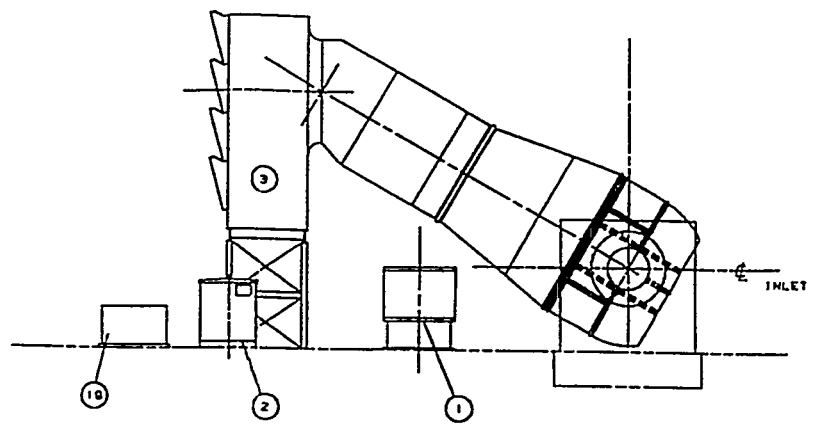
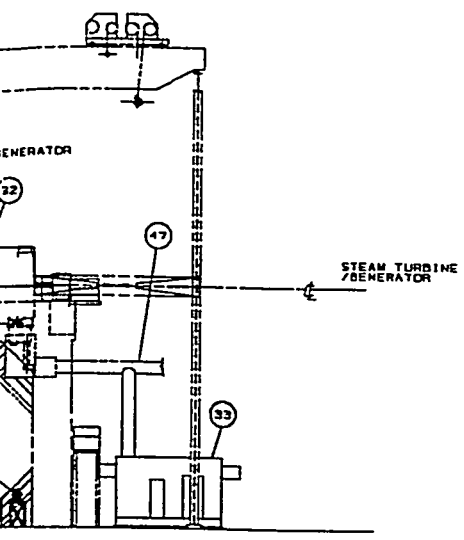


SECTION A
SH. 1

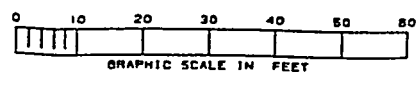
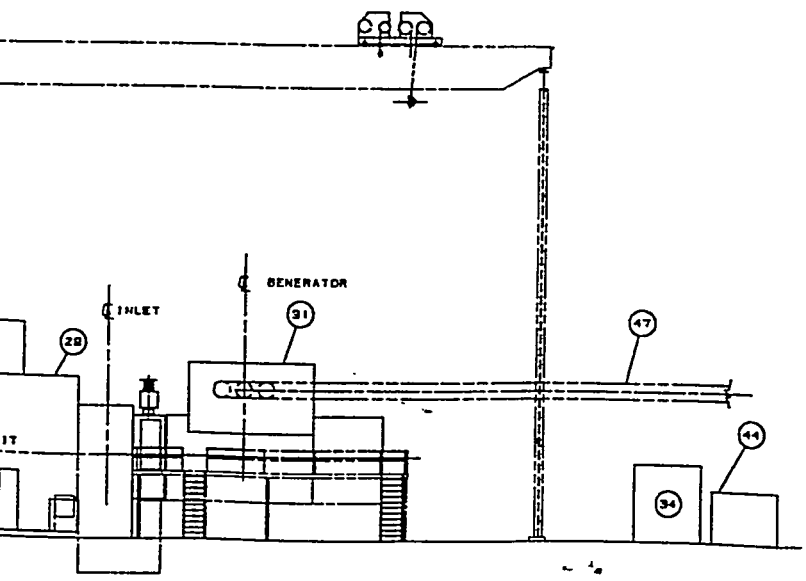
5/6/92

NO.	REVISION	DATE
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4		
5		
6		

2001010000



SECTION C
SM.1



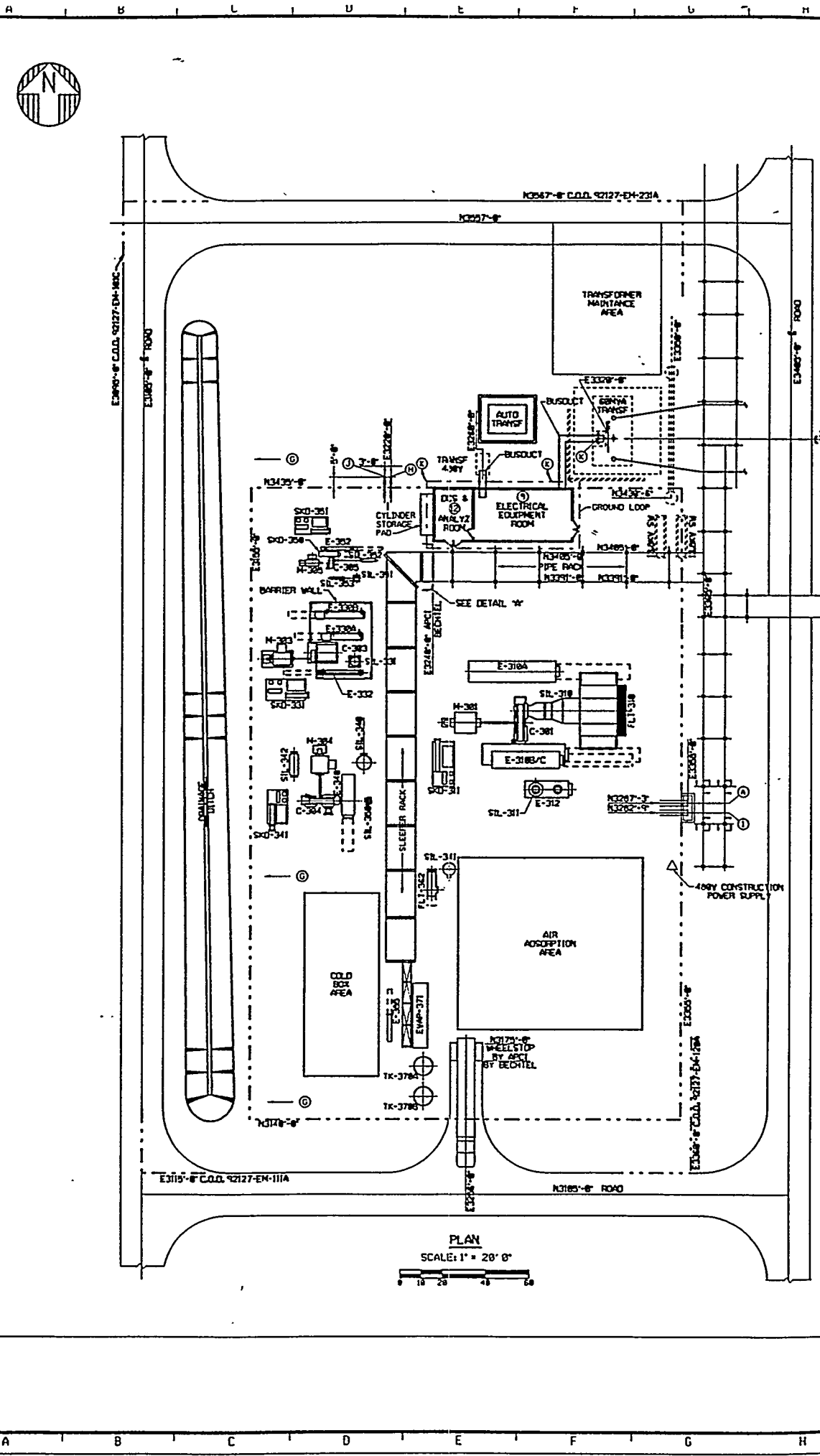
DESIGNED BY	DMJ
CHECKED BY	RAYTAL
DATE	
SCALE	1"=0'
PROJECT NO.	
REVISED BY	
DATE	
APPROVED BY	
DATE	

PRELIMINARY
EQUIPMENT ARRANGEMENT
SECTIONS & ELEVATIONS
 POLK POWER STATION - UNIT NO. 1
 TAMPA ELECTRIC COMPANY
 ISEC PROJECT

NO. 801810787 MO10 2 P A



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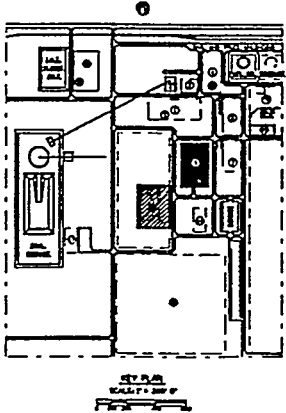


PLAN
SCALE: 1" = 20' 0"



NOTES:

A B C D E F G H



KEY PLAN LEGEND

- | | |
|--|--|
| 1. GASIFICATION AND SLAG HANDLING | 11. L.V.T. FACILITY AND HOLDING BASIN |
| 2. ACID GAS REMOVAL | 12. SANITARY WASTE TREATMENT |
| 3. AIR SEPARATION UNIT | 13. 48V BATTERY, PBX, AND RTU |
| 4. SULFUR RECOVERY | 14. WAREHOUSE |
| 5. HOT GAS CLEAN-UP | 15. MAINTENANCE SHOP |
| 6. MAKE-UP WATER TREATING | 16. CONSTRUCTION LAYDOWN AND TEMPORARY |
| 7. CONTROL AND GENERAL SERVICES BUILDING | CONSTRUCTION PERSONEL PARKING |
| 8. COAL GRINDING | 17. MOBILE EQUIPMENT MAINTENANCE SHOP |
| 9. CONSTRUCTION POWER FACILITIES | 18. DFF GAS TREATMENT |
| | 19. ASU MATERIAL LAYDOWN AND FABRICATIION AREA |

KEY PLAN
SCALE: 1" = 20' 0"

CORRIDOR
155'-8"

11
10
9
8
7
6
5
4
3
2
1

POLK POWER STATION UNIT #1
FACILITY ARRANGEMENT
AIR SEPARATION UNIT
TAMPA ELECTRIC - POLK COUNTY, FL

DESIGN	KS	DATE	12/22/94	PROJECT NO.	92127-EY-241A	REV.	A
DESIGNED	DATE						
CHECKED	DATE						
APPROVED	DATE			PHONE	3-7838-6299E		

NO.	REV.	DATE	REVISION	DESIGNED BY	CHECKED

J K L M N O P REV. A

TOP OF CONCRETE FLOOR
ELEV. 379'-9"

TOP OF GRATING
ELEV. 363'-1 1/8"

TOP OF GRATING
ELEV. 352'-1 1/8"

TOP OF GRATING
ELEV. 341'-1 1/8"

LOCATION OF FUTURE
AMMONIA DECOMPOSITION
VESSEL

TEXACO GAS CLEANUP
SYSTEM EQUIPMENT

TEXACO GAS
SYSTEM EQUIP

☉ BARRIER FILTER
OUTLET ELEV. 220'-9"

☉ REGENERATOR GAS-GAS
HEAT EXCHANGER
ELEV. 232'-1 13/16"

BOTTOM OF BARRIER FILTER
SUPPORT ELEV. 213'-4"

BOTTOM
SILO
ELEV.

TEXACO GAS CLEANUP
SYSTEM SUPPORT STEEL
(REFERENCE)

BOTTOM OF STEAM
GENERATOR SUPPORT
ELEV. 198'-0"

☉ START-UP HEATER
ELEV. 188'-6 1/4"

TEXACO GAS CLEANUP
SYSTEM SUPPORT S
(REFERENCE)

BOTTOM OF FINES SEPERATOR
BAGHOUSE HOPPER FLANGE
ELEV. 157'-1"

BOTTOM OF SUPPORT STEEL
BASE PLATE ELEV. 141'-1 1/2"

TOP OF FOUNDATION
ELEV. 141'-0"

GRADE ELEV. 140'-0"

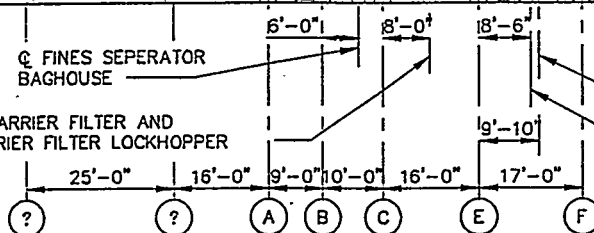
GRADE ELEV. 140'-0'

☉ FINES SEPERATOR
BAGHOUSE

☉ BARRIER FILTER AND
BARRIER FILTER LOCKHOPPER

☉ RECYCLE GAS COMPRESSOR

☉ STEAM GENERATOR



(A) ELEVATION VIEW
ALONG COLUMN ROW "1"

NOTES

XXX

6620A117

XXXX 1-M-35-2T

TOP OF CONCRETE FLOOR
ELEV. 379'-9"

TOP OF BRIDGE CRANE
RAIL ELEV. 368'-2"

TOP OF GRATING
ELEV. 354'-8 15/16"

TOP OF GRATING
ELEV. 341'-1 1/8"

TOP OF GRATING
ELEV. 331'-3 3/8"

TOP OF GRATING
ELEV. 320'-9 13/16"

TOP OF GRATING
ELEV. 310'-4 13/16"

TOP OF GRATING
ELEV. 296'-6 1/4"

TOP OF GRATING
ELEV. 284'-6 1/4"

TOP OF GRATING
ELEV. 273'-10 1/2"

TOP OF GRATING
ELEV. 264'-0 3/4"

PORTABLE MAINTENANCE
PLATFORMS FOR HEAD
REMOVAL

TOP OF GRATING
ELEV. 248'-2 13/16"

TOP OF GRATING
ELEV. 236'-3 5/16"

TOP OF GRATING
ELEV. 226'-3 5/16"

TOP OF GRATING
ELEV. 216'-6 7/8"

TOP OF GRATING
ELEV. 206'-10 7/8"

TOP OF GRATING
ELEV. 197'-1 1/8"

TOP OF GRATING
ELEV. 185'-9 1/4"

TOP OF GRATING
ELEV. 176'-11 1/4"

TOP OF GRATING
ELEV. 165'-1"

TOP OF GRATING
ELEV. 155'-1"

PORTABLE MAINTENANCE
PLATFORMS FOR HEAD
REMOVAL

MANUP
NT

OF SORBENT MAKE-UP
PER OUTLET FLANGE
3'-4"

REFERENCE DRAWINGS:

1-M-35-2A GENERAL ARRANGEMENT
PLAN VIEW AT ELEV. 379'-9"

25'-0" 16'-0" 9'-0" 10'-0" 16'-0" 17'-0"

2'-6"
C MAIN STACK

ELEVATION VIEW
ALONG COLUMN ROW "2"

ISSUED FOR CONSTRUCTION		DATE
AUTHORIZATION NO.		DRAWING NUMBER
T9662		GA117

TEC-IGCC PROJECT
POLK POWER STATION UNIT #1
GENERAL ARRANGEMENT
ELEVATION VIEW @ COLUMN ROWS 1 & 2

NO	DATE	REVISION	BY	ENGR	CHK'D	APP'D
A	7/21/93	ISSUED FOR CLIENT REVIEW	BDF	APP		

DRAWN	BOF	DATE 7/21/93	PROJECT	SHEET 1 OF X	REV.
DESIGNED	APP	DATE 7/21/93	NO. T9662		
CHECKED		DATE	DRAWING NO. 1-M-35-2T		A
APPROVED	S	DATE 7/21/93			

TOP OF ABSORBER INLET
LOCKHOPPER FLANGE
ELEV. 341'-7 1/8"

TOP OF ABSORBER
INLET FLANGE
ELEV. 311'-3 1/8"

TOP OF ABSORBER
OUTLET LOCKHOPPER
FLANGE
ELEV. 274'-4 1/2"

TOP OF REGENERATOR
INLET FLANGE
ELEV. 249'-1 7/8"

TOP OF REGENERATOR
OUTLET LOCKHOPPER
FLANGE ELEV. 207'-4 7/8"

TOP OF REGENERATOR
SORBENT BIN FLANGE
ELEV. 186'-6"

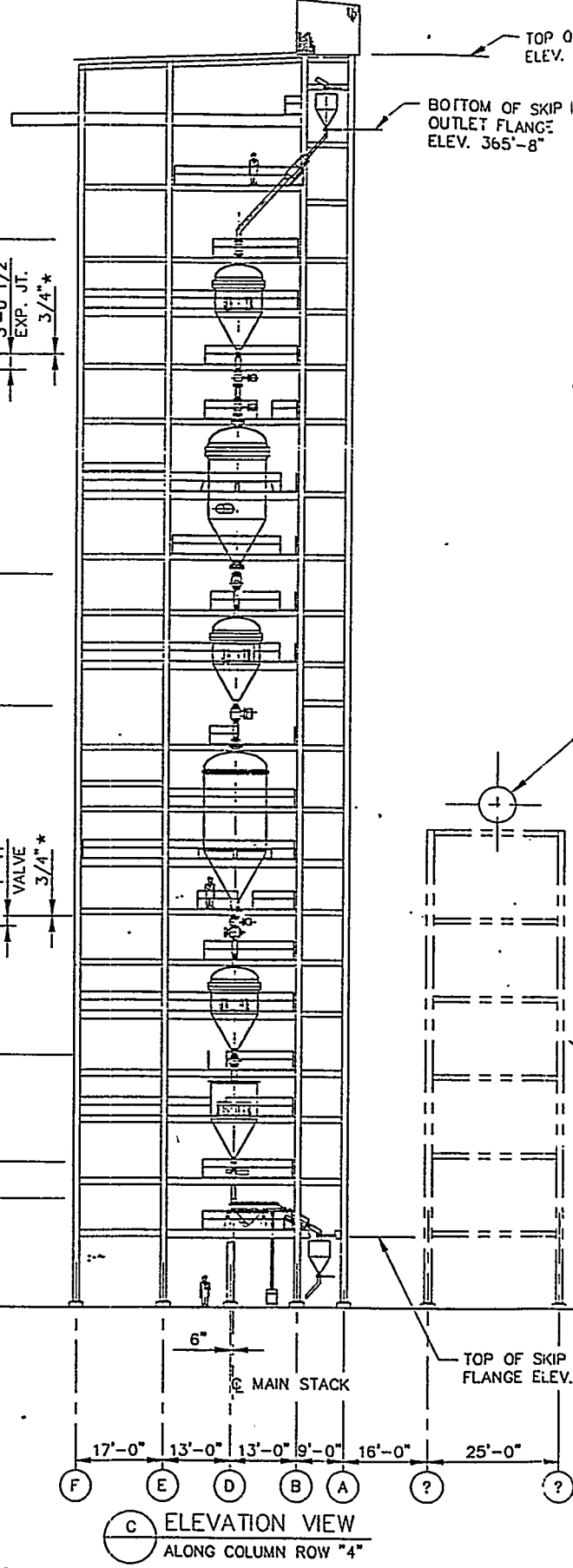
REGENERATOR FINES
SEPARATOR INLET
FLANGE
ELEV. 161'-0"

NOTE:

* DENOTES GAP REQUIRED FOR GASKETS
BETWEEN EQUIPMENT FLANGES

NOTES

XXX
662CA118
1-M-35-2U
XXXX



TOP OF SKIP FLANGE ELEV. 365'-8"
TOP OF ABSORBER INLET LOCKHOPPER FLANGE ELEV. 341'-7 1/8"
TOP OF ABSORBER INLET FLANGE ELEV. 311'-3 1/8"
TOP OF ABSORBER OUTLET LOCKHOPPER FLANGE ELEV. 274'-4 1/2"
TOP OF REGENERATOR INLET FLANGE ELEV. 249'-1 7/8"
TOP OF REGENERATOR OUTLET LOCKHOPPER FLANGE ELEV. 207'-4 7/8"
TOP OF REGENERATOR SORBENT BIN FLANGE ELEV. 186'-6"
REGENERATOR FINES SEPARATOR INLET FLANGE ELEV. 161'-0"
TOP OF SKIP FLANGE ELEV.
6" MAIN STACK
17'-0" 13'-0" 13'-0" 9'-0" 16'-0" 25'-0"
F E D B A ? ?
C ELEVATION VIEW ALONG COLUMN ROW "4"

CONCRETE FLOOR
9'-9"

IST

TOP OF GRATING
ELEV. 354'-8 15/16"

TOP OF GRATING
ELEV. 341'-1 1/8"

TOP OF GRATING
ELEV. 331'-3 3/8"

TOP OF GRATING
ELEV. 320'-9 13/16"

TOP OF GRATING
ELEV. 310'-4 13/16"

TOP OF GRATING
ELEV. 296'-6 1/4"

TOP OF GRATING
ELEV. 284'-6 1/4"

TOP OF GRATING
ELEV. 273'-10 1/2"

TOP OF GRATING
ELEV. 264'-0 3/4"

TEXACO GAS CLEANUP
SYSTEM EQUIPMENT

TOP OF GRATING
ELEV. 248'-2 13/16"

TOP OF GRATING
ELEV. 236'-3 5/16"

TOP OF GRATING
ELEV. 226'-3 5/16"

TOP OF GRATING
ELEV. 216'-6 7/8"

TOP OF GRATING
ELEV. 206'-10 7/8"

TOP OF GRATING
ELEV. 197'-1 1/8"

TOP OF GRATING
ELEV. 185'-9 1/4"

TEXACO GAS CLEANUP
SYSTEM SUPPORT STEEL
(REFERENCE)

TOP OF GRATING
ELEV. 176'-11 1/4"

TOP OF GRATING
ELEV. 165'-1"

TOP OF GRATING
ELEV. 155'-1"

GRADE ELEV. 140'-0"

ST INLET
3'-10"

REFERENCE DRAWINGS:

1-M-35-2A GENERAL ARRANGEMENT
PLAN VIEW AT ELEV. 379'-9"

ISSUED FOR CONSTRUCTION		DATE
AUTHORIZATION NO.		DRAWING NUMBER
T9662		GA118

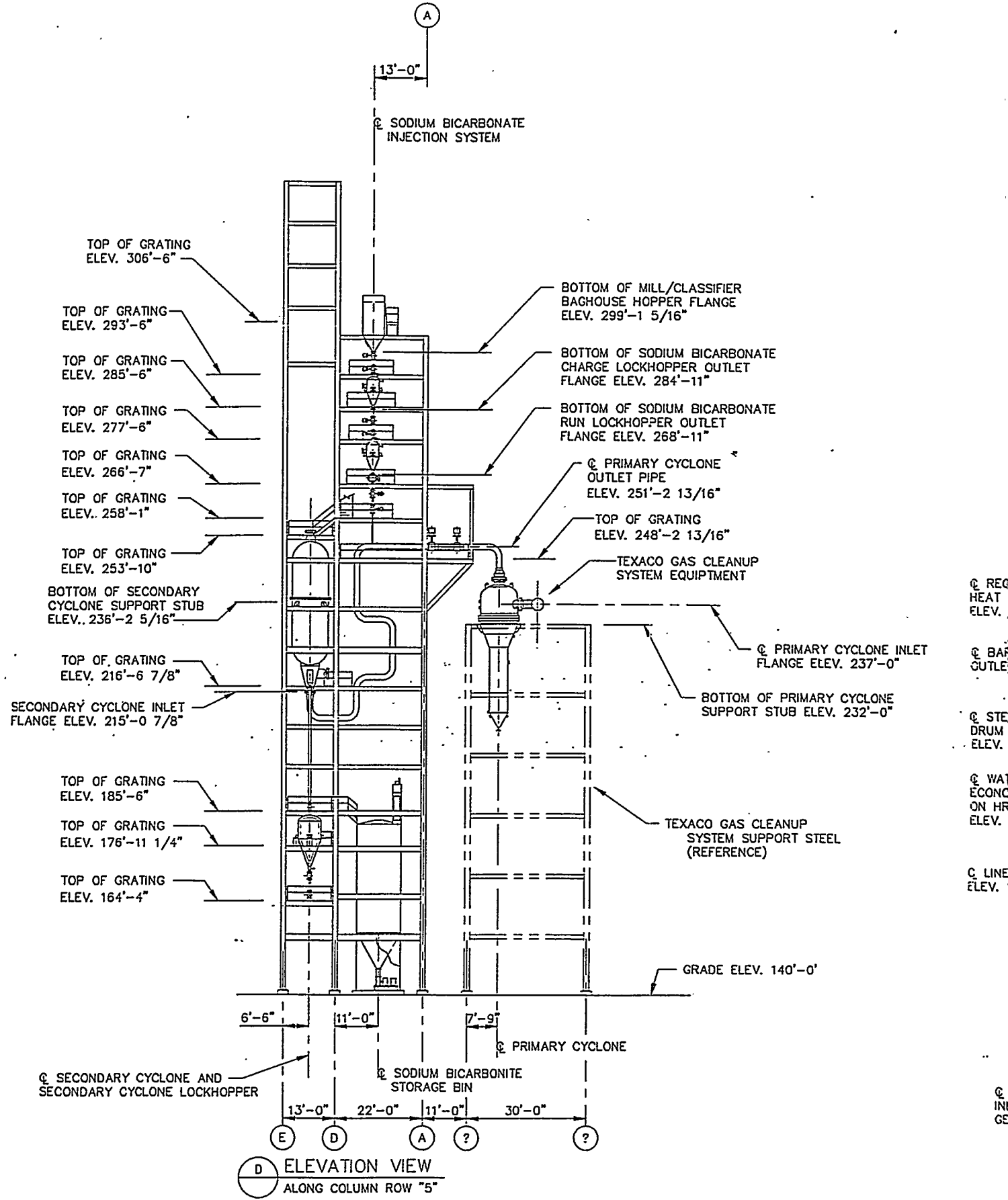
SCALE-1/16" = 1'-0"

TEC-IGCC PROJECT
POLK POWER STATION UNIT #1
GENERAL ARRANGEMENT
ELEVATION VIEW @ COLUMN ROW "4"

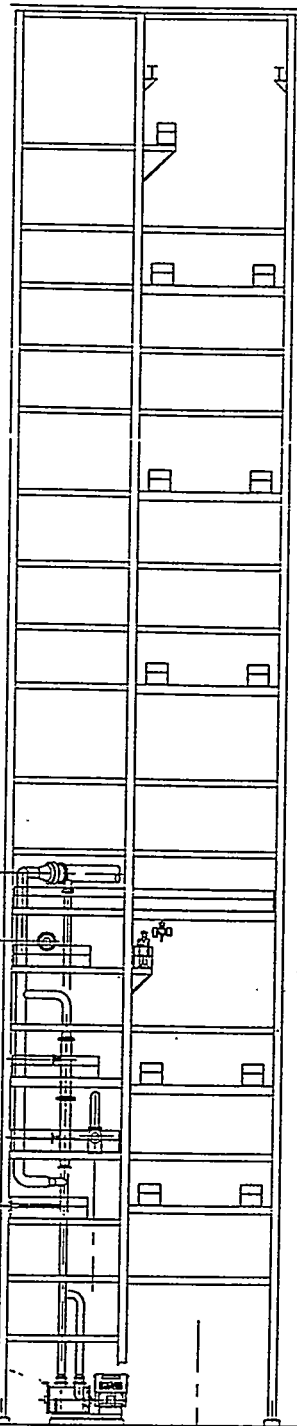
NO.	DATE	REVISION	BY	ENGR.	CHK'D	APP'D
A	7/21/93	ISSUED FOR CLIENT REVIEW	BDF	ape		

DRAWN	BOF	DATE 7/21/93	PROJECT	SHEET 1 OF X	REV.
DESIGNER	ape	DATE 7/21/93	NO. T9662		
CHECKED		DATE	DRAWING NO.		
APPROVED	ape	DATE 7/21/93	NO. 1-M-35-2U		

XXX 1-M-35-2V 6626A119 XXX



NOTES



TOP OF GRATING
ELEV. 354'-8 15/16"

TOP OF GRATING
ELEV. 331'-3 3/8"

TOP OF GRATING
ELEV. 296'-6 1/4"

TOP OF GRATING
ELEV. 264'-0 3/4"

TOP OF GRATING
ELEV. 226'-3 5/16"

TOP OF GRATING
ELEV. 216'-6 7/8"

TOP OF GRATING
ELEV. 198'-1"

TOP OF GRATING
ELEV. 197'-1 1/8"

TOP OF GRATING
ELEV. 185'-9 1/4"

TOP OF GRATING
ELEV. 176'-11 1/4"

TOP OF GRATING
ELEV. 174'-7"

GRADE ELEV. 140'-0"

GENERATOR GAS-GAS
EXCHANGER
ELEV. 22'-1 13/16"

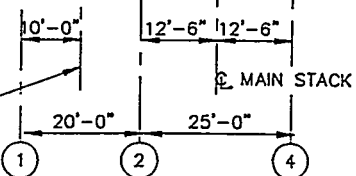
FILTER
ELEV. 220'-9"

LINE TO HP STEAM
LET ON HRSG
ELEV. 1'-0"

LINE FROM HP
COMPRESSOR DISCHARGE
ELEV. 3'-0"

SO2 ACID PLANT
ELEV. 1'-7"

CYCLE GAS COMPRESSOR
FLANGE AND Q STEAM
GENERATOR



E ELEVATION VIEW
ALONG COLUMN ROW "F"

REFERENCE DRAWINGS:

1-M-35-2A GENERAL ARRANGEMENT
PLAN VIEW AT ELEV. 379'-9"

ISSUED FOR CONSTRUCTION		DATE
AUTHORIZATION NO.		DRAWING NUMBER
SCALE-1/16" = 1'-0"		T9662 GA119

TEC-IGCC PROJECT POLK POWER STATION UNIT #1 GENERAL ARRANGEMENT ELEVATION VIEW @ COLUMN ROWS 5 & F			
DRAWN BDF	DATE 7/21/93	PROJECT	SHEET 1 OF X
DESIGNER APE	DATE 7/21/93	NO. T9662	REV.
CHECKED	DATE	DRAWING	A
APPROVED	DATE 7/21/93	NO. 1-M-35-2V	9-10

NO.	DATE	REVISION	BY	ENGR	CHK'D	APP'D
A	7/21/93	ISSUED FOR CLIENT REVIEW	BDF	ape	-	B

TOP OF GRATING AND -
TOP OF CONCRETE MA
ROOM FLOOR ELEV. 379'

TOP OF GRATING -
ELEV. 374'-1 1/8"

TOP OF GRATING -
ELEV. 363'-1 1/8"

TOP OF GRATING -
ELEV. 352'-1 1/8"

TOP OF GRATING -
ELEV. 341'-1 1/8"

TOP OF GRATING -
ELEV. 331'-3 3/8"

TOP OF GRATING -
ELEV. 320'-9 13/16"

TOP OF GRATING -
ELEV. 310'-4 13/16"

TOP OF GRATING -
ELEV. 296'-6 1/4"

TOP OF GRATING -
ELEV. 284'-6 1/4"

TOP OF GRATING -
ELEV. 273'-10 1/2"

TOP OF GRATING -
ELEV. 264'-0 3/4"

TOP OF GRATING -
ELEV. 248'-2 13/16"

TOP OF GRATING -
ELEV. 236'-3 5/16"

TOP OF GRATING -
ELEV. 226'-3 5/16"

TOP OF GRATING -
ELEV. 216'-6 7/8"

TOP OF GRATING -
ELEV. 206'-10 7/8"

TOP OF GRATING -
ELEV. 197'-1 1/8"

TOP OF GRATING -
ELEV. 185'-9 1/4"

TOP OF GRATING -
ELEV. 176'-11 1/4"

TOP OF GRATING -
ELEV. 165'-1"

TOP OF GRATING -
ELEV. 155'-1"

LOCATION OF FUTURE
AMMONIA DECOMPOSITION
VESSEL

GRADE ELEV. 140'-0"

6'-6"

5'-4 1/2"

Ø BARRIER FILTER AND
BARRIER FILTER LOCKHOPPER

Ø MAIN STACK

Ø SECONDARY CYCLONE LOCKHOPPER

12'-6"

6'-6"

Ø SECONDARY CYCLONE

20'-0"

25'-0"

20'-0"

1

2

4

5

F

ELEVATION VIEW
ALONG COLUMN ROW "E"

Ø FINES S
BAGHOUSE

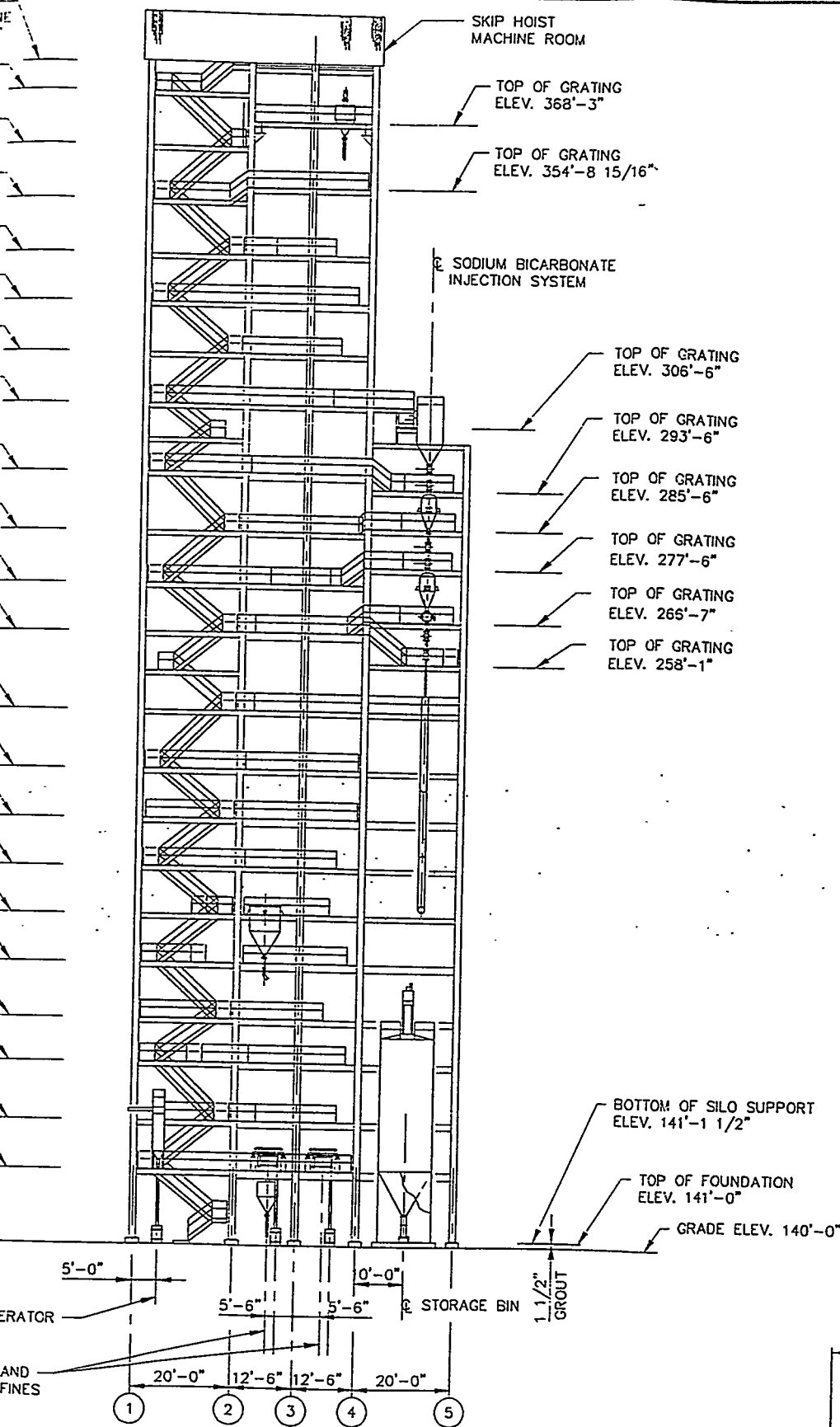
Ø SKIP HOI
REGENERAT
SEPERATOR

NOTES

XXX

662GA12D

1-M-35-2W
XXXX



REFERENCE DRAWINGS:

1-M-35-2A GENERAL ARRANGEMENT
PLAN VIEW AT ELEV. 379'-9"

G ELEVATION VIEW
ALONG COLUMN ROW "B"

DATE	ISSUED FOR CONSTRUCTION	DATE
	AUTHORIZATION NO.	DRAWING NUMBER
SCALE-1/16" = 1'-0"		T9662 GA120

TEC-IGCC PROJECT
POLK POWER STATION UNIT #1
GENERAL ARRANGEMENT
ELEVATION VIEW @ COLUMN ROWS B & E

NO.	DATE	REVISION	BY	ENGR.	CHK'D	APP'D
A	7/21/93	ISSUED FOR CLIENT REVIEW	BDF	APL		

DRAWN	BDF	DATE	7/21/93	PROJECT	SHEET 1 OF X	REV.
DESIGNER	APL	DATE	7/21/93	NO.	T9662	
CHECKED		DATE		DRAWING	NO.	1-M-35-2W
APPROVED		DATE	7/21/93			

EQUIPMENT LIST

--	--

10.0 EQUIPMENT LIST

The equipment list for the Polk Power Station is included on the following pages.

TAMPA ELECTRIC COMPANY POLK POWER STATION PRELIMINARY PUBLIC DESIGN REPORT

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
-----	----------------	--------------

UTILITIES

AUXILIARY BOILER

1-ABM-B -001	AUXILIARY BOILER PACKAGE	1
1-ABF-DN -001	AUXILIARY BOILER DEAERATOR	1
1-ABA-FN -001	AUXILIARY BOILER COMBUSTION AIR FAN	1
1-ABF-P -001A/B	AUXILIARY BOILER FEEDWATER TRANSFER PUMP	1+1

GASIFICATION CLOSED LOOP COOLING WATER

1-CCC-E -042	CLOSED LOOP EXCHANGER (GASIF.)	
1-CCC-P -047A/B	CLOSED LOOP CIRCULATING PUMP (GASIF.)	
1-CCC-TK -042	CLOSED LOOP EXPANSION TANK (GASIF.)	

OPEN LOOP COOLING WATER

1-CWS-CRN-041	TRAVELING WATER SCREEN GANTRY	1
1-CWS-FLT-009	GASIFICATION POND COOLING WATER FILTER	
1-CWS-P -043A/B	CONDENSER COOLING WATER PUMPS	2
1-CWS-P -042A/B	OPEN LOOP COOLING WATER PUMPS	2
1-CWS-P -044A/B	TRAVELING SCREEN SPRAY PUMP	1+1
1-CWS-SCR-001A/B	TRAVELING WATER WASH SCREENS	2
1-CWS-SCR-003	TRAVELING WATER WASH SCREEN	2

FUEL OIL

1-FOY-P -091A/B	FUEL OIL TRUCK UNLOADING PUMPS	1+1
1-FOY-P -092A/B	AUX. BOILER/THERMAL OXIDIZER FUEL OIL PUMPS	1+1
1-FOY-PKG-091	FUEL OIL TANK TRUCK UNLOADING STATION	1
1-FOY-TK -091	FUEL OIL STORAGE TANK	1

FIREWATER

1-FPP-P -031A/B/C	FIREWATER PUMPS	2+1
1-FPP-P -032	FIRE WATER JOCKEY PUMP	1
1-FPP-TK -033A/B	DIESEL TANK FOR FIREWATER PUMPS	2

WELL WATER

1-FWS-P -040A/B	WELLWATER PUMPS	2
1-FWS-P -041A/B	RESERVOIR MAKEUP WELLWATER PUMPS	2

PILOT GAS SYSTEM (PROPANE)

1-PRO-E -001	PROPANE VAPORIZER	
--------------	-------------------	--

FLARE

1-RSY-D -042	HOT GAS FLARE QUENCH DRUM	1
1-RSY-D -041	FLARE KNOCKOUT DRUM	1
1-RSY-FLR-041	ELEVATED FLARE	1
1-RSY-P -041A/B	FLARE KNOCKOUT DRUM PUMPS	1+1
1-RSY-P -042A/B	FLARE KNOCKOUT DRUM PUMPS	1+1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
-----	----------------	-----------------

GASIFICATION

BLACK WATER

1-BLW-D -109	VACUUM FLASH DRUM	
1-BLW-D -110	VACUUM FLASH KNOCKOUT DRUM	
1-BLW-D -111	VACUUM PUMP KNOCKOUT DRUM	
1-BLW-E -113	VACUUM FLASH OH CONDENSER	
1-BLW-E -114	VACUUM PUMP HEAT EXCHANGER	
1-BLW-P -110A/B	SETTLER FEED PUMPS	
1-BLW-P -111A/B	VACUUM FLASH CONDENSATE PUMPS	
1-BLW-P -112A/B	SOUR GAS VACUUM PUMPS	
1-BLW-TK -102	GRAVITY SETTLER	

SYNGAS CONDENSATE

1-CSY-E -116	AMMONIA STRIPPER PREHEATER	
1-CSY-P -107A/B	CONDENSATE RETURN PUMP	
1-CSY-P -108A/B	STRIPPED CONDENSATE PUMPS	
1-CSY-D -104	PROCESS CONDENSATE DRUM	

BURNER COOLING WATER

1-CWB-D -117	BURNER COOLING WATER KNOCKOUT DRUM	
1-CWB-E -101	BURNER COOLING WATER COOLER	
1-CWB-P -102A/B	BURNER COOLING WATER PUMP	
1-CWB-TK -101	BURNER COOLING WATER TANK	

FINES HANDLING

1-FIN-BIN-102A/B	FINES DEWATERING BINS	
1-FIN-CNV-104	FILTER CAKE CONVEYOR	
1-FIN-D -117	FINES FILTER FILTRATE RECEIVER	
1-FIN-FLT-101	FINES FILTER	
1-FIN-MIX-102	FILTER FEED TANK AGITATOR	
1-FIN-P -120A/B	FILTER FEED PUMPS	
1-FIN-P -126	FINES FILTER FILTRATE PUMP	
1-FIN-P -127	FINES FILTER VACUUM PUMP	
1-FIN-P -131A/B	FINES SUMP PUMPS	
1-FIN-SUMP-104	FINES SUMP	
1-FIN-TK -105	FILTER FEED TANK	

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
GASIFIER AND GAS COOLING		
1-GAS-BLOW-101	PREHEAT AIR BLOWER	
1-GAS-BURN-102	PREHEAT BURNER	
1-GAS-BURN-101	PROCESS BURNER	
1-GAS-CRH-101	SLAG CRUSHER	
1-GAS-D -102	HP STEAM DRUM	
1-GAS-D -103	MP STEAM DRUM	
1-GAS-D -113	SOOT BLOWING DRUM	
1-GAS-D -114	SYNGAS COOLER BLOWDOWN DRUM	
1-GAS-E -103	RAW GAS/NITROGEN EXCHANGER	
1-GAS-E -104	CONVECTIVE SYNGAS COOLER	
1-GAS-E -105	RADIANT SYNGAS COOLER	
1-GAS-E -106	CONVECTIVE SYNGAS COOLER	
1-GAS-E -107	CLEAN GAS PREHEATER	
1-GAS-E -108	RAW GAS/CLEAN GAS EXCHANGER	
1-GAS-E -109	RAW GAS CONNECTING DUCT I	
1-GAS-E -110	RAW GAS CONNECTING DUCT II	
1-GAS-E -111	TRANSFER LINE OUTLET	
1-GAS-E -112	TRANSFER LINE INLET	
1-GAS-E -113	CSC INLET CONE (RGCGE-SIDE)	
1-GAS-E -114	TRANSFER PIPE	
1-GAS-E -115	TRANSFER PIPE	
1-GAS-E -116	CSC INLET CONE (RGNE-SIDE)	
1-GAS-E -117	TRANSFER LINE INLET RGCGE-SIDE	
1-GAS-E -118	TRANSFER LINE OUTLET RGNE-SIDE	
1-GAS-E -119	RAW GAS CONNECTING DUCT I	
1-GAS-E -120	RAW GAS CONNECTING DUCT II	
1-GAS-E -121	SEAL WATER COOLER	
1-GAS-EL -102	RSC MANLIFT	
1-GAS-EL -101	GASIFIER FREIGHT ELEVATOR	
1-GAS-LFT-101	GASIFIER LIFT REMOVAL WINCH	
1-GAS-P -103A/B	SYNGAS COOLER CIRCULATING PUMP	
1-GAS-P -104A/B	TRANSFER LINE CIRCULATING PUMP	
1-GAS-P -130A/B	GASIFICATION SUMP PUMPS	
1-GAS-REF-101	GASIFIER REFRACTORY	
1-GAS-REV-101	GASIFIER	
1-GAS-SUMP-103	GASIFICATION SUMP	

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
GREY WATER		
1-GRW-P -114A/B	LOW PRESSURE GREY WATER PUMPS	
1-GRW-P -115A/B	HIGH PRESSURE GREY WATER PUMPS	
1-GRW-P -128A/B	GREY WATER FORWARDING PUMPS	
1-GRW-TK -103	GREY WATER TANK	
1-GRW-TK -108	GREY WATER STORAGE TANK	
SYNGAS SCRUBBING		
1-RUB-COL-101A/B	SYNGAS SCRUBBER	
1-RUB-NOZ-101A/B	START-UP ASPIRATOR	
1-RUB-NOZ-102A/B	NOZZLE SCRUBBER	
1-RUB-P -105A/B	SYNGAS SCRUBBER CIRCULATING PUMP	
1-RUB-P -106A/B	SYNGAS SCRUBBER CIRCULATING PUMP	
SLAG HANDLING		
1-SLG-BIN-101A/B	SLAG DEWATERING BINS	
1-SLG-D -112	LOCKHOPPER FLUSH DRUM	
1-SLG-DIV-101A/B	SLAG DIVERTER	
1-SLG-E -115	LOCKHOPPER FLUSH WATER COOLER	
1-SLG-LH -101	LOCKHOPPER	
1-SLG-P -116A/B	LOCKHOPPER CIRCULATING PUMP	
1-SLG-P -126A/B	FINES FILTER FILTRATE PUMP	
1-SLG-P -127A/B	FINES FILTER VACUUM PUMP	
1-SLG-P -129A/B	SLAG DEWATERING SUMP PUMPS	
1-SLG-SUMP-102	SLAG DEWATERING SUMP	
SLURRY PUMPING		
1-SLR-P -101A/B	SLURRY FEED PUMP	
SYNGAS COOLING		
1-SNC-D -105	CLEAN GAS PREHEATER KNOCKOUT DRUM	
1-SNC-D -107	EVAPORATOR CONDENSATE KO DRUM	
1-SNC-D -108	TRIM COOLER KNOCKOUT DRUM	
1-SNC-E -109	CLEAN GAS PREHEATER	
1-SNC-E -111	STEAM TURBINE CONDENSATE HEATER	
1-SNC-E -112	TRIM COOLER	
SLAG PILE RUNOFF HANDLING		
1-SRW-P -190A/B	SLAG PILE AREA RUNOFF RETENTION BASIN PUMPS	
1-SRW-P -191	SLAG PILE LEACHATE SUMP PUMP	
1-SRW-SUMP-190	SLAG PILE AREA RUNOFF RETENTION BASIN	
1-SRW-SUMP-191	SLAG PILE LEACHATE SUMP	

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
AMMONIA STRIPPING		
1-STP-E -110	AMMONIA STRIPPER REBOILER	
1-STP-D -115	AMMONIA STRIPPER REBOILER CONDENSATE POT	
1-STP-COL-102	AMMONIA STRIPPER	
1-STP-E -117	AMMONIA STRIPPER REFLUX COOLER	
1-STP-P -109A/B	AMMONIA STRIPPER REFLUX PUMPS	
FLOCCULANT INJECTION		
1-WTL-P -132A/B	FLOCCULANT PUMPS	
1-WTL-PKG-101	FLOCCULANT INJECTION PACKAGE	
1-WTL-MIX-104	ANIONIC FLOCCULANT TANK MIXER	
1-WTL-MIX-103	CATIONIC FLOCCULANT TANK MIXER	
1-WTL-TK -109	CATIONIC INJECTION TANK	
1-WTL-TK -110	ANIONIC INJECTION TANK	

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
ACID GAS REMOVAL		
1-USY-COL-201	WATER WASH COLUMN	1
1-USY-COL-202	ACID GAS ABSORBER	1
1-AMR-COL-203	AMINE STRIPPER	1
1-TSY-D -201	CLEAN GAS KNOCKOUT DRUM	1
1-CNH-D -202	AMINE STRIPPER REBOILER POT	1
1-ACG-D -203	AMINE STRIPPER REFLUX DRUM	1
1-AML-E -201A/B	LEAN AMINE COOLER	1
1-AMR-E -202	LEAN/RICH AMINE EXCHANGER	2
1-ACG-E -203	REFLUX CONDENSER	1
1-STP-E -204	STRIPPER REBOILER	1
1-PCW-E -205	WASH WATER COOLER	1
1-AMR-FLT-202	RICH AMINE CARTRIDGE FILTER	1
1-AMR-FLT-203	RICH AMINE CARBON FILTER	1
1-AMR-FLT-204	RICH AMINE CARBON AFTER FILTER	1
1-AML-FLT-205	AMINE SUMP FILTER	1
1-PCW-FLT-208	WASH WATER MAKEUP FILTER	1
1-PCW-P -201A/B	CIRCULATION WASH PUMP	1
1-AML-P -202A/B	LEAN AMINE PUMPS	1+1
1-AML-P -203A/B	AMINE STRIPPER BOTTOMS PUMPS	1+1
1-AML-P -204	AMINE SOLVENT SUMP PUMP	1
1-SRH-P -205A/B	AMINE REFLUX PUMPS	1+1
1-AML-P -206	AMINE SUMP PUMP	1
1-AML-SUMP-201	AMINE SUMP	1
1-AML-TK -201	AMINE STORAGE TANK	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
AIR SEPARATION UNIT		
1-ASU-ADS-360	AIR ADSORBER SYSTEM	1
1-ASU-C -301	MAIN AIR COMPRESSOR	1
1-ASU-C -303	GOX COMPRESSOR	1
1-ASU-C -304	DILUENT GAN COMPRESSOR	1
1-ASU-C -305	HP GAN COMPRESSOR	1
1-ASU-COL-381	HP COLUMN	1
1-ASU-COL-382	LP COLUMN	1
1-NIT-D -301	HIGH PRESSURE PURGE NITROGEN RECEIVER	1
1-NIT-D -302	HGCU SURGE DRUM	1
1-ASU-DMST-311	MAC LUBE OIL DEMISTER	1
1-ASU-DMST-331	GOX COMPRESSOR LUBE OIL DEMISTER	1
1-ASU-DMST-341	DILUENT GAN COMPRESSOR LUBE OIL DEMISTER	1
1-ASU-DMST-351	HP GAN COMPRESSOR LUBE OIL DEMISTER	1
1-ASU-E -301	MAC MOTOR COOLER	1
1-NIT-E -302	SOOT BLOWING HEATER	1
1-ASU-E -303	GOX COMPRESSOR MOTOR COOLER	1
1-ASU-E -304	DILUENT GAN COMPRESSOR MOTOR COOLER	1
1-ASU-E -305	HP GAN COMPRESSOR MOTOR COOLER	1
1-ASU-E -310A/B/C	MAC INTERCOOLERS	3
1-ASU-E -311A/B	MAC LUBE OIL COOLERS	1+1
1-ASU-E -312	MAC AFTERCOOLER	1
1-ASU-E -330A/B	GOX COMPRESSOR INTERCOOLERS	2
1-ASU-E -331A/B	GOX COMPRESSOR LUBE OIL COOLERS	1+1
1-ASU-E -332	GOX COMPRESSOR RECYCLE COOLER	1
1-ASU-E -340	DILUENT GAN COMPRESSOR INTERCOOLER	1
1-ASU-E -341A/B	DILUENT GAN COMPRESSOR LUBE OIL COOLERS	1+1
1-ASU-E -343	DILUENT GAN PURGE GAS COOLER	1
1-ASU-E -350	HP GAN COMPRESSOR INTERCOOLER	1
1-ASU-E-351A/B	HP GAN COMPRESSOR LUBE OIL COOLERS	1+1
1-ASU-E-352	HP GAN COMPRESSOR RECYCLE COOLER	1
1-ASU-E-381	MAIN HEAT EXCHANGER ASSEMBLY	1
1-ASU-E-382	REBOILER/CONDENSER	1
1-ASU-E-383	N2 SUBCOOLER ASSEMBLY	1
1-ASU-E-384	LOX PURGE VAPORIZER	1
1-ASU-E-385	DISPOSAL VAPORIZER	1
1-ASU-EVAP-370	PRESSURE BUILDUP COIL	1
1-ASU-EVAP-371	LIN BACKUP VAPORIZER	1

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10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
1-ASU-FLT-310	INLET AIR FILTER	1
1-ASU-FLT-311A/B	MAC LUBE OIL FILTERS	1+1
1-ASU-FLT-331A/B	GOX COMPRESSOR LUBE OIL FILTERS	1+1
1-ASU-FLT-332	GOX COMPRESSOR SEAL GAS FILTER	1
1-ASU-FLT-341A/B	DILUENT GAN COMPRESSOR LUBE OIL FILTERS	1+1
1-ASU-FLT-351A/B	HP GAN COMPRESSOR LUBE OIL FILTERS	1+1
1-ASU-FLT-362	GAN REGENERATION AFTERFILTER	1
1-ASU-H-311	MAC LUBE OIL HEATER	1
1-ASU-H-331	GOX COMPRESSOR LUBE OIL HEATER	1
1-ASU-H-341	DILUENT GAN COMPRESSOR LUBE OIL HEATER	1
1-ASU-H-351	HP GAN COMPRESSOR LUBE OIL HEATER	1
1-ASU-IENC-380	COLUMN CAN	1
1-ASU-IENC-381	HEX ENCLOSURE	1
1-ASU-IENC-382	CROSSOVER	1
1-ASU-M-301	MAC MOTOR	1
1-ASU-M-303	GOX COMPRESSOR MOTOR	1
1-ASU-M-304	DILUENT GAN COMPRESSOR MOTOR	1
1-ASU-M-305	HP GAN COMPRESSOR MOTOR	1
1-ASU-P -311A/B	MAC LUBE OIL PUMPS	1+1
1-ASU-P -331A/B	GOX COMPRESSOR LUBE OIL PUMPS	1+1
1-ASU-P -341A/B	DILUENT GAN COMPRESSOR LUBE OIL PUMPS	1+1
1-ASU-P -351A/B	HP GAN COMPRESSOR LUBE OIL PUMPS	1+1
1-ASU-RESV-311	MAC LUBE OIL RESERVOIR	1
1-ASU-RESV-331	GOX COMPRESSOR LUBE OIL RESERVOIR	1
1-ASU-RESV-341	DILUENT GAN COMPRESSOR LUBE OIL RESERVOIR	1
1-ASU-RESV-351	HP GAN COMPRESSOR LUBE OIL RESERVOIR	1
1-ASU-SIL-310	MAC INLET SILENCER	1
1-ASU-SIL-311	MAC DISCHARGE SILENCER	1
1-ASU-SIL-312	MAC DISCHARGE VENT SILENCER	1
1-ASU-SIL-330	GOX COMPRESSOR SUCTION VENT SILENCER	1
1-ASU-SIL-331	GOX COMPRESSOR DISCHARGE VENT SILENCER	1
1-ASU-SIL-340	DILUENT GAN COMPRESSOR DISCHARGE VENT SILENCER	1
1-ASU-SIL-350	PURE GAN VENT SILENCER	1
1-ASU-SIL-351	HP GAN VENT SILENCER	1
1-ASU-SKD-306	ASU ADSORBER SKID	1
1-ASU-SKD-311	MAC LUBE OIL SKID	1
1-ASU-SKD-331	GOX LUBE OIL SKID	1
1-ASU-SKD-341	DILUENT GAN LUBE OIL SKID	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
1-ASU-SKD-351	HP GAN LUBE OIL SKID	1
1-ASU-SKD-360	ASU ADSORBER SKID	1
1-ASU-SP -312	MAC AFTERCOOLER SEPARATOR	1
1-ASU-TK-360	GAN RINSE BOTTLE	1
1-ASU-TK-370	LIN BACKUP TANK	1
	OTHER ASU EQUIPMENT	1 LOT

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
HOT GAS CLEAN-UP (HGCU)		
1-HTG-ADS-501	ABSORBER	1
1-HTG-BIN-502	REGENERATOR SORBENT BIN	1
1-HTG-BIN-503	SORBENT MAKE-UP SILO	1
1-HTG-BIN-504	SODIUM BICARBONATE STORAGE SILO	1
1-HTG-BLOW-501	FINES SEPARATOR BAGHOUSE FAN	1
1-HTG-BLOW-502	SODIUM BICARBONATE MILL/CLASSIFIER BAGHOUSE FAN	1
1-HTG-C -501	RECYCLE GAS COMPRESSOR	1
1-HTG-C -502	PURGE RE-COMPRESSSION SYSTEM RECEIVER COMPRESSOR	1
1-HTG-CH-501	START-UP HEATER	1
1-HTG-COLL-501	PRIMARY CYCLONE WITH INTEGRAL KO DRUM	1
1-HTG-COLL-503	SECONDARY CYCLONE	1
1-HTG-CRN-501A	SKIP HOIST A	1
1-HTG-CRN-501B	SKIP HOIST B	1
1-HTG-E-501	REGENERATOR GAS GAS HEAT EXCHANGER	1
1-HTG-FDR-501	SODIUM BICARBONATE ROTARY FEEDER	1
1-HTG-FDR-502	REGENERATOR OUTLET ROTARY FEEDER	1
1-HTG-FDR-503	SODIUM BICARBONATE SCREW FEEDER	1
1-HTG-FLT-501	BARRIER FILTER	1
1-HTG-FLT-502	FINES SEPARATOR BAGHOUSE	1
1-HTG-FLT-503	SODIUM BICARBONATE STORAGE SILO BAGHOUSE	1
1-HTG-FLT-504	SODIUM BICARBONATE MILL/CLASSIFIER BAGHOUSE BIN	1
1-HTG-GDR-501	SODIUM BICARBONATE MILL/CLASSIFIER	1
1-HTG-GDR-502	SODIUM BICARBONATE MILL/CLASSIFIER	1
1-HTG-LH-501	ABSORBER INLET LOCKHOPPER	1
1-HTG-LH-502	ABSORBER OUTLET LOCKHOPPER	1
1-HTG-LH-503	REGENERATOR OUTLET LOCKHOPPER	1
1-HTG-LH-506	BARRIER FILTER LOCKHOPPER	1
1-HTG-LH-507	SECONDARY CYCLONE LOCKHOPPER	1
1-HTG-LH-508	SODIUM BICARBONATE CHARGE LOCKHOPPER	1
1-HTG-LH-509	SODIUM BICARBONATE RUN LOCKHOPPER	1
1-HTG-PWRS-501	HYDRAULIC POWER UNIT FOR VALVES	1
1-HTG-REV-501	REGENERATOR	1
1-HTG-SG-501	STEAM GENERATOR	1
1-HTG-SF-501A	REGENERATOR FINES SEPARATOR A	1
1-HTG-SF-501B	REGENERATOR FINES SEPARATOR B	1
1-HTG-TC-501A	FINES SEPARATOR A OVERFLOW TELESCOPING CHUTE	1
1-HTG-TC-501B	FINES SEPARATOR B OVERFLOW TELESCOPING CHUTE	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
1-HTG-TC-502A	SKIP HOIST A TELESCOPING CHUTE	1
1-HTG-TC-502B	SKIP HOIST B TELESCOPING CHUTE	1
1-HTG-TC-503	BARRIER FILTER LOCKHOPPER TELESCOPING CHUTE	1
1-HTG-TC-504A	FINES SEPARATOR A UNDERFLOW TELESCOPING CHUTE	1
1-HTG-TC-504B	FINES SEPARATOR B UNDERFLOW TELESCOPING CHUTE	1
1-HTG-TC-505	PURGE RECOMPRESSION TELESCOPING CHUTE	1
1-HTG-TK-501	PURGE RE-COMPRESSION SYSTEM RECEIVER TANK	1
1-HTG-TK-502	ELECTRICALLY HEATED BLOWBACK NITROGEN RECEIVER	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
CAUSTIC STORAGE AND PUMPING		
1-CAU-TK-606	CAUSTIC STORAGE TANK	1
1-CAU-P-622A/B	DEGASIFIER CAUSTIC METERING PUMPS	1+1
CONDENSATE COLLECTION		
1-CNHD-D-603	LOW PRESSURE FLASH DRUM	1
1-CNHD-D-604	ATMOSPHERIC FLASH DRUM	1
1-CNHP-P-626A/B	CONDENSATE TRANSFER PUMPS	1+1
POTABLE WATER		
1-DWS-ACC-601	POTABLE WATER ACCUMULATOR	1
1-DWS-FLT-604A/B	POTABLE WATER ACTIVATED CARBON FILTERS	1+1
1-DWS-P-607A/B	POTABLE WATER PUMPS	1+1
1-DWS-TK-602	POTABLE WATER STORAGE TANK	1
INSTRUMENT AIR/PLANT AIR		
1-IAS-C-601A/B	PLANT AND INSTRUMENT AIR COMPRESSOR PACKAGE	1+1
1-IAS-D-605	INSTRUMENT AIR RECEIVER	1+1
1-SAS-D-605	AIR RECEIVER	1+1
1-IAS-DRY-601	INSTRUMENT AIR DRYER PACKAGE	1
STORMWATER COLLECTION AND TREATMENT		
1-SRW-FLTM-684	WASTEWATER FILTER CARRIAGE DRIVE	1
1-SRW-FLT-684	WASTEWATER FILTER	1
1-SRW-P-007A/B	PROCESS UNIT AREA RUNOFF DIVERSION BOX PUMPS	1+1
1-SRW-P-019	LABORATORY WASTES LIFT STATION PUMP	1
1-SRW-P-683A/B	WASTEWATER TRANSFER PUMPS	1+1
1-SRW-P-685A/B	IWT EFFLUENT PUMPS	1+1
1-SRW-P-686	WASTEWATER FILTER BACKWASH PUMP	1
1-SRW-P-687	WASHWATER PUMP	1
1-SRW-SUMP-007	PROCESS UNIT AREA RUNOFF DIVERSION BOX	1
1-SRW-SUMP-016	BRINE SOLIDS LANDFILL LEACHATE SUMP	1
1-SRW-SUMP-019	LABORATORY WASTES LIFT STATION	1
1-SRW-SUMP-683	WASTEWATER EQUALIZATION BASIN	1
1-SRW-SUMP-685	CLEARWELL	1
1-SRW-TK-020	CHEMICAL CLEANING WASTE TANK	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
SANITARY WASTE		
1-TSW-BLOW-650A/B	VENDOR PACKAGE AIR BLOWERS	1+1
1-TSW-FLT-650A/B	SAND FILTER (VENDOR PACKAGE)	1+1
1-TSW-P -001A/B	CONTROL ROOM SANITARY SUMP PUMP	1+1
1-PBS-P -651A/B	CHOPPER/LIFT PUMP	1+1
1-TSW-P -652	VENDOR PACKAGE AIR PUMP	1
1-TSW-PKG-650	SANITARY WASTEWATER TREATMENT PACKAGE	1
1-TSW-SUMP-001	CONTROL ROOM SANITARY SUMP	1
1-PBS-SUMP-650	LIFT STATION SUMP WITH BAR SCREEN	1
1-TSW-TK -650A/B/C	AERATION/CLARIF/SLUDGE THICKENING/DIGESTION TANKS	3
DEMINERALIZED WATER		
1-WDD-BLOW-602A/B	DECARBONATOR BLOWERS	1+1
1-WDD-D -602	DECARBONATOR/ SURGE TANK	1
1-WDD-FLT-602A/B	ACTIVATED CARBON FILTERS	1+1
1-WDD-FLT-603A/B	RO CARTRIDGE FILTERS	1+1
1-WDD-FLT-606	RO CLEAN IN-PLACE CARTRIDGE FILTER	1
1-WDD-MIX-602	SCALE INHIBITOR MIXER	1
1-WDD-P -608A/B/C	RO FEED PUMPS	2+1
1-WDD-P -609A/B/C	DEMINERALIZER FEED PUMPS	2+1
1-WDD-P -610A/B	DEMINERALIZED WATER TRANSFER PUMPS	1+1
1-WDD-P -618A/B	SCALE INHIBITOR METERING PUMPS	1+1
1-WDD-P -619	RO CLEAN IN-PLACE PUMP	1
1-WDD-PKG-600	BOILER FEEDWATER TREATMENT SYSTEM	2
1-WDD-RO -601A/B	REVERSE OSMOSIS TRAINS	2
1-WDD-SUMP-601	WELLWATER TREATMENT CHEMICAL STORAGE AREA SUMP	1
1-WDD-TK -603	DEMINERALIZED WATER STORAGE TANK	1
1-WDD-TK -608	SCALE INHIBITOR STORAGE TANK	1
1-WDD-TK -610	RO CLEAN IN-PLACE TANK	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
OILY WATER SYSTEM		
1-WOW-CLR-698	DAF SKIMMER/SCRAPER	1
1-WOW-P -002	SPCC TANK PUMP	1
1-WOW-P -697A/B	DAF RECYCLE PUMPS	1+1
1-WOW-P -699	DAF POLYMER FEED PUMP	1
1-WOW-SP -693	OILY WASTEWATER OIL/WATER SEPARATOR	1
1-WOW-SP -694	DISSOLVED AIR FLOTATION UNIT	1
1-WOW-TK -002	SPILL PREVENTION CONTROL COUNTERMEASURE TANK	1
1-WOW-TK -696	SKIMMED OIL TANK	1
1-WOW-TK -697	DAF AIR SATURATION TANK	1
1-WOW-TK -698	DAF CLARIFIER TANK	1
SERVICE WATER		
1-WSR-P -123	SERVICE WATER BOOSTER PUMP	1
1-WSR-P -606A/B	SERVICE WATER PUMPS	1+1
1-WSR-TK -601	SERVICE WATER STORAGE TANK	1
WATER TREATMENT SULFURIC ACID STORAGE AND PUMPING		
1-WTA-P -613A/B	RO SULFURIC ACID METERING PUMPS	1+1
1-WTA-P -623A/B	DEGASIFIER SULFURIC ACID METERING PUMPS	1+1
1-WTA-P -625	NEUTRALIZING SULFURIC ACID METERING PUMP	1
1-WTA-TK -605	SULFURIC ACID STORAGE TANK	1
WELL WATER TREATMENT		
1-WTF-BLOW-601A/B	H2S DEGASIFIER BLOWERS	1+1
1-WTF-D -601	H2S DEGASIFIER WITH SURGE CAPACITY	1
1-WTF-FLT-601A/B	WELL WATER FILTERS	1+1
1-WTF-P -602A/B	FILTER FEED PUMP	1+1
HYPOCHLORITE STORAGE AND PUMPING		
1-WTH-P -044A/B	OPEN LOOP HYPOCHLORITE METERING PUMP	1+1
1-WTH-P -045A/B	CONDENSER HYPOCHLORITE METERING PUMP	1+1
1-WTH-P -603A/B	SERVICE WATER HYPOCHLORITE METERING PUMPS	1+1
1-WTH-P -605A/B	POTABLE WATER HYPOCHLORITE METERING PUMPS	1+1
1-WTH-P -621	SANITARY SYSTEM HYPOCHLORITE METERING PUMP	1
1-WTH-P -687	WASTEWATER FILTER HYPOCHLORITE METERING PUMP	1
1-WTH-TK -041	COOLING WATER HYPOCHLORITE STORAGE TANK	1
1-WTH-TK -604	WELLWATER TREATMENT HYPOCHLORITE STORAGE TANK	1
1-WTH-TK -609	WASTEWATER TREATMENT HYPOCHLORITE STORAGE TANK	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
BRINE CONCENTRATION		
1-BRC-C -701	EVAPORATOR VAPOR COMPRESSOR	
1-BRC-D -701	EVAPORATOR CONDENSATE KO DRUM	
1-BRC-D -702	EVAPORATOR CONDENSATE DRIER VAPOR SCRUBBER	
1-BRC-D -703	VACUUM PUMP KNOCKOUT DRUM	
1-BRN-DRY-701	ROTARY DRUM DRYER	
1-BRC-DSU-701	DESUPERHEATER	
1-BRN-E -701	GREY WATER PREHEATER	
1-BRC-E -702	BACKUP CONDENSER	
1-BRN-E -703	FORCED CIRCULATION EVAPORATOR HEATER	
1-BRC-E -704	FORCED CIRCULATION EVAPORATOR CONDENSER	
1-BRC-E -705	SCRUBBER CIRCULATION COOLER	
1-BRC-E -706	VACUUM PUMP HEAT EXCHANGER	
1-BRN-EV -701	GREY WATER EVAPORATOR	
1-BRN-EV -702	FORCED CIRCULATION EVAPORATOR	
1-BRN-P -701A/B	BRINE RECIRCULATION PUMPS	
1-BRC-P -702A/B	EVAPORATOR CONDENSATE PUMPS	
1-BRC-P -710A/B	SOUR GAS VACUUM PUMP	
1-BRN-TK -702	BRINE STORAGE TANK	
1-BRC-TK -703	EVAPORATOR CONDENSATE STORAGE TANK	
1-BRN-TK -704	CONCENTRATED BRINE STORAGE TANK	

TAMPA ELECTRIC COMPANY POLK POWER STATION PRELIMINARY PUBLIC DESIGN REPORT

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
COAL HANDLING/SLURRY PREPARATION		
1-CYH-BIN-801	TRUCK HOPPER AND GRATING	
1-FCS-BIN-801	COAL STORAGE BIN	
1-CYC-BIN-802A/B	COAL STORAGE SILOS	
1-CYC-BLOW-801	SOLO DUST COLLECTOR BLOWER	
1-CYC-BLOW-802	SURGE BIN BLOWER	
1-DSS-BLOW-802	DUST COLLECTION BLOWER	
1-CYC-BLOW-803	RECLAIM BLOWER	
1-CYH-CNV-801	UNLOADING CONVEYOR	
1-FCS-CNV-801A/B	COAL WEIGH FEEDER	
1-CYH-CNV-802	SILO FEED CONVEYOR	
1-CYH-CNV-803A/B	RECLAIM CONVEYORS	
1-CYC-COLL-801	SILO DUST COLLECTOR	
1-DSS-COLL-802	DUST COLLECTION BAGHOUSE	
1-CYC-COLL-802	SURGE BIN	
1-CYC-COLL-803	RECLAIM DUST COLLECTOR	
1-CYH-CRN-801	EQUIPMENT HOIST AT TRUCK HOPPER	
1-CYH-CRN-802	EQUIPMENT HOIST AT SILOS	
1-FCS-D -801A/B	GRINDING MILL LUBE OIL RESERVOIR	
1-FCS-E -801A/B	GRINDING MILL MOTOR SPACE HEATER	
1-FCS-E -802A/B	GRINDING MILL LUBE OIL RESERVOIR HEATER	
1-FCS-E -803A/B	GRINDING MILL LUBE OIL COOLER	
1-CYH-FDR-801A/B	UNLOADING BELT FEEDERS	
1-CYH-FDR-802A/B	RECLAIM BELT FEEDERS	
1-SLW-FLT-801	SAND FILTER	
1-FCS-GDR-801A/B	GRINDING MILLS	
1-CYH-GT -801A/B	UNLOADING RACK AND PINION GATES	
1-CYH-GT -802A/B	RECLAIM RACK AND PINION GATES	
1-CYH-GT -804	SILO MOTORIZED DIVERTER GATE	
1-CYH-GT -805A/B	RACK AND PINION GATES (SILO EMERG. DUMP)	
1-FCS-LFT-801	GRINDING MILL ROD CHARGER	
1-FCS-M -801	GRINDING MILL MOTOR INCHING DRIVE	
1-CYH-MD -801	METAL DETECTOR	
1-SLA-MIX-801	SLURRY ADDITIVE TANK AGITATOR	
1-SLR-MIX-802A/B	MILL DISCHARGE TANK AGITATOR	
1-SLW-MIX-803	RECYCLE WATER TANK AGITATOR	
1-SLR-MIX-805A/B	SLURRY TANK AGITATOR	
1-SLW-MIX-806	PURGE WATER TANK MIXER	

TAMPA ELECTRIC COMPANY POLK POWER STATION PRELIMINARY PUBLIC DESIGN REPORT

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
1-CYC-MOV-801	SILO ROTARY VALVE	
1-CYC-MOV-802	SURGE BIN ROTARY VALVE	
1-DSS-MOV-802	BAGHOUSE ROTARY VALVE	
1-CYC-MOV-803	RECLAIM ROTARY VALVE	
1-CYH-P -801	UNLOADING AREA SUMP PUMP	
1-SLA-P -801A/B/C	SLURRY ADDITIVE TANK PUMPS	
1-CYH-P -802	RECLAIM AREA SUMP PUMP	
1-SLR-P -802A/B	MILL DISCHARGE TANK PUMPS	
1-SLW-P -803A/B	RECYCLE WATER TANK PUMPS	
1-SLW-P -804A/B	GRINDING SUMP WATER PUMPS	
1-SLR-P -806	SLURRY TRANSFER PUMP	
1-SLW-P -807A/B	FLUSH WATER TANK PUMPS	
1-FCS-P -808A/B	GRINDING MILL LP LUBE OIL PUMPS	
1-FCS-P -809A/B	GRINDING MILL HP LUBE OIL PUMPS	
1-DSS-PKG-801	DUST SUPPRESSION SYSTEM (TRUCK HOPPER)	
1-AMM-PKG-801A/B	COAL AMMONIA INJECTION PACKAGE	
1-CYH-S -801	MAGNETIC SEPARATOR	
1-FCS-SCR-801A/B	TROMMEL SCREENS	
1-SLR-SCR-802A-D	SLURRY VIBRATING SCREEN	
1-CYH-SUMP-801	UNLOADING AREA SUMP	
1-SLR-SUMP-801	GRINDING SUMP	
1-CYH-SUMP-802	RECLAIM AREA SUMP	
1-SLA-TK -801	SLURRY ADDITIVE TANK	
1-SLR-TK -802A/B	MILL DISCHARGE TANK	
1-SLW-TK -803	RECYCLE WATER TANK	
1-SLR-TK -804A/B	SLURRY RUN TANK	
1-SLW-TK -805	FLUSH WATER TANK	
1-SLW-TK -806	PURGE WATER TANK	

TAMPA ELECTRIC COMPANY POLK POWER STATION PRELIMINARY PUBLIC DESIGN REPORT

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
POWER GENERATION		
1-WTS-A -901	STEAM/WATER SAMPLING AND MONITORING PANEL	1
1-PWR-CRN-901	DOUBLE GIRDER ELEC. OVHD. TRAVELING CRANE	1
1-DET-D -901	HRSG BLOWDOWN TANK	1
1-DET-D -902	CONDENSATE RECEIVER	1
1-DET-D -903	CONDENSATE RETURN UNIT	1
1-SLP-DES-901	LOW PRESSURE ATTEMPERATOR	1
1-PWR-E -901	CONDENSER	1
1-ABM-E -901	ELECTRIC SUPERHEATER PACKAGE	1
1-CCC-E -901A/B	POWER BLOCK CLOSED LOOP HEAT EXCHANGER	1+1
1-CWS-FLT-901	POWER BLOCK OPEN LOOP COOLING WATER FILTER	1
1-PWR-GTG-901	GAS TURBINE	1
1-WTS-MIX-903	PHOSPHATE MIXER	1
1-WOW-P -901	POWER BLOCK OILY WATER SUMP PUMP	1
1-LOS-P -901	LUBE OIL TRANSFER PUMP	1
1-CNH-P -901A/B	CONDENSATE PUMP	1+1
1-ARC-P -901A/B	CONDENSER VACUUM PUMPS	1+1
1-DET-P -901A/B	CONDENSATE RETURN PUMPS	1+1
1-HOL-P -901A/B	LOW PRESSURE ECONOMIZER RECIRC. PUMPS	1+1
1-CCC-P -901A/B	POWER BLOCK CLOSED LOOP COOLING WATER PUMPS	1+1
1-FWT-P -901A/B	FEEDWATER TRANSFER PUMPS	1+1
1-WTS-P -901A/B	HYDRAZINE METERING PUMPS	1+1
1-WTS-P -901A/B	AMMONIA STRIPPER REBOILER CONDENSATE POT PUMPS	1+1
1-CNH-P -902	CONDENSATE MAKE-UP PUMP	1
1-DET-P-902	CONDENSATE RETURN UNIT SUMP PUMP	1
1-WOW-P -902	BLOWDOWN SUMP PUMP	1
1-DET-P -902A/B	HRSG BLOWDOWN SUMP PUMPS	1+1
1-HOL-P -902A/B	LOW PRESSURE BFW PUMPS	1+1
1-WTS-P -902A/B	AMMONIA METERING PUMPS	1+1
1-ARC-P -902A/B	CONDENSER WATERBOX AIR REMOVAL VACUUM PUMPS	1+1
1-HOL-P-902A/B	LOW PRESSURE BFW PUMPS	1+1
1-WTS-P -903A/B/C	PHOSPHATE METERING PUMPS	2+1
1-HAS-PKG-901	GAS TURBINE GENERATOR HYDRAULIC POWER UNIT	1
1-HAS-PKG-902	STEAM TURBINE GENERATOR HYDRAULIC POWER UNIT	1
1-SHP-SG -901	HEAT RECOVERY STEAM GENERATOR	1
1-PWR-STG-901	STEAM TURBINE	1
1-WOW-SUMP-901	POWER BLOCK OILY WATER SUMP	1
1-DET-SUMP-901	HRSG BLOWDOWN/NEUTRALIZATION SUMP	1

10.0 EQUIPMENT LIST

TAG	EQUIPMENT NAME	NO. REQUIRED
1-DET-SUMP-902	CONDENSATE RETURN UNIT SUMP	1
1-LOS-TK-901	CLEAN AND DIRTY LUBE OIL TANK	1
1-WTS-TK-901	HYDRAZINE STORAGE TANK	1
1-CNH-TK-901	CONDENSATE STORAGE TANK	1
1-DET-TK-901	GAS TURBINE DRAINS TANK	1
1-CCC-TK-901	POWER BLOCK CLOSED LOOP COOLING WATER HEAD EXP. TANK	1
1-WTS-TK-902	AMMONIA STORAGE TANK	1
1-WTS-TK-903	PHOSPHATE STORAGE TANK	1
1-TML-V-901	STG LUBE OIL CONDITIONER	1

MISCELLANEOUS DRAWINGS



11.0 MISCELLANEOUS DRAWINGS

11.1 PROJECT SCHEDULE

11.2 ELECTRICAL ONE-LINE DIAGRAM

11.3 PROCESS FLOW DIAGRAMS

92127-PFD-1-1B Overall Process Flow Diagram (Sheet 1 of 2)

92127-PFD-1-1C Overall Process Flow Diagram (Sheet 2 of 2)

**POLK POWER STATION - UNIT NO. 1
PUBLIC DESIGN REPORT**

June 06, 1994

1991

1Q 2Q 3Q 4Q 1Q 2Q

MILESTONE :

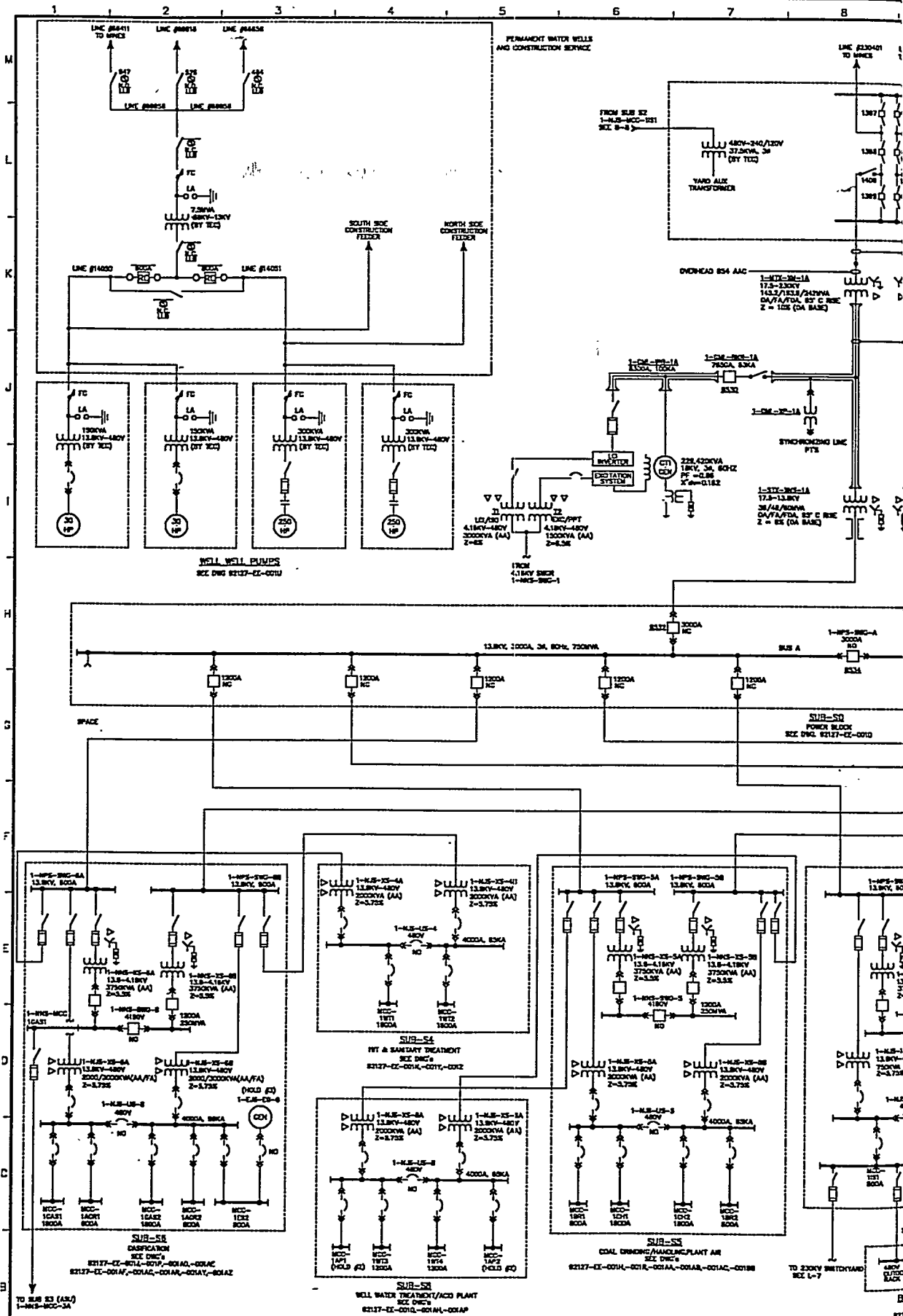
Petition filed with Florida Public Service Commission (FPSC)
to determine Need for Electrical Power plant and Related facilities.
Architect / Engineer (A/E) selected for development of Preliminary
Engineering Package (PEP).
U.S. Department of Energy (DOE) approved Amendment M001 to
the Cooperative Agreement between DOE and TEC.
FPSC issued order to approve Need for Polk Power Station Unit 1.
Submitted Environmental Information Volume to EPA.
Submitted Site Certification Application to Florida Department of
Environmental Regulation.
PEP Complete.
Awarded Combined Cycle System Contract.
Awarded Air Separation Unit TurnKey Contract.
Awarded Contract for Detailed Engineering.
Awarded Gasification System Contract.
Awarded Hot Gas Clean-Up System (HGCU) Design Contract.
Awarded Construction Management Contract.
Site Certification Application, approved.
Begin Site Development Work.
Award Sulfuric Acid Plant Contract.
Award Brine Concentration System Contract.
Receive Army Corp. of Engineers 404 Permit.
Begin Foundation Construction.
Complete HGCU Detailed Engineering.
Begin ASU Foundation Construction.
Begin Construction 230KV Switchyard.
Complete A/E Detailed Engineering
Deliver Combustion Turbine & Generator
Begin Gasification Structure Erection.
Deliver Main Air Compressor.
Deliver Steam Turbine & Generator.
Deliver Radiant Syngas Cooler.
Begin Sulfuric Acid Plant Construction.
Energize 230KV Switchyard.
Startup of Air Separation Unit.
Startup of Combined Cycle Equipment.
Startup of Gasification System.
IGCC Commercial Operation Date

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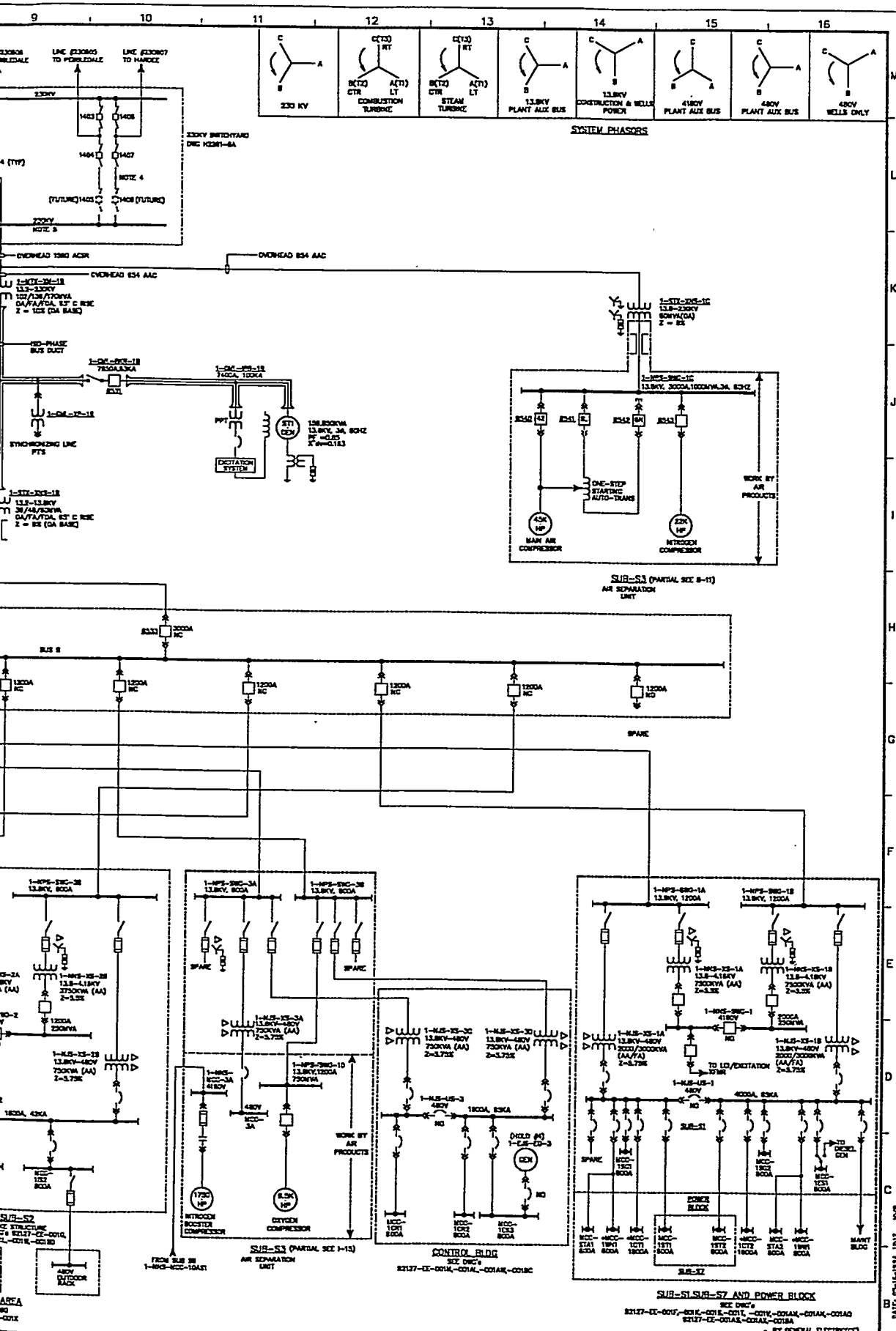
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- NOTES**
1. DOUBLE-THROW 13.8KV AND 4.8KV BREAKERS HAVE FAST TRANSFER SCHEME.
 2. DOUBLE-THROW 480V BREAKERS HAVE SLOW TRANSFER SCHEME.
 3. NOT USED
 4. SWITCHYARD CIRCUIT BREAKER SHORT CIRCUIT RATING IS 30KA FOR ANSI C37.
 5. SYSTEM VOLTAGES ARE AS FOLLOWS: 60KV = 59.9KV MIN = 230KV

REFERENCE DRAWINGS		TITLE	DRAWING NO.
NO.	DESCRIPTION/REVISION		
1	DATE: 01/15/03		
2	DATE: 01/15/03		
3	DATE: 01/15/03		
4	DATE: 01/15/03		
5	DATE: 01/15/03		
6	DATE: 01/15/03		
7	DATE: 01/15/03		
8	DATE: 01/15/03		



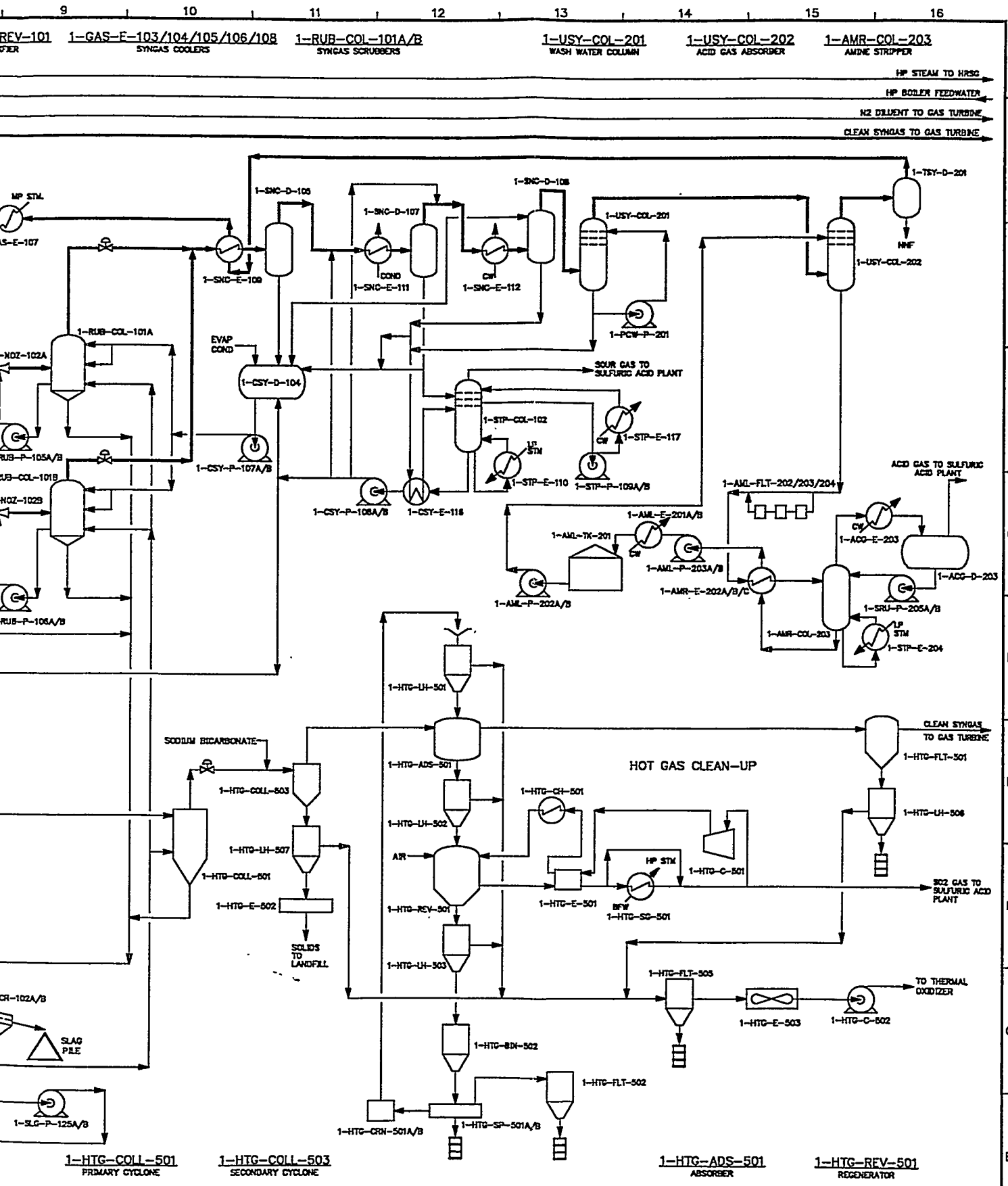
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ISSUED FOR DESIGN		7/21/83						
ISSUED FOR REVIEW								
ADDED WELLS SURE DOUBLE-DIODE CTRL. BLDG. AND ASS. REVISED EQUIPMENT NUMBERS								
REVISED POP ONE LINE DIAGRAM								

POLK POWER STATION UNIT # 1
ELECTRICAL
OVERALL
ONE LINE DIAGRAM

DRAWN	DATE	DRAWING NO.	REV.
DESIGNED	DATE		
CHECKED	DATE		
APPROVED	DATE		

92127-EE-001A

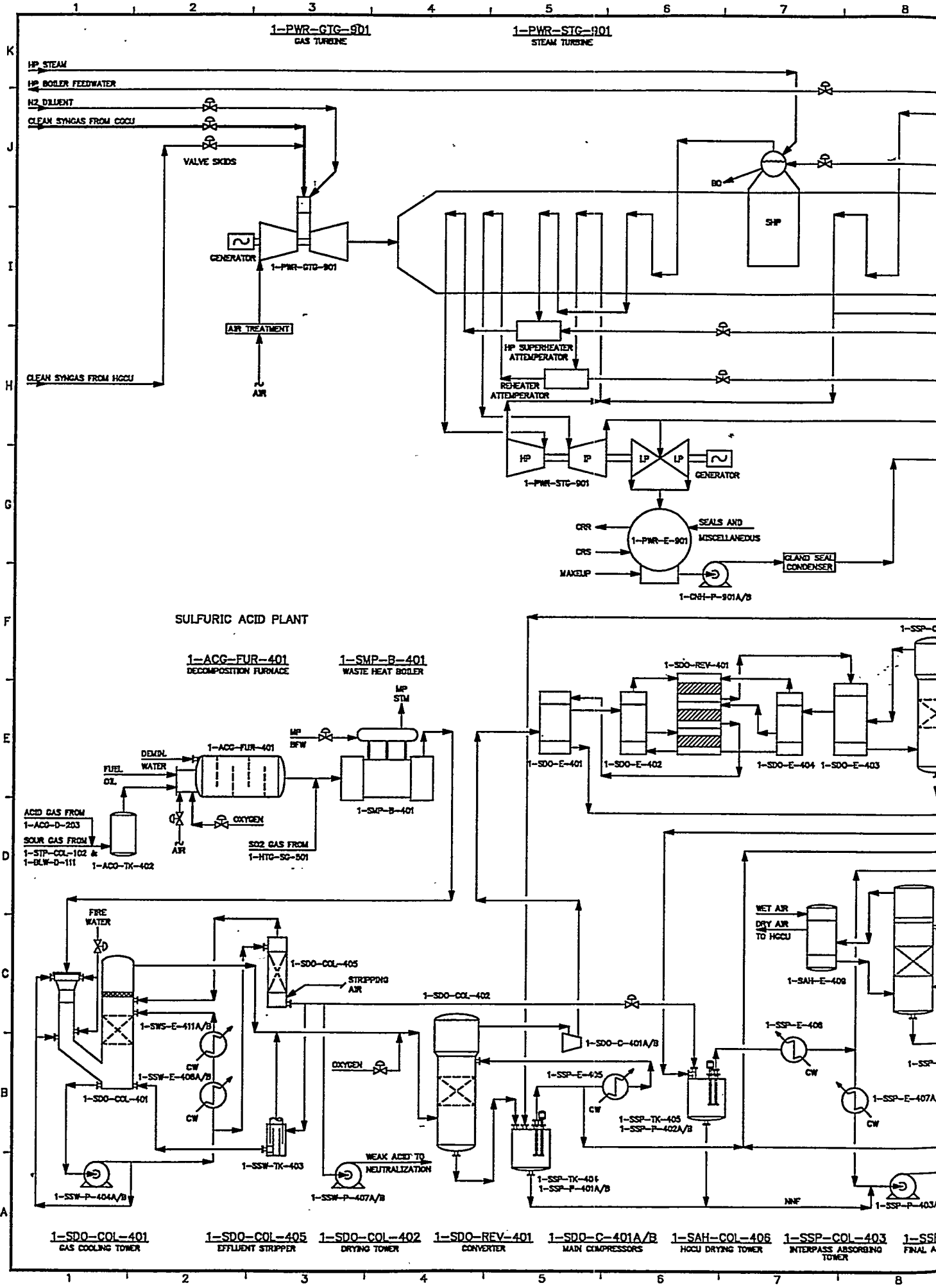
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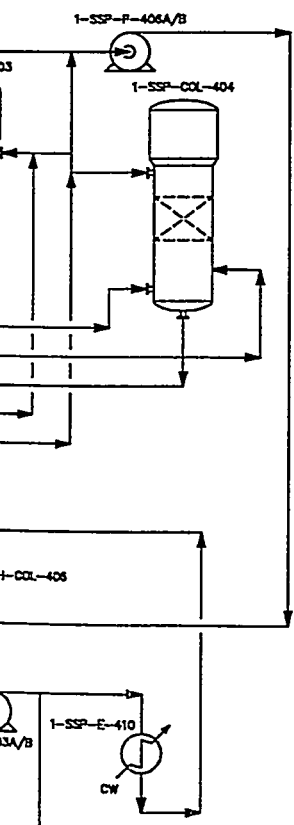
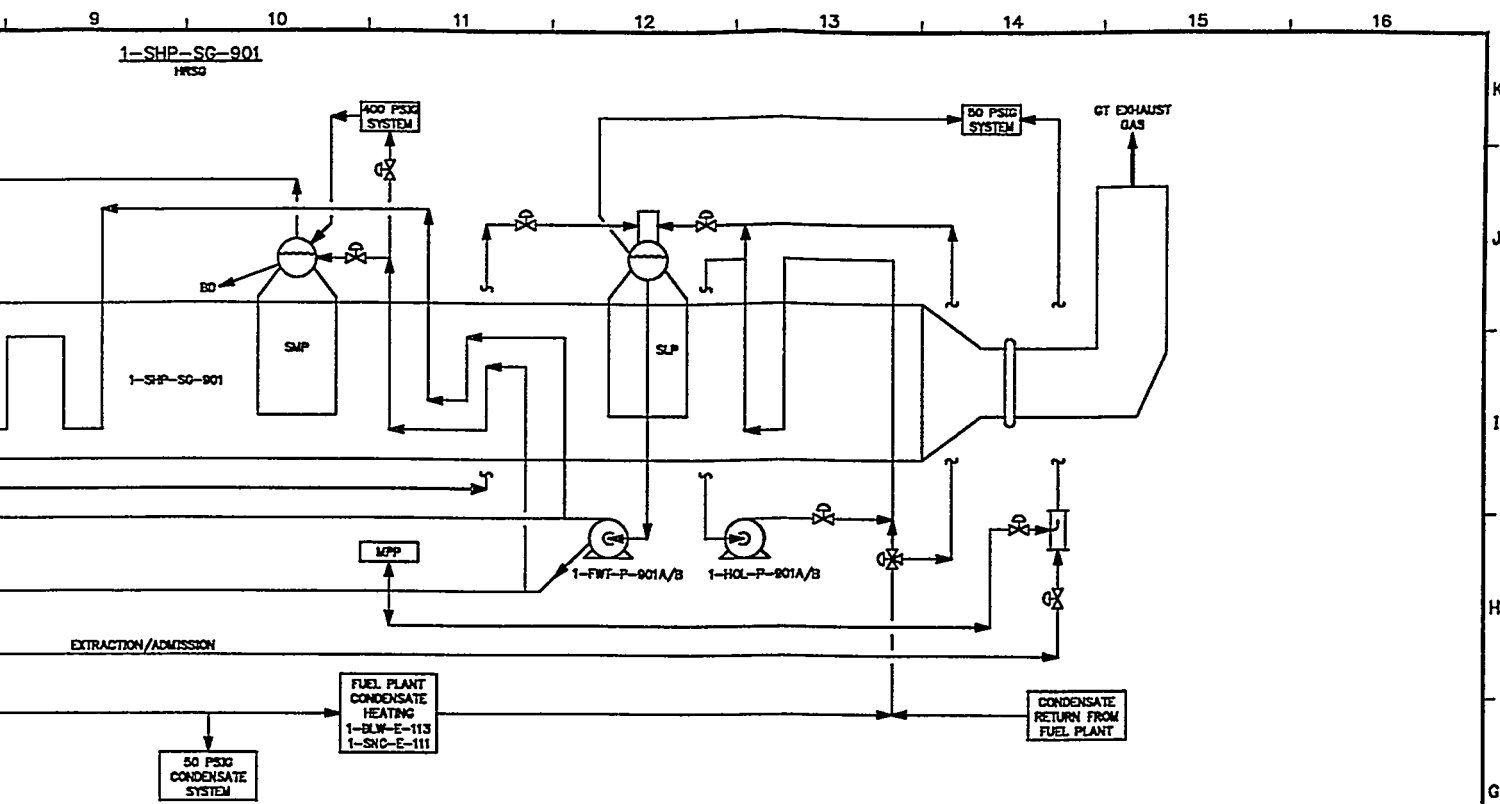
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NO.	DATE	REVISIONS	BY	CHKD	DESIGN	ENGR	PROJ	APPR	

POLK POWER STATION UNIT # 1
PROCESS FLOW DIAGRAM
OVERALL PROCESS FLOW DIAGRAM
(SHEET 1 OF 2)

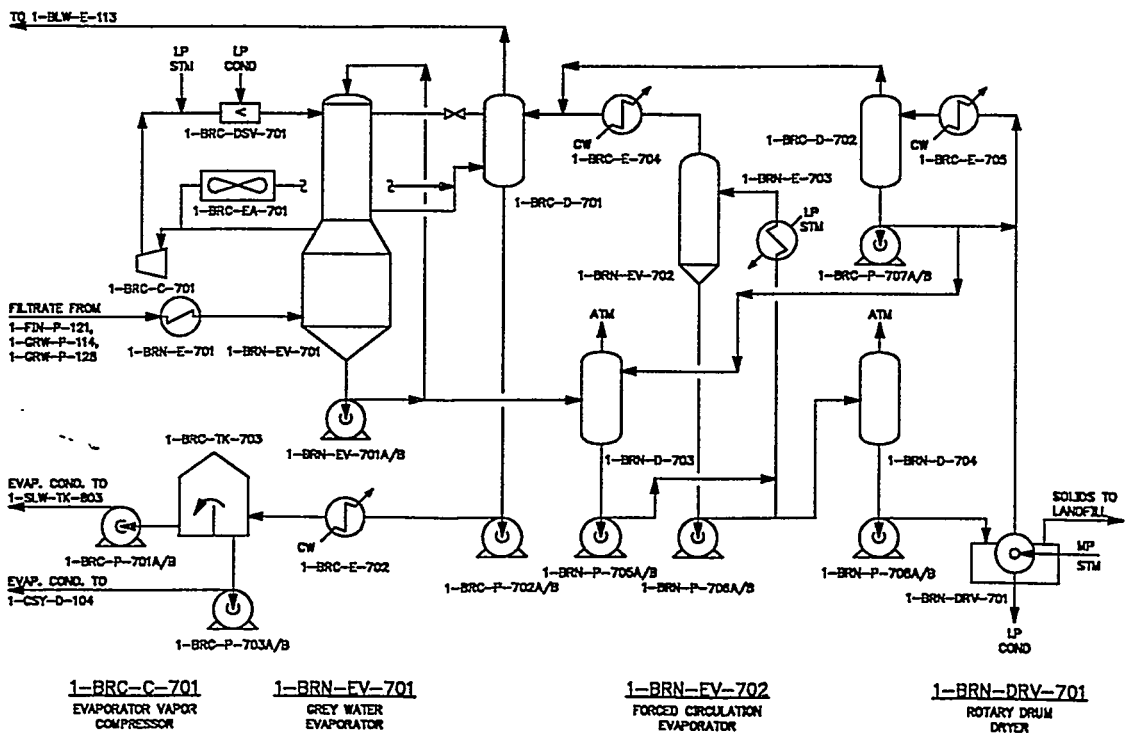
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CHECKED	DATE	92127-PFD-1-1B	B
APPROVED	DATE		



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BRINE CONCENTRATION



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POLK POWER STATION UNIT # 1
PROCESS FLOW DIAGRAM
OVERALL PROCESS FLOW DIAGRAM
(SHEET 2 OF 2)

DRAWN	DATE	DRAWING NO.	REV.
DESIGNER	DATE	92127-PFD-1-1C	B
CHECKED	DATE		
APPROVED	DATE		

TAMPASOR.DWG 16 06/15/93