

Capital Cost: Low and High Sulfur Coal Plants- 800 MWe

Commercial Electric Power Cost Studies

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DRAWINGS

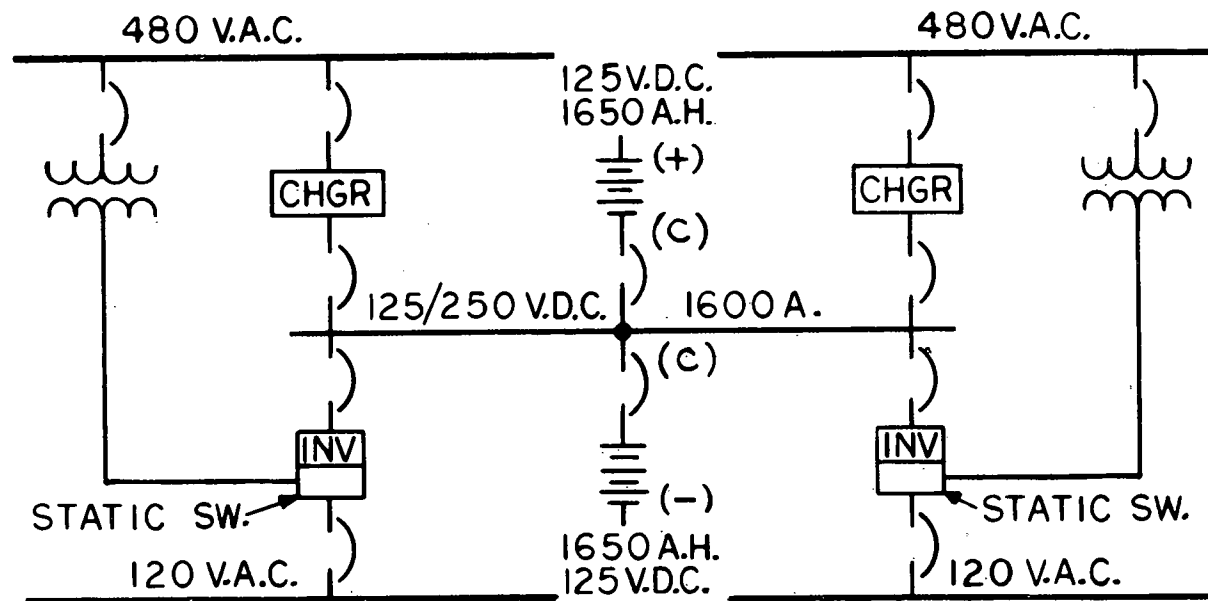
SECTION 4

DRAWING LIST

801 MWe LOW SULFUR COAL-FIRED PLANT

This section contains the drawings for the 801 MWe Low Sulfur Coal Plant described in Section 2. The drawings include Plot Plan, General Arrangement Drawings, Flow Diagrams, Block Diagrams and One Line Diagrams.

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6515.001 - LSC-1	Symbol Legend for Flow and Block Diagrams
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6515.001 - LSC-5	Flow Diagram - Balanced Draft System
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6515.001 - LSC-16	Block Diagram - Plant Fire Protection System
6515.001 - LSC-17	Block Diagram - Waste Water Treatment System



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ONE LINE DIAGRAM
D.C. DISTRIBUTION SYS.
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE

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6515.001-LSC-12

SECTION 5
EQUIPMENT LIST

SECTION 5
EQUIPMENT LIST

5.1 INTRODUCTION

This section lists the account descriptions of the 801 MWe LSC Coal-Fired plant design developed for this study.

As a convenience, the account descriptions are listed in accordance with an expanded AEC code-of-accounts (USAEC Report NUS-531), which permits correlation and cross-referencing with the cost estimate in Section 3, Volume I of this report.

In order to maintain consistency for the various systems in the equipment list, nine standard sub-account headings are used to group similar items, as follows:

1. Rotating Machinery
2. Heat Transfer Equipment
3. Tanks and Pressure Vessels
4. Purification and Filtration Equipment
5. Piping or Piping and Ductwork
6. Valves or Valves and Dampers
7. Piping - Miscellaneous Items
8. Instrumentation and Control
9. Foundation/Skids

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
20 .	LAND AND LAND RIGHTS	SEE COST ESTIMATE
21 .	STRUCTURES + IMPROVEMENTS	
211.	YARDWORK	SEE COST ESTIMATE FOR STRUCT QUANTITIES
211.1	GENERAL YARDWORK	
211.11	GENERAL CUT + FILL	
211.111	CUT + FILL BEYOND OPEN CUT	
211.112	CLEARING + GRUBBING	
211.113	FINE GRADING	
211.114	LANDSCAPING	
211.12	ROADS, WALKS+PARKING AREA	
211.121	SUBGRADE PREPARATION	
211.122	ON-SITE ROADS+PARKING AREA	
211.1221	ROADS - ASPHALT	
211.1222	PARKING AREAS - ASPHALT	
211.1223	CURBS - CONCRETE	
211.123	WALKS - CONCRETE	
211.14	FENCING + GATES	
211.141	PERMANENT FENCE	
211.142	GATE HOUSE	
211.15	SANITARY SEWER FACILITY	
211.151	SEWAGE TREATMENT FACILITY	
211.152	SANITARY PIPING	
211.1521	2 IN + SMALLER	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
211.1522	2.5 IN + LARGER	
211.15221	CI BELL + SPIGOT/NNS	
211.153	OIL SEPERATORS	INCLUDED IN ACCOUNTS 212 AND 255
211.16	YARD DRAINAGE STORM SEWERS	
211.161	DRAINS	
211.162	PIPING	
211.1621	2 IN + SMALLER	
211.1622	2.5 IN + LARGER	
211.16221	GALVANIZED/NNS	
211.17	ROADWAY + YARD LIGHTING	
211.19	SETTLING BASINS	INCLUDED IN ACCOUNT 218V.2
211.191	EARTH EXCAVATION	
211.192	ROCK EXCAVATION	
211.193	BACKFILL	
211.194	PUMPING	
211.195	FORMWORK	
211.196	REINFORCING STEEL	
211.197	CONCRETE	
211.198	SHEET PILING	
211.199	RIP-RAP(12 IN. THICK)	
211.4	RAILROADS	
211.41	CUT + FILL	
211.42	GRADING	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
211.43	TRACK(BALLAST,TIES,RAIL)	
211.45	SWITCHES + BUMPERS	
211.451	TURNOUTS(NO. 8)	
211.452	BUMPERS	
211.46	RIP RAP(24 IN. THICK)	
211.7	STRUCTURE ASSOCIATED YDWK.	
211.71	CUT + FILL	
211.711	OPEN CUT	
211.7111	DEWATERING	
211.7112	EARTH EXCAVATION	
211.7113	ROCK EXCAVATION	
211.712	FILL + BK FILL(PLACE/COMP)	
211.7122	EARTH FILL	
211.7123	SAND FILL	
211.7124	CONCRETE FILL	
212.	STEAM GENERATOR BUILDING	SEE COST ESTIMATE FOR STRUCT QUANTITIES
212.1	BUILDING STRUCTURE	
212.11	EXCAVATION WORK	
212.111	EARTH EXCAVATION	
212.112	ROCK EXCAVATION	
212.113	CONCRETE FILL	
212.114	FILL + BACKFILL	
212.115	DEWATERING	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.13	SUBSTRUCTURE CONCRETE	
212.131	FORMWORK	
212.132	REINFORCING STEEL	
212.133	CONCRETE	
212.134	EMBEDDED STEEL	
212.135	FLOOR FINISH	
212.139	WELDED WIRE FABRIC	
212.14	SUPERSTRUCTURE	
212.141	CONCRETE WORK	
212.1411	FORMWORK	
212.1412	REINFORCING STEEL	
212.1413	CONCRETE	
212.1415	FLOOR FINISH	
212.1418	CONSTRUCTION JOINTS	
212.142	STRUCTURAL + MISC. STEEL	
212.1421	STRUCTURAL STEEL	
212.1422	MISC. FRAMES, ETC.	
212.1423	FLOOR GRATING (GALVANIZED)	
212.1424	STAIR TREADS	
212.1425	HANDRAIL	
212.143	EXTERIOR WALLS	
212.1432	MASONRY WALLS	
212.1433	METAL INSULATED SIDING	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.144	ROOFING + FLASHING	
212.1441	METAL ROOF DECK	
212.1443	CONCRETE FILL	
212.1444	WELDED WIRE FABRIC	
212.1445	B.U. ROOFING, NO INSULATIN	
212.146	INTERIOR WALLS + PARTITION	
212.1462	MASONRY WALLS	
212.1463	METAL PARTITIONS	
212.147	DOORS + WINDOWS	
212.1471	ROLLING STEEL DOORS	
212.1472	PERSONNEL DOORS	
212.1473	SASH + GLAZING	
212.148	SPECIAL FINISHES	
212.1481	VINYL TILE FLOORS	
212.1482	COMPUTER FLOORS(RAISED)	
212.1483	CERAMIC TILE FLOOR + WALLS	
212.1484	ACOUSTICAL CEILING	
212.149	PAINTING	
212.1492	STEELWORK	
212.1493	HANDRAILS	
212.1494	DOORS + WALLS	
212.2	BUILDING SERVICES	
212.21	PLUMBING + DRAINS	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.211	ROOF DRAINS + PIPING	
212.2111	DRAINS	
212.2115	PIPING	
212.212	FLOOR DRAINS + PIPING	
212.2121	DRAINS	
212.2125	PIPING	
212.213	OIL SEPERATOR	
212.22	HEATING, VENT + AIR COND	EQUIPMENT COST INCLUDES ALL ITEMS LISTED BELOW
212.221	BOILER ROOM	
212.2211	ROTATING MACHINERY	
212.22111	BOILER RM ROOF VENT+MOTOR	
212.221111	BOILER RM ROOF VENTILATOR	
212.221112	BOILER RM ROOF VENT MOTOR	
212.2212	HEAT TRANSFER EQUIPMENT	
212.22121	BOILER ROOM UNIT HEATERS	
212.2214	PURIFICATION + FILT EQUIP	
212.22141	BOILER RM VAC CLEAN SYS+MT	
212.221411	BOILER RM VAC CLEAN SYS EQ	
212.221412	BOILER RM VAC CL SYS MOTOR	
212.22142	BUNKER VENTILATION	
212.221421	CYCLONE DUST COLLECTOR	
212.2215	EXHAUST DUCTWORK-BUNKER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.2216	VALVES + DAMPERS	
212.22169	SPECIAL VALVES + DAMPERS	
212.221691	BOILER ROOM WALL LOUVERS	
212.222	LUBE OIL DRUM STORAGE	
212.2221	ROTATING MACHINERY	
212.22211	LUBE OIL DM ST EXHST FN+MT	
212.222111	LUBE OIL DM ST EXHAUST FAN	
212.222112	LUBE OIL DM ST EXHST MOTOR	
212.2222	HEAT TRANSFER EQUIPMENT	
212.22221	LUBE OIL DM ST HEATER+MTR	
212.222211	LUBE OIL DM ST UNIT HEATER	
212.222212	LUBE OIL DM ST HEATR MOTOR	
212.2226	VALVES + DAMPERS	
212.22269	SPECIAL VALVES + DAMPERS	
212.222691	LUBE OIL DM ST WALL LOUVER	
212.223	ELEVATOR MACHINE ROOM	
212.2232	HEAT TRANSFER EQUIPMENT	
212.22321	ELEV MACH RM BASEBOARD HTR	
212.2236	VALVES + DAMPERS	
212.22369	SPECIAL VALVES + DAMPERS	
212.223691	ELEV MACH RM WALL LOUVERS	
212.2239	FOUNDATIONS/SKIDS	
212.22391	ELEV MACH RM AIR UNIT+MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.223911	ELEV MACH RM AIR UNIT	
212.223912	ELEV MACH RM AIR UNT MOTOR	
212.224	AUXILIARY BOILER ROOM	
212.2241	ROTATING MACHINERY	
212.22411	AUX BOILER RM EXHST FN+MTR	
212.224111	AUX BOILER RM EXHAUST FAN	
212.224112	AUX BOILER RM EXHST MOTOR	
212.2242	HEAT TRANSFER EQUIPMENT	
212.22421	AUX BOILER RM HEATER+MOTOR	
212.224211	AUX BOILER RM UNIT HEATERS	
212.224212	AUX BOILER RM HEATER MOTOR	
212.2246	VALVES + DAMPERS	
212.22469	SPECIAL VALVES + DAMPERS	
212.224691	AUX BOILER RM WALL LOUVER	
212.225	MACHINE SHOP	
212.2251	ROTATING MACHINERY	
212.22511	MACHINE SHOP EXHST FAN+MTR	
212.225111	MACHINE SHOP EXHAUST FAN	
212.225112	MACHINE SHOP EXHAUST MOTOR	
212.2252	HEAT TRANSFER EQUIPMENT	
212.22521	MACH SHOP UNIT HEATERS+MTR	
212.225211	MACHINE SHOP UNIT HEATERS	
212.225212	MACH SHOP UNIT HEATER MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.2256	VALVES + DAMPERS	
212.22569	SPECIAL VALVES + DAMPERS	
212.225691	MACHINE SHOP WALL LOUVERS	
212.226	AIR COMPRESSOR ROOM	
212.2261	ROTATING MACHINERY	
212.22611	AIR COMP RM EXHST FAN+MTR	
212.226111	AIR COMP RM EXHAUST FAN	
212.226112	AIR COMP RM EXHAUST MOTOR	
212.2262	HEAT TRANSFER EQUIPMENT	
212.22621	AIR COMP RM UNIT HEATR+MTR	
212.226211	AIR COMP RM UNIT HEATERS	
212.226212	AIR COMP RM UNIT HEATR MTR	
212.2266	VALVES + DAMPERS	
212.22669	SPECIAL VALVES + DAMPERS	
212.226691	AIR COMP RM WALL LOUVERS	
212.227	COAL TRIPPER GALLERY	
212.2271	ROTATING MACHINERY	
212.22711	COAL TRIP GAL ROOF VENT+MT	
212.227111	COAL TRIP GAL ROOF VENT	
212.227112	COAL TRIP GAL ROOF VENT MT	
212.228	INSTRUMENTATION + CONTROL	
212.24	LIGHTING + SERVICE POWER	
212.25	ELEVATOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
212.251	ELEVATOR EQUIPMENT	
212.26	FIRE PROTECTION SYSTEM	
212.261	ROTATING MACHINERY	
212.2611	FIRE PROTECTION PUMP+MOTOR	
212.26111	FIRE PROTECTION PUMP	QUANTITY - 2 X 100 PCT. TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 500 GPM SPEED - TDH - 400 FT BHP - 63 HP NPSH - EFFICIENCY - 80 PCT. DESIGN PRESS - 200 PSI DESIGN TEMP - 100 F MATERIAL - C.S. DESIGN CODE - NATIONAL FIRE PROTECTN ASSOCIATION
212.26112	FIRE PROTECTION PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 75 SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
212.262	HOSE + SPRAY EQUIPMENT	
212.2621	HOSE REELS	
212.2622	SPRAY HEADS	
212.265	PIPING	
212.2652	2.5 IN + LARGER	
212.26521	CS/NNS	
213.	TURBINE, HEATER, CONTROL BLD	
213.1	BUILDING STRUCTURE	SEE COST ESTIMATE FOR STRUCT QUANTITIES

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.11	EXCAVATION WORK	
213.111	EARTH EXCAVATION	
213.112	ROCK EXCAVATION	
213.113	CONCRETE FILL	
213.114	FILL + BACKFILL	
213.115	DEWATERING	
213.13	SUBSTRUCTURE CONCRETE	
213.131	FORMWORK	
213.132	REINFORCING STEEL	
213.133	CONCRETE	
213.134	EMBEDDED STEEL	
213.135	FLOOR FINISH	
213.136	WATERPROOFING	
213.137	CONSTRUCTION JOINTS	
213.138	RUBBING CONCRETE SURFACE	
213.139	WIRE FABRIC	
213.14	SUPERSTRUCTURE	
213.141	CONCRETE WORK	
213.1411	FORMWORK	
213.14111	FORMWORK - WOOD	
213.14112	FORMWORK - METAL	
213.1412	REINFORCING STEEL	
213.1413	CONCRETE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.1414	EMBEDDED STEEL	
213.1415	FLOOR FINISH	
213.1416	WATERPROOFING	
213.1417	RUBBING CONCRETE SURFACES	
213.1418	CONSTRUCTION JOINTS	
213.142	STRUCTURAL + MISC STEEL	
213.1421	STRUCTURAL STEEL	
213.1422	FLOOR + PLATFORM SUPPORTS	
213.1423	MISC FRAMES, ETC	
213.1424	CHECKERED PLATE	
213.1425	FLOOR GRATING (GALV)	
213.1426	STAIR TREADS	
213.1427	HANDRAIL	
213.143	EXTERIOR WALLS	
213.1431	CONCRETE WALLS	
213.1432	MASONRY WALLS	
213.1433	METAL INSULATED SIDING	
213.144	ROOF DECK	
213.1441	METAL ROOF DECK	
213.1442	CONCRETE PLANK	
213.1443	CONCRETE FILL	
213.1444	REINFORCING STEEL	
213.145	ROOFING + FLASHING	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.1451	B.U. ROOF INSULATION+FLASH	
213.1452	ELASTOMERIC ROOFING	
213.146	INTERIOR WALLS+PARTITIONS	
213.1461	MASONRY WALLS	
213.1462	CONCRETE BLOCK WALLS	
213.1463	METAL PARTITIONS	
213.147	DOORS + WINDOWS	
213.1471	ROLLING STEEL DOORS	
213.1472	PERSONNEL DOORS	
213.1473	SASH + GLAZING	
213.148	SPECIAL FINISHES	
213.1481	VINYL TILE FLOORS	
213.1484	ACOUSTICAL CEILING	
213.149	PAINTING	
213.1491	CONCRETE	
213.1492	STEELWORK	
213.1493	DOORS + WALLS	
213.1494	HANDRAIL	
213.2	BUILDING SERVICES	
213.21	PLUMBING + DRAINS	
213.211	ROOF DRAINS + PIPING	
213.2111	DRAINS	
213.2115	PIPING	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.21151	2 IN + SMALLER	
213.21152	2.5 IN + LARGER	
213.211521	GALV STEEL/NNS	
213.212	FLOOR DRAINS + PIPING	
213.2121	DRAINS	
213.2125	PIPING	
213.21251	2 IN + SMALLER	
213.21252	2.5 IN + LARGER	
213.212521	CI/NNS	
213.212522	CS/NNS	
213.212523	PVC/NNS	
213.213	PUMPS	
213.2131	DRAIN PUMP + MOTOR	
213.21311	DRAIN PUMP	QUANTITY - 2 TYPE - CENTRIFUGAL ORIENTATION - VERTICAL FLOW RATE - 50 GPM SPEED - TDH - BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
213.21312	DRAIN PUMP MOTOR	TYPE - AC INDUCTION HORSEPOWER - 3 SPEED - VOLTAGE - 460 V, 3 PHASE, 60 HZ

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.214	SANITARY DRAINS + PIPING	
213.2141	SANITARY FIXTURES	
213.2145	PIPING	
213.21451	2 IN + SMALLER	
213.214511	CI/NNS	
213.214512	COPPER/NNS	
213.21452	2.5 IN + LARGER	
213.214521	CI/NNS	
213.22	HEATING, VENT + AIR COND	EQUIPMENT COST INCLUDES ALL ITEMS LISTED BELOW
213.221	GENERAL BUILDING	
213.2211	ROTATING MACHINERY	
213.22111	ROOF VENTILATOR + MOTOR	
213.221111	ROOF VENTILATOR	
213.221112	ROOF VENTILATOR MOTOR	
213.2212	HEAT TRANSFER EQUIPMENT	
213.22121	STEAM HEATER UNIT + MOTOR	
213.221211	STEAM UNIT HEATER	
213.221212	STEAM UNIT MOTOR	
213.2215	PIPING	
213.22151	2 IN + SMALLER	
213.221511	CS/NNS	
213.22152	2.5 IN + LARGER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.221521	CS/NNS	
213.2216	VALVES + DAMPERS	
213.22161	GATE	
213.22162	CHECK	
213.22169	SPECIAL VALVES + DAMPERS	
213.221691	INTAKE LOUVERS	
213.2217	PIPING - MISC ITEMS	
213.22171	HANGERS + SUPPORTS	
213.22172	INSULATION	
213.222	HEATER BAY	
213.2221	ROTATING MACHINERY	
213.22211	ROOF VENTILATOR + MOTOR	
213.222111	ROOF VENTILATOR	
213.222112	ROOF VENTILATOR MOTOR	
213.223	LUBE OIL ROOM	
213.2231	ROTATING MACHINERY	
213.22311	LUBE OIL RM EXHST FAN+MTR	
213.223111	LUBE OIL RM EXHST FAN	
213.223112	LUBE OIL RM EXHST FAN MTR	
213.2236	VALVES	
213.22369	SPECIAL VALVES + DAMPERS	
213.223691	DAMPERS	
213.225	CONTROL ROOM	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.2251	ROTATING MACHINERY	
213.22511	CHILLER WATER PUMP + MOTOR	
213.225111	CHILLER WATER PUMP	
213.225112	CHILLER WATER PUMP MOTOR	
213.22512	CONTROL RM EXHST FAN+MOTOR	
213.225121	CONTROL RM EXHST FAN	
213.225122	CONTROL RM EXHST FAN MOTOR	
213.2252	HEAT TRANSFER EQUIPMENT	
213.22521	CHILLER + MOTOR	
213.225211	CHILLER	
213.225212	CHILLER MOTOR	
213.22522	MULTIZONE AIR UNIT+MOTOR	
213.225221	MULTIZONE AIR HANDLING UNT	
213.225222	MULTIZONE AIR UNIT MOTOR	
213.22523	HEATING+VENT AIR UNIT+MTR	
213.225231	HEATING+VENT AIR UNIT	
213.225232	HEATING+VENT AIR UNIT MTR	
213.2255	PIPING + DUCTWORK	
213.22551	GENERAL DUCTWORK	
213.226	WATER SAMPLING ROOM	
213.2261	ROTATING MACHINERY	
213.22611	WATR SAMP RM EXHST FAN+MTR	
213.226111	WATER SAMP RM EXHST FAN	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
213.226112	WATR SAMP RM EXHST FAN MTR	
213.227	COAL SAMPLING ROOM	
213.2271	ROTATING MACHINERY	
213.22711	COAL SAMP RM EXHST FAN+MTR	
213.227111	COAL SAMP RM EXHST FAN	
213.227112	COAL SAMP RM EXHST FAN MTR	
213.228	BATTERY ROOM	
213.2281	ROTATING MACHINERY	
213.22811	BATTERY ROOM EXHST FAN+MTR	
213.228111	BATTERY ROOM EXHST FAN	
213.228112	BATTERY ROOM EXHST FAN MTR	
213.229	INSTRUMENTATION + CONTROL	
213.23	FIRE PROTECTION SYSTEM	
213.232	HOSE + SPRAY EQUIPMENT	
213.2321	HOSE REELS	
213.2322	SPRAY HEADS	
213.235	PIPING	
213.2352	2.5 IN + LARGER	
213.23521	CS/NNS	
213.236	VALVES	
213.2369	SPECIAL VALVES	
213.23691	DELUGE VALVES	
213.24	LIGHTING + SERVICE POWER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218B.	ADMINISTRATION+SERVICE BLD	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218B.1	BUILDING STRUCTURE	
218B.11	EXCAVATION WORK	
218B.111	EARTH EXCAVATION	
218B.112	ROCK EXCAVATION	
218B.113	CONCRETE FILL	
218B.114	FILL + BACKFILL	
218B.115	DEWATERING	
218B.13	SUBSTRUCTURE CONCRETE	
218B.131	FORMWORK	
218B.132	REINFORCING STEEL	
218B.133	CONCRETE	
218B.134	EMBEDDED STEEL	
218B.135	FLOOR FINISH	
218B.136	WATERPROOFING	
218B.137	CONSTRUCTION JOINTS	
218B.138	RUBBING CONCRETE SURFACES	
218B.139	WELDED WIRE FABRIC	
218B.14	SUPERSTRUCTURE	
218B.141	CONCRETE WORK	
218B.1411	FORMWORK	
218B.14111	FORMWORK-WOOD	
218B.14112	FORMWORK-METAL	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218B.1412	REINFORCING STEEL	
218B.1413	CONCRETE	
218B.1414	EMBEDDED STEEL	
218B.1415	FLOOR FINISH	
218B.1416	WATERPROOFING	
218B.1417	RUBBING CONCRETE SURFACES	
218B.1418	CONSTRUCTION JOINTS	
218B.142	STRUCTURAL + MISC. STEEL	
218B.1421	STRUCTURAL STEEL	
218B.1423	MISC. FRAMES, ETC.	
218B.1425	FLOOR GRATING (GALV.)	
218B.1426	STAIR TREADS	
218B.1427	HANDRAIL	
218B.143	EXTERIOR WALLS	
218B.1431	CONCRETE WALLS	
218B.1432	MASONRY WALLS	
218B.1433	METAL INSULATED SIDING	
218B.1434	WINDOW WALL	
218B.144	ROOF DECK	
218B.1442	PRECAST CONCRETE PANELS	
218B.145	ROOFING + FLASHING	
218B.1451	B.U. ROOF INSUL + FLASHING	
218B.146	INTERIOR WALLS + PARTITIONS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
231.1	TURBINE GENERATOR +ACCSSRY	
231.11	TURBINE FACTORY COST	QUANTITY - 1 TYPE - TC4F-33.5 IN LSB RATING - 869MWE AT 2.5IN HG ABS SPEED - 3600 RPM TURBINE DESIGN STEAM FLOW - 5,809,582 LB/HR THROTTLE PRES- 3512 PSIA THROTTLE TEMP- 1000 F MOISTURE - SUPERHEATED REHEAT - SINGLE STAGE SHAFT SEAL SYS-125 F GENERATOR DESIGN RATING - 1,050MVA, 26,000V, 3PH 60 HZ POWER FACTOR - 0.90 SHORT CIR RAT- 0.58 ROTOR COOLING- 75 PSI HYDROGEN STATOR COOLING-105 F WATER ACCESSORIES: ADDITIONAL MOTOR DRIVEN BLOWER FOR STEAM PACKING EXHAUSTER STEAM SEAL PIPING BETWEEN MAIN TURBINE AND BOILER FEED PUMP TURBINES. FIRE-RESISTANT EHG FLUID. 105 F WATER TEMP FOR OIL AND STATOR COOLERS
231.12	OTHER TURBINE COSTS	
231.13	EXCITER & VOLTAGE REGULTR.	TYPE ALTERREX RATING RESPONSE RATIO 0.5
231.2	FOUNDATIONS	
231.21	T-G PEDESTAL	
231.211	EXCAVATION WORK	INCLUDED WITH STRUCTURE ASSOCIATED YARDWORK
231.2111	EXCAVATION - EARTH	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT
NUMBER

ITEM

DESCRIPTION

227.41 COORDINATED CONTROL SYSTEM

EQUIPMENT INCLUDES:

BOILER TURBINE MASTER CONTROL
FEEDWATER CONTROL
S/H STEAM TEMPERATURE CONTROL
FUEL FLOW CONTROL
AIR FLOW CONTROL
R/H STEAM TEMPERATURE CONTROL
PRIMARY AIR CONTROL
SPRAY VALVE CONTROL
FIRING RATE CONTROL
PULVERIZER CONTROL
START-UP VALVE CONTROL
FURNACE PRESSURE CONTROL

227.42 BURNER CONTROL SYSTEM

227.5 INSTRUMENT TUBING+FITTINGS

1/2 INCH DIA- - 0.083 IN THICKNESS
40,000 LF

228. BOILER PLANT MISC ITEMS

228.1 MISC SUSPENSE ITEMS

228.11 FINAL ALIGNMENT + CHECKING

228.12 FIELD PAINTING

228.13 QUALIFICATION OF WELDERS

228.3 BOILER PLANT INSULATION

228.31 PIPE INSULATION

228.32 EQUIPMENT INSULATION

228.4 SAMPLING EQUIPMENT

EQUIPMENT INCLUDES:

SAMPLE CONDITIONERS
ANALYZERS
CONTROL AND DISPLAY
AUX BOILER SAMPLE PANAL

23. TURBINE PLANT EQUIPMENT

231. TURBINE GENERATOR

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
224.752	2.5 IN + LARGER	
224.7521	CS/NNS	
224.76	VALVES	
224.762	CHECK	
224.768	PLUG	
224.8	INSTRUMENTATION + CONTROL	INCLUDED IN ACCOUNT 224. COST
227.	INSTRUMENTATION + CONTROL	
227.1	BENCHBOARD, PANELS + RACKS	PROCESS INSTRUMENTATION AND CONTROLS ARE LISTED IN THEIR RESPECTIVE SYSTEMS
227.11	BOILER - TG CONTROL PANEL	WALK IN TUNNEL TYPE BENCHBOARD - 34 FT
227.17	AUXILIARY PANELS+CABINETS	QUANTITIES: SOOTBLOWER CENTRAL PANEL - 8 FT COAL SILO MEASURING PANEL - 1 FT COAL HANDLING PANEL - 8 FT ANNUNCIATOR PANEL - 4 FT
227.18	INSTRUMENT RACKS	
227.2	PLANT COMPUTER SYSTEM	EQUIPMENT INCLUDES: DATA ACQUISITION COMPUTER WITH CORE AND DISK WITHOUT INTERFACE OPERATOR CONSOLE - 1 CRT DISPLAYS(ALARM + OPERATOR) - 2 PRINTERS(ALARM,UTILITY,LOGGER) - 3 TREND RECORDER PENS - 6 PROGRAM EQPT: TYPEWRITERS,PAPER,TAPE, AND PUNCH UNINTERRUPTIBLE POWER SUPPLY SOFTWARE
227.3	STACK GAS MONITORING SYS	SEE ACCOUNT 254.56
227.4	PLANT CONTROL SYSTEM	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
224.66	FIRE PROTECTION SYSTEM	
224.67	SUMP DRAIN SYSTEM	
224.671	ROTATING MACHINERY	
224.6711	SUMP PUMPS + MOTORS	
224.67111	SUMP PUMPS	
224.67112	SUMP PUMP MOTORS	
224.675	PIPING	
224.7	IGNITION OIL SYSTEM	
224.71	ROTATING MACHINERY	
224.711	IGNITION OIL PUMP + MOTOR	
224.7111	IGNITION OIL PUMP	QUANTITY - 2 X 100 PCT TYPE - POSITIVE DISPLACEMENT ORIENTATION - HORIZONTAL FLOW RATE - 80 GPM SPEED - TDH - BHP - 11 HP NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE -
224.7112	IGNITION OIL PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 15 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
224.75	PIPING	
224.751	2 IN + SMALLER	
224.7511	CS/NNS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
224.51	STACKER/RECLAIMER	STACKOUT RATE - 2000 T/HR RECLAIM RATE - 700 T/HR BOOM LENGTH 151 FT RANGE OF BOOM LIFT - 75 FT NO. OF BUCKETS - 9 BENCH HEIGHT 15 FT MAX. PILE HEIGHT - 70 FT BELT SPEED - 982 FPM SLOW SPEED - 3.3 FPS WHEEL SPEED 5 RPM TRAVEL SPEED - 118 FPM MAX. WIND VELOCITY - 55 MPH FOR OPERATION
224.52	COAL SILO	QUANTITY - 8 CAPACITY - 17,000 CU FT EACH DIMENSIONS - 25 FT DIA X 32 FT STR SIDE WITH 20 FT HOPPER
224.521	COAL SILO A283,3/8IN PLATE	
224.522	COAL SILO A304,3/8IN PLATE	
224.523	COAL SILO A 36 STIFFENERS	
224.6	OTHER COAL HANDLING EQUIP	
224.61	SLIDE GATE + MOTOR	
224.611	SLIDE GATE	
224.612	SLIDE GATE MOTOR	
224.62	WEIGHT SCALES	
224.63	MISC VIBRATING FEEDERS+MTR	
224.631	MISC VIBRATING FEEDERS	
224.632	MISC VIBRATING FEEDER MTR	
224.64	COAL SAMPLING SYSTEMS	
224.65	DUST SUPPRESSION SYSTEMS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
224.4	PULVERIZING SYSTEMS	INCLUDED WITH BOILER PACKAGE (EXCEPT FOR FOUNDATIONS/SKIDS)
224.41	COAL FEEDER + MOTOR	
224.411	COAL FEEDER	QUANTITY 8 (INCLUDING 1 SPARE VIBRATING FEEDER)
		TYPE -
224.412	COAL FEEDER MOTOR	TYPE - HORSEPOWER - 5 HP SPEED 1600 RPM VOLTAGE 460 V, 3 PHASE, 60 HZ
224.42	PULVERIZER + MOTOR	
224.421	PULVERIZER	QUANTITY 8 (INCLUDING 1 SPARE) COAL CAPACITY - 146,000 LB/HR
224.422	PULVERIZER MOTOR	TYPE - HORSEPOWER - 700 HP SPEED - 1200 RPM VOLTAGE - 4 KV, 3 PHASE, 60 HZ
224.45	PIPING + DUCTWORK	
224.49	FOUNDATIONS/SKIDS	
224.491	PULVERIZER FOUNDATIONS	
224.4911	FORMWORK	
224.4912	REINFORCING STEEL	
224.4913	CONCRETE	
224.4914	EMBEDDED STEEL	
224.5	STORAGE EQUIPMENT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
224.	FUEL HANDLING SYSTEMS	COAL HANDLING SYSTEM DESIGNED FOR A STOCKING OUT RATE OF 2000 TONS PER HOUR AND TWO RECLAIM SYSTEMS RATED AT 700 TONS PER HOUR. IGNITION OIL SYSTEM DESIGNED TO SUPPLY NO. 2 FUEL OIL TO THE MAIN BOILER AND AUXILIARY BOILER AT 80 GPM MAXIMUM.
224.1	COAL UNLOADING EQUIPMENT	
224.11	RAILROAD CAR POSITIONER	CAR POSITIONER - 125 HP TRANSVERSE DRIVE - 25 HP
224.12	ROTARY CAR DUMPER	EQUIPMENT INCLUDES: CAR DUMPER TRAVELING HAMMERMILL LUMP BREAKER PLATEN SCALE HOPPERS GRIZZLY FEEDERS POWER REQUIREMENTS: ROTARY CAR DUMPER - 125 HP FROZEN COAL CRUSHER - 50 HP TRANSVERSE DRIVE - 25 HP
224.13	COAL CAR THAWING EQUIPMENT	EQUIPMENT INCLUDES 3500 KW HEATERS AND STRUCTURE
224.2	CONVEYING EQUIPMENT	
224.21	BELT CONVEYORS	BELT SIZE LINEAR FEET ----- 36 IN 5200 54 IN 1960
224.3	CRUSHER EQUIPMENT	POWER REQUIREMENTS - 2500 HP
224.32	MAGNETIC SEPARATORS	
224.34	COAL CRUSHER + MOTOR	
224.341	COAL CRUSHER	
224.342	COAL CRUSHER MOTOR	TWO COAL CRUSHERS AT 500 HP EACH

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
223.211	ASH HOPPER SEAL PUMP+MOTOR	
223.2111	ASH HOPPER SEAL PUMP	QUANTITY - 2 X 100 PCT TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 410 GPM SPEED - TDH - 250 FT BHP - 37 HP NPSH - EFFICIENCY - 70 PCT DESIGN PRESS - 200 PSI DESIGN TEMP - 150 F MATERIAL - CAST IRON CASING STAINLESS STEEL IMPELLER DESIGN CODE -
223.2112	ASH HOPPER SEAL PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 40 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
223.25	PIPING	
223.251	RECIRCULATION+SEAL WATER	
223.2511	2 IN + SMALLER	
223.25111	CS/NNS	
223.2512	2.5 IN + LARGER	
223.25121	CS/NNS	
223.26	VALVES	
223.261	GATE	
223.262	CHECK	
223.263	GLOBE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
223.19332	REINFORCING STEEL	
223.19333	CONCRETE	
223.19334	EMBEDDED STEEL	
223.194	SETTLING TANK FOUNDATION	
223.1941	EXCAVATION WORK	
223.19411	EXCAVATION-EARTH	
223.19414	BACKFILL-EARTH	
223.1943	SUBSTRUCTURE CONCRETE	
223.19431	FORMWORK	
223.19432	REINFORCING STEEL	
223.19433	CONCRETE	
223.19434	EMBEDDED STEEL	
223.195	RECIRCULATING TANK FOUND	
223.1951	EXCAVATION WORK	
223.19511	EXCAVATION-EARTH	
223.19514	BACKFILL-EARTH	
223.1953	SUBSTRUCTURE CONCRETE	
223.19531	FORMWORK	
223.19532	REINFORCING STEEL	
223.19533	CONCRETE	
223.19534	EMBEDDED STEEL	
223.2	MISC ASH+DUST HANDLING EQ	
223.21	ROTATING MACHINERY	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
223.19	FOUNDATIONS/SKIDS	
223.191	DEWATERING BIN FOUNDATIONS	
223.1911	EXCAVATION WORK	
223.19111	EXCAVATION-EARTH	
223.19114	BACKFILL-EARTH	
223.1913	SUBSTRUCTURE CONCRETE	
223.19131	FORMWORK	
223.19132	REINFORCING STEEL	
223.19133	CONCRETE	
223.19134	EMBEDDED STEEL	
223.192	FLY ASH SILO FOUNDATIONS	
223.1921	EXCAVATION WORK	
223.19211	EXCAVATION-EARTH	
223.19214	BACKFILL-EARTH	
223.1923	SUBSTRUCTURE CONCRETE	
223.19231	FORMWORK	
223.19232	REINFORCING STEEL	
223.19233	CONCRETE	
223.19234	EMBEDDED STEEL	
223.193	PYRITES HOLDING BIN FOUND	
223.1931	EXCAVATION WORK	
223.1933	SUBSTRUCTURE CONCRETE	
223.19331	FORMWORK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
223.11	FLY ASH EQUIPMENT	FLY ASH SYSTEM-TWO 100 PCT DRY POSITIVE DISPLACEMENT PRESSURIZED SYSTEMS DESIGNED TO HANDLE 21 TONS PER HOUR EA. FLY ASH WITH OPTIONAL TRUCK DISPOSAL EQUIPMENT INCLUDES: - AIR LOCKS WITH GATES AND COUPLINGS - POSITIVE DISPLACEMENT BLOWERS 3 - 75 HP EACH - CYCLONE COLLECTORS - STORAGE SILOS 2 - 7000 CU FT EACH 20 FT DIA X 22 FT H - DUST TRANSPORT PIPING - INSTALLATION OF ABOVE EQUIPMENT
223.11914	BACKFILL-EARTH	
223.12	BOTTOM ASH + PYRITES EQUIP	BOTTOM ASH AND PYRITES SYSTEM - ONE WET HYDRAULIC ASH SYSTEM DESIGNED TO HANDLE 9 TONS PER HOUR, ASH AND PYRITES ARE TRUCK DISPOSED EQUIPMENT INCLUDES: - ASH HOPPER - 1 - 3500 CU FT - DISCHARGE GATES - CLINKER GRINDERS - 2 - 15 HP EACH - HYDRO-EJECTORS - ASH SLUICE PUMPS - 2 - 600 GPM 200 PSI 125 HP - ASH TRANSPORT PIPING, VALVES+FITTINGS - DEWATERING BINS - 2 - 13000 CU FT EA 24 FT DIA X 30 FT H - PYRITES HOPPERS - PYRITES HOLDING BIN - 1 - 1500 CU FT - SETTLING TANK -1 - 18000 CU FT 28 FT DIA X 25 FT H - RECIRCULATING TANK -1 - 21000 CU FT 30 FT DIA X 30 FT H - MISC FANS AND SLUDGE PUMPS - 75 HP - INSTALLATION OF ABOVE EQUIPMENT
223.18	INSTRUMENTATION + CONTROL	PROVIDED WITH ASH+DUST HANDLING PACKAGE

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.9311	EXCAVATION-EARTH	
222.9314	BACKFILL-EARTH	
222.933	SUBSTRUCTURE CONCRETE	
222.9331	FORMWORK	
222.9332	REINFORCING STEEL	
222.9333	CONCRETE	
222.9334	EMBEDDED STEEL	
222.934	SUPERSTRUCTURE	
222.9342	STRUCTURAL + MISC STEEL	
222.93421	STRUCTURAL STEEL	
222.93423	MISCELLANEOUS STEEL	
222.93425	FLOOR GRATING/CHECKER PLT	
222.93426	STAIR TREADS	
222.93427	HANDRAIL	
222.9349	PAINTING	
222.93492	STRUCTURAL STEEL	
222.93494	HANDRAIL	
223.	ASH + DUST HANDLING SYSTEM	
223.1	ASH + DUST HANDLING EQUIP	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.914	SUPERSTRUCTURE	
222.9142	STRUCTURAL + MISC STEEL	
222.91421	STRUCTURAL STEEL	
222.91423	MISCELLANEOUS STEEL	
222.91425	FLOOR GRATING (GALVANIZED)	
222.91426	STAIR TREADS	
222.91427	HANDRAIL	
222.9149	PAINTING	
222.91492	STRUCTURAL STEEL	
222.91494	HANDRAIL	
222.92	PA,FD + ID FAN FOUNDATIONS	
222.921	EXCAVATION WORK	
222.9211	EXCAVATION-EARTH	
222.9214	BACKFILL-EARTH	
222.923	SUBSTRUCTURE CONCRETE	
222.9231	FORMWORK	
222.9232	REINFORCING STEEL	
222.9233	CONCRETE	
222.924	SUPERSTRUCTURE	FORCED DRAFT/PRIMARY AIR FAN ROOM INCLUDED IN THE STEAM GENERATOR BUILDING (212). INDUCED DRAFT FANS ARE LOCATED OUTDOORS.
222.93	AIR HEATER FOUNDATIONS	
222.931	EXCAVATION WORK	

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MODEL 620 - 0801.MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.5222	DUCT INSULATION	
222.6	VALVES	
222.61	GATE	
222.62	CHECK	
222.63	GLOBE	
222.7	PIPING-MISC ITEMS	
222.72	INSULATION	
222.73	SPECIALTIES	
222.731	AIR INLET SILENCERS	QUANTITY - 2 X 50 PCT FLOW RATE - 875,000 SCFM MATERIAL - DESIGN CODE -
222.8	INSTRUMENTATION + CONTROLS	QUANTITY: LOCAL INDICATORS - 12 TEMP ELEMENTS - 44 LEVEL PROBES - 32 PROCESS SWITCH - 37 ANNUNCIATORS - 2
222.9	FOUNDATIONS/SKIDS	
222.91	PRECIPITATOR+DUCT FOUND	
222.911	EXCAVATION WORK	
222.9111	EXCAVATION-EARTH	
222.9114	BACKFILL-EARTH	
222.913	SUBSTRUCTURE CONCRETE	
222.9131	FORMWORK	
222.9132	REINFORCING STEEL	
222.9133	CONCRETE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.31	AIR HEATER DRAIN TANK	QUANTITY - 2 ORIENTATION - DIMENSIONS 4 FT D X 5 FT VOLUME - 450 GAL DESIGN PRESS - 15 PSIG DESIGN TEMP - 350 F MATERIAL - CARBON STEEL DESIGN CODE - API
222.4	PURIFICATION+FILTRATION EQ	
222.41	ELECTROSTATIC PRECIPITATOR	QUANTITY - 2 X 50 PCT TYPE - RIGID FRAME FLOW RATE - 1,355,000 ACFM OPER TEMP - 304 F EFFICIENCY - 99.7 PCT ASH CAPACITY - 10 TPH DES PRESS - DES TEMP - DESIGN CODE - POWER REQUIRE -
222.5	PIPING + DUCTWORK	
222.51	AIR PREHEAT STEAM PIPING	
222.511	2 IN + SMALLER	
222.5111	CS/NNS	
222.512	2.5 IN + LARGER	
222.5121	CS/NNS	
222.52	DUCTWORK	
222.521	AIR DUCTS	
222.5211	FD FAN DUCTWORK	
222.5212	PRIMARY AIR DUCTWORK	
222.522	GAS DUCTS	
222.5221	AIR HTR TO STACK DUCTWORK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.22	INLET COMBUST AIR STM COIL	QUANTITY - TYPE - RADIATOR ORIENTATION - HEAT LOAD - 171.0 E+06 BTU/HR SURFACE AREA - SHELL CONDITION: DES.PRESS/TEMP - TEMP IN/OUT - -10/80 F FLOW RATE - 7.9 E+06 LB/HR MATERIAL - DESIGN CODE - TUBE CONDITION: QUANTITY - 90 COILS SIZE - 0.049 IN DES.PRESS/TEMP - 15/400 PSI/F TEMP IN/OUT - 363/120 F FLOW RATE - MATERIAL - 90-10 CU-NI DESIGN CODE -
222.23	COMBST AIR PREHEAT ST COIL	QUANTITY - TYPE - DUCT TUBE ORIENTATION - HEAT LOAD - 75.8 E+06 BTU/HR SURFACE AREA - SHELL CONDITION: DES.PRESS/TEMP - TEMP IN/OUT - 80/120 F FLOW RATE - 7.9 E+06 LB/HR MATERIAL - DESIGN CODE - TUBE CONDITION: QUANTITY - 42 COILS SIZE - 0.049 IN DES.PRESS/TEMP - 15/400 PSI/F TEMP IN/OUT - 363/120 F FLOW RATE - MATERIAL - 90-10 CU-NI DESIGN CODE -
222.3	TANKS AND PRESSURE VESSELS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.2112	SECONDARY AIR HEATER MOTOR	QUANTITY - 2 X 50 PCT TYPE - HORSEPOWER - 20 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60HZ
222.212	PRIMARY AIR HEATER + MOTOR	INCLUDED WITH BOILER PACKAGE
222.2121	PRIMARY AIR HEATER	QUANTITY - 1 TYPE - REGENERATIVE ORIENTATION - CONCENTRIC HEAT LOAD - SURFACE AREA - FLUE CONDITION: DES PRESS/TEMP - TEMP IN/OUT - 7304 F FLOW RATE - MATERIAL - AIR CONDITION - DES PRESS/TEMP - TEMP IN/OUT - 80/ F FLOW RATE - MATERIAL -
222.2122	PRIMARY AIR HEATER MOTOR	QUANTITY - 1 TYPE - HORSEPOWER - 20 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60HZ

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.141	AIR HEATER DRAIN PUMP	QUANTITY - 3 X 50 PCT TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 200 GPM SPEED - 1775 RPM TDH - 60 FT BHP - 4 HP NPSH - EFFICIENCY - 70 PCT DESIGN PRESS - 100 PSIG DESIGN TEMP - 250 F MATERIAL - CAST IRON CASING CHROME STEEL IMPELLER DESIGN CODE -
222.142	AIR HEATER DRAIN PUMP MTR	QUANTITY - 3 TYPE - HORSEPOWER - 5 HP SPEED - 1800 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
222.2	HEAT TRANSFER EQUIPMENT	
222.21	REGENERATIVE AIR HEATERS	
222.211	SECONDARY AIR HEATER+MOTOR	INCLUDED WITH BOILER PACKAGE
222.2111	SECONDARY AIR HEATER	QUANTITY - 2 X 50 PCT TYPE - REGENERATIVE ORIENTATION - CONCENTRIC HEAT LOAD - SURFACE AREA - FLUE CONDITION: DES PRESS/TEMP - TEMP IN/OUT - 1304 F FLOW RATE - MATERIAL - AIR CONDITION: DES PRESS/TEMP - TEMP IN/OUT - 80/ F FLOW RATE - MATERIAL -

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
222.112	FORCED DRAFT FAN MOTOR	QUANTITY - 2 X 50 PCT TYPE - HORSEPOWER - 4,500 HP SPEED - VOLTAGE - 13.2KV, 3 PHASE, 60 HZ
222.12	PRIMARY AIR FAN + MOTOR	INCLUDED WITH BOILER PACKAGE
222.121	PRIMARY AIR FAN	QUANTITY - 2 X 50 PCT TYPE - CENTRIFUGAL FLOW RATE - 175,000 SCFM STATIC PRESS - SPEED - BHP - EFFICIENCY - DESIGN CODE -
222.122	PRIMARY AIR FAN MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 3,500 HP SPEED - VOLTAGE - 13.2KV, 3 PHASE, 60 HZ
222.13	INDUCED DRAFT FAN + MOTOR	INCLUDED WITH BOILER PACKAGE
222.131	INDUCED DRAFT FAN	QUANTITY - 2 X 50 PCT TYPE - CENTRIFUGAL FLOW RATE - 1,100,000 SCFM STATIC-PRESS - SPEED - BHP - EFFICIENCY - DESIGN CODE -
222.132	INDUCED DRAFT FAN MOTOR	QUANTITY - 2 X 50 PCT TYPE - HORSEPOWER - 8,000 HP SPEED - VOLTAGE - 13.2KV, 3 PHASE, 60 HZ
222.14	AIR HEATER DRAIN PUMP+MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
221.363	GLOBE	
221.365	RELIEF	
221.37	PIPING-MISC ITEMS	
221.371	HANGERS + SUPPORTS	
221.38	INSTRUMENTATION + CONTROL	PROVIDED IN SOOT BLOWER PACKAGE MAIN CONTROL PANEL PROVIDED IN 227.17
221.39	FOUNDATIONS/SKIDS	
221.397	COMPRESSORS + AIR RECEIVER	
221.3971	EXCAVATION WORK	
221.3973	SUPERSTRUCTURE CONCRETE	
221.39731	FORMWORK	
221.39732	REINFORCING STEEL	
221.39733	CONCRETE	
221.39734	EMBEDDED STEEL	
222.	DRAFT SYSTEM	
222.1	ROTATING MACHINERY	
222.11	FORCED DRAFT FAN + MOTOR	INCLUDED WITH BOILER PACKAGE
222.111	FORCED DRAFT FAN	QUANTITY - 2 X 50 PCT TYPE - CENTRIFUGAL FLOW RATE - 700,000 SCFM STATIC PRESS - SPEED - BHP - EFFICIENCY - DESIGN CODE -

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
221.3121	S.B. COMPRESSOR	QUANTITY - 2 TYPE - ORIENTATION - FLOW RATE - 7000 SCFM SPEED - 1775 RPM DISCHARGE PRESS - 300 PSIG BHP - EFFICIENCY - DESIGN PRESS - 400 PSIG DESIGN TEMP - MATERIAL - DESIGN CODE -
221.3122	S.B. COMPRESSOR MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 2500 HP SPEED - 1800 RPM VOLTAGE - 13.2KV, 3 PHASE, 60 HZ
221.33	TANKS AND PRESSURE VESSELS	
221.331	S.B. AIR RECEIVER	QUANTITY - 1 ORIENTATION - DIMENSIONS - 6 FT D X 12 FT VOLUME - 350 CU FT DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE - ASME SECTION VIII
221.35	PIPING	
221.351	2 IN + SMALLER	
221.3511	CS/NNS	
221.352	2.5 IN + LARGER	
221.3521	CS/NNS	
221.36	VALVES	
221.361	GATE	
221.362	CHECK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
221.217	PIPING-MISC ITEMS	
221.2171	HANGERS + SUPPORTS	
221.2172	INSULATION	
221.22	BOILER VENTS AND DRAINS	
221.225	PIPING	
221.2251	2 IN + SMALLER	
221.22511	CS	
221.2252	2.5 IN + LARGER	
221.22521	CS/NNS	
221.226	VALVES	
221.2265	RELIEF	
221.227	PIPING-MISC ITEMS	
221.2271	HANGERS + SUPPORTS	
221.3	SOOTBLOWING SYSTEM	
221.31	ROTATING MACHINERY	
221.311	SOOTBLOWERS	SOOTBLOWERS INCLUDE: WALL BLOWERS RETRACTABLE BLOWERS EXTENDED BLOWERS AIR HTR RETRACTABLE BLOWERS INCLUDED WITH BOILER PACKAGE
221.312	S.B. COMPRESSOR + MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
221.11	SUPERCRITICAL PRESS BOILER	MAX. CONTINUOUS RATING- 6.53 E+06 LB/HR PRESSURE - 3845 PSIG SUPERHEAT TEMP - 1010 F REHEAT TEMP - 1000 F BOILER INCLUDES: FURNACE WALL SYSTEM SUPERHEATER REHEATER ECONOMIZER BURNER CONTROLS ERECTION OF ABOVE EQUIP
221.12	ASSOCIATED BOILER SYSTEMS	EQUIPMENT INCLUDES: SOOTBLOWER + TEMP PROBES FIRING EQUIPMENT STARTUP SYSTEM SEAL + ASPIRATING AIR SYSTEM INSTALLATION OF ABOVE EQUIP
221.13	MISC BOILER SYSTEMS	MISC SYSTEMS INCLUDE: PRESSURE PART SUPPORT STEEL CASINGS + BUCKSTAYS DUCTWORK TO/FROM AIR HTRS+BOILER INSULATION + LAGGING VALVES + ACCESSORIES PLATFORMS+STAIRWAYS+STRUCTURAL STEEL INSTALLATION OF ABOVE EQUIP
221.2	STEAM GENERATING ACCESSORY	
221.21	BOILER BYPASS SYSTEM	FLASH TANK AND PIPING TO FLASH TANK FURNISHED WITH BOILER PACKAGE.
221.215	PIPING	
221.2152	2.5 IN + LARGER	
221.21521	CS/NNS	
221.216	VALVES	
221.2161	GATE	
221.2162	CHECK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
219.26	LIGHTNING PROTECTION	
22 .	BOILER PLANT EQUIPMENT	
220A.	FOSSIL STEAM SUPPLY SYSTEM	
220A.1	QUOTED FSSS PRICE	
220A.2	DISTRIBUTED FSSS COST	
220A.21	STEAM GENERATING EQUIPMENT	
220A.211	SUPERCRITICAL PRESS BOILER	
220A.212	ASSOCIATED BOILER SYSTEMS	
220A.213	MISC BOILER SYSTEMS	
220A.214	SOOTBLOWERS	
220A.22	DRAFT EQUIPMENT	
220A.221	FORCED DRAFT FAN + MOTOR	
220A.222	PRIMARY AIR FAN + MOTOR	
220A.223	INDUCED DRAFT FAN + MOTOR	
220A.224	REGENERATIVE AIR HTR+MOTOR	
220A.25	FUEL HANDLING EQUIPMENT	
220A.251	COAL FEEDER + MOTOR	
220A.252	COAL PULVERIZER + MOTOR	
220A.27	INSTRUMENTATION + CONTROL	
221.	STEAM GENERATING SYSTEM	
221.1	STEAM GENERATING EQUIPMENT	INCLUDED WITH BOILER PACKAGE

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
219.	STACK STRUCTURE	STACK STRUCTURE - BRICK LINED 25 FT INNER DIAMETER 600 FT HIGH SEE COST ESTIMATE FOR STRUCT QUANTITIES
219.1	STRUCTURE	
219.11	EXCAVATION WORK	
219.111	EXCAVATION-EARTH	
219.112	EXCAVATION-ROCK	
219.114	BACKFILL-EARTH	
219.115	DEWATERING	
219.13	SUBSTRUCTURE CONCRETE	
219.131	FORMWORK	
219.132	REINFORCING STEEL	
219.133	CONCRETE	
219.14	SUPERSTRUCTURE	
219.141	CONCRETE WORK	
219.1412	REINFORCING STEEL	
219.1413	CONCRETE	
219.1414	BRICK LINER	
219.142	STRUCTURAL + MISC STEEL	
219.1421	STRUCTURAL STEEL	
219.2	CHIMNEY SERVICES	
219.24	AIRCRAFT WARNING LIGHTS	
219.25	ELEVATOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218W.1144	ROOF DECK	
218W.11441	METAL ROOF DECK-INSULATED	
218W.11443	TRANSLUCENT PANELS	
218W.2	STACKER/RECLAIMER	
218W.21	BUILDING STRUCTURE	
218W.211	EXCAVATION WORK	
218W.2111	EXCAVATION-EARTH	
218W.2113	BACKFILL - BALLAST	
218W.2114	BACKFILL-EARTH	
218W.213	SUBSTRUCTURE CONCRETE	
218W.2131	FORMWORK	
218W.2132	REINFORCING STEEL	
218W.2133	CONCRETE	
218W.2134	EMBEDDED STEEL	
218W.214	SUPERSTRUCTURE	
218W.2141	RAILROAD TRACK	
218W.3	COAL PILE MEMBRANE BARRIER	2,750,000 SQ FT BARRIER - MEMBRANE MATERIAL IS PVC WITH A THICKNESS OF 0.020 INCHES
218W.31	EARTHWORK	
218W.32	MEMBRANE BARRIER	
218W.5	BUILDING SERVICES	
218W.54	LIGHTING + SERVICE POWER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR

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ACCOUNT NUMBER	ITEM	DESCRIPTION
218V.314	SUPERSTRUCTURE	
218V.3141	CONCRETE WORK	
218V.3142	STRUCTURAL + MISC STEEL	
218V.31421	CARBON STEEL FLUME	
218W.	MISC COAL HANDLING STRUCT	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218W.1	CONVEYOR GALLERIES	
218W.11	BUILDING STRUCTURE	
218W.111	EXCAVATION WORK	
218W.1111	EXCAVATION-EARTH	
218W.1114	BACKFILL-EARTH	
218W.113	SUBSTRUCTURE CONCRETE	
218W.1131	FORMWORK	
218W.1132	REINFORCING STEEL	
218W.1133	CONCRETE	
218W.1134	EMBEDDED STEEL	
218W.114	SUPERSTRUCTURE	
218W.1141	CONCRETE WORK	
218W.1142	STRUCTURAL + MISC STEEL	
218W.11421	STRUCTURAL STEEL	
218W.11423	MISC. FRAMES, ETC.	
218W.11425	METAL WALKWAYS	
218W.1143	EXTERIOR WALLS	
218W.11433	METAL INSULATED SIDING	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218V.12221	ELECTRIC UNIT HEATERS+MTR	
218V.1226	VALVES + DAMPERS	
218V.12269	WALL LOUVERS	
218V.123	FIRE PROTECTION EQUIPMENT	
218V.1231	PORTABLE FIRE EXTINGUISH	
218V.124	LIGHTING + SERVICE POWER	
218V.2	WASTE WATER SETTLING BASIN	
218V.21	EXCAVATION WORK	
218V.211	EXCAVATION-EARTH	
218V.214	BACKFILL-EARTH	
218V.23	SUBSTRUCTURE CONCRETE	
218V.231	FORMWORK	
218V.232	REINFORCING STEEL	
218V.233	CONCRETE	
218V.3	API OIL SEPARATOR	
218V.31	BUILDING STRUCTURE	
218V.311	EXCAVATION WORK	
218V.3111	EXCAVATION-EARTH	
218V.3114	BACKFILL-EARTH	
218V.313	SUBSTRUCTURE CONCRETE	
218V.3131	FORMWORK	
218V.3132	REINFORCING STEEL	
218V.3133	CONCRETE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218V.1133	CONCRETE	
218V.1134	EMBEDDED STEEL	
218V.1135	FLOOR FINISH	
218V.1139	WIRE FABRIC	
218V.114	SUPERSTRUCTURE	
218V.1141	CONCRETE WORK	
218V.1142	STRUCTURAL + MISC STEEL	
218V.1143	EXTERIOR WALLS	
218V.11433	METAL INSULATED SIDING	
218V.1145	ROOFING + FLASHING	
218V.11455	METAL ROOF DECK	
218V.1147	DOORS + WINDOWS	
218V.11471	ROOLING STEEL DOORS	
218V.11472	PERSONNEL DOORS	
218V.1149	PAINTING	
218V.11495	DOORS	
218V.12	BUILDING SERVICES	
218V.121	PLUMBING + DRAINS	
218V.1212	FLOOR DRAINS + PIPING	
218V.122	HEATING, VENT + AIR COND	
218V.1221	ROTATING MACHINERY	
218V.12211	POWER ROOF VENTILATOR+MTR	
218V.1222	HEAT TRANSFER EQUIPMENT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218U.1472	PERSONNEL DOORS	
218U.1473	SASH + GLAZING	
218U.148	WALLS, FLOOR + CEIL FINISH	
218U.1481	VINYL FLOOR TILE	
218U.1482	CERAMIC FLOOR TILE	
218U.1485	SUSPENDED CEILING	
218U.1486	CEMENT PLASTER CEILING	
218U.2	BUILDING SERVICES	
218U.21	DRAINS + PIPING	
218U.211	ROOF DRAINS + PIPING	
218U.212	FLOOR DRAINS + PIPING	
218U.22	HEATING, VENT + AIR COND	
218U.23	FIRE PROTECTION	
218U.24	LIGHTING + SERVICE POWER	
218V.	WASTE WATER TREATMENT BLDG	
218V.1	WASTE WATER EQUIPMENT BLDG	
218V.11	BUILDING STRUCTURE	
218V.111	EXCAVATION WORK	
218V.1111	EXCAVATION-EARTH	
218V.1114	BACKFILL-EARTH	
218V.113	SUBSTRUCTURE CONCRETE	
218V.1131	FORMWORK	
218V.1132	REINFORCING STEEL	

SEE COST ESTIMATE FOR STRUCT QUANTITIES

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218U.114	BACKFILL-EARTH	
218U.13	SUBSTRUCTURE CONCRETE	
218U.131	FORMWORK	
218U.132	REINFORCING STEEL	
218U.133	CONCRETE	
218U.134	EMBEDDED STEEL	
218U.135	FLOOR FINISH	
218U.139	WIRE FABRIC	
218U.14	SUPERSTRUCTURE	
218U.141	CONCRETE WORK	
218U.142	STRUCTURAL + MISC STEEL	
218U.143	EXTERIOR WALLS	
218U.1433	METAL INSULATED SIDING	
218U.1434	METAL UNINSULATED SIDING	
218U.144	ROOF DECK	
218U.1441	METAL ROOF DECK	
218U.145	ROOFING + FLASHING	
218U.1451	B.U. ROOF, INSUL + FLASHING	
218U.146	INTERIOR WALLS	
218U.1462	MASONRY	
218U.1463	TOILET PARTITIONS	
218U.147	DOORS + WINDOWS	
218U.1471	ROLLING STEEL DOORS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218T.132	REINFORCING STEEL	
218T.133	CONCRETE	
218T.134	EMBEDDED STEEL	
218T.135	FLOOR FINISH	
218T.139	WIRE FABRIC	
218T.14	SUPERSTRUCTURE	
218T.141	CONCRETE WORK	
218T.142	STRUCTURAL + MISC STEEL	
218T.1421	STRUCTURAL STEEL	
218T.143	EXTERIOR WALLS	
218T.1433	METAL INSULATED SIDING	
218T.144	ROOF DECK	
218T.1441	METAL ROOF DECK	
218T.147	DOORS + WINDOWS	
218T.1471	ROLLING STEEL DOORS	
218T.1472	PERSONNEL DOORS	
218T.2	BUILDING SERVICES	
218T.22	HEATING, VENT + AIR COND	
218T.24	LIGHTING + SERVICE POWER	
218U.	MATERIAL HANDL+SERVICE BLD	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218U.1	BUILDING STRUCTURE	
218U.11	EXCAVATION WORK	
218U.111	EXCAVATION-EARTH	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218Q.2	BUILDING SERVICES	
218Q.22	HEATING, VENT + AIR COND	
218Q.24	LIGHTING + SERVICE POWER	
218R.	DEAD STRG TRANSFER TUNNEL	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218R.1	BUILDING STRUCTURE	
218R.11	EXCAVATION WORK	
218R.111	EXCAVATION-EARTH	
218R.114	BACKFILL-EARTH	
218R.13	SUBSTRUCTURE CONCRETE	
218R.131	FORMWORK	
218R.132	REINFORCING STEEL	
218R.133	CONCRETE	
218R.134	EMBEDDED STEEL	
218R.135	FLOOR FINISH	
218R.2	BUILDING SERVICES	
218R.24	LIGHTING + SERVICE POWER	
218T.	LOCOMOTIVE REPAIR GARAGE	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218T.1	BUILDING STRUCTURE	
218T.11	EXCAVATION WORK	
218T.111	EXCAVATION-EARTH	
218T.114	BACKFILL-EARTH	
218T.13	SUBSTRUCTURE CONCRETE	
218T.131	FORMWORK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218Q.1	BUILDING STRUCTURE	
218Q.11	EXCAVATION WORK	
218Q.111	EXCAVATION-EARTH	
218Q.114	BACKFILL-EARTH	
218Q.13	SUBSTRUCTURE CONCRETE	
218Q.131	FORMWORK	
218Q.132	REINFORCING STEEL	
218Q.133	CONCRETE	
218Q.134	EMBEDDED STEEL	
218Q.14	SUPERSTRUCTURE	
218Q.141	CONCRETE WORK	
218Q.1411	FORMWORK	
218Q.14111	METAL FORMWORK	
218Q.1413	CONCRETE	
218Q.142	STRUCTURAL + MISC STEEL	
218Q.1421	STRUCTURAL STEEL	
218Q.143	EXTERIOR WALLS	
218Q.1433	METAL INSULATED SIDING	
218Q.1434	METAL UNINSULATED SIDING	
218Q.144	ROOF DECK	
218Q.1441	METAL ROOF DECK	
218Q.147	DOORS + WINDOWS	
218Q.1472	PERSONNEL DOORS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218P.141	CONCRETE WORK	
218P.1411	FORMWORK	
218P.14111	METAL FORMWORK	
218P.1413	CONCRETE	
218P.142	STRUCTURAL + MISC STEEL	
218P.1421	STRUCTURAL STEEL	
218P.143	EXTERIOR WALLS	
218P.1434	METAL UNINSULATED SIDING	
218P.144	ROOF DECK	
218P.1442	METAL ROOF DECK-UNINSUL	
218P.146	INTERIOR WALLS	
218P.1462	MASONRY	
218P.147	DOORS + WINDOWS	
218P.1472	PERSONNEL DOORS	
218P.2	BUILDING SERVICES	
218P.21	DRAINS + PIPING	
218P.211	ROOF DRAINS + PIPING	
218P.212	FLOOR DRAINS + PIPING	
218P.22	HEATING, VENT + AIR COND	
218P.24	LIGHTING + WIRING	
218P.25	ELEVATOR	
218P.251	ELEVATOR EQUIPMENT	
218Q.	BOILER HOUSE TRANSFER TOWER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
2180.1	BUILDING STRUCTURE	
2180.11	EXCAVATION WORK	
2180.111	EXCAVATION-EARTH	
2180.114	BACKFILL-EARTH	
2180.13	SUBSTRUCTURE CONCRETE	
2180.131	FORMWORK	
2180.132	REINFORCING STEEL	
2180.133	CONCRETE	
2180.134	EMBEDDED STEEL	
2180.135	FLOOR FINISH	
218P.	COAL CRUSHER HOUSE	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218P.1	BUILDING STRUCTURE	
218P.11	EXCAVATION WORK	
218P.111	EXCAVATION-EARTH	
218P.114	BACKFILL-EARTH	
218P.13	SUBSTRUCTURE CONCRETE	
218P.131	FORMWORK	
218P.132	REINFORCING STEEL	
218P.133	CONCRETE	
218P.134	EMBEDDED STEEL	
218P.135	FLOOR FINISH	
218P.139	WIRE FABRIC	
218P.14	SUPERSTRUCTURE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218N.1433	METAL INSULATED SIDING	
218N.1434	METAL UNINSULATED SIDING	
218N.144	ROOF DECK	
218N.1441	METAL ROOF DECK -INSULATED	
218N.1442	METAL ROOF DECK-UNINSUL	
218N.146	INTERIOR WALLS	
218N.1462	MASONRY	
218N.147	DOORS + WINDOWS	
218N.1472	PERSONNEL DOORS	
218N.1474	WINDOWS -INSULATED GLASS	
218N.2	BUILDING SERVICES	EQUIPMENT COST INCLUDES ALL ITEMS LISTED BELOW
218N.21	DRAINS + PIPING	
218N.211	ROOF DRAINS + PIPING	
218N.212	FLOOR DRAINS + PIPING	
218N.213	PLUMBING FIXTURES+PIPING	
218N.2131	FIXTURES	
218N.2132	DOMESTIC WATER HEATERS	
218N.215	PIPING	
218N.22	HEAT,VENT+AIR CONDITIONING	
218N.23	FIRE PROTECTION	
218N.24	LIGHTING + SERVICE POWER	
2180.	DEAD STG RECLAIM HOPPER	SEE COST ESTIMATE FOR STRUCT QUANTITIES

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218M.24	LIGHTING + SERVICE POWER	
218N.	ROTARY CAR DUMP BLDG+TUNNL	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218N.1	BUILDING STRUCTURE	
218N.11	EXCAVATION WORK	
218N.111	EXCAVATION-EARTH	
218N.112	EXCAVATION-ROCK	
218N.114	BACKFILL-EARTH	
218N.115	DEWATERING	
218N.13	SUBSTRUCTURE CONCRETE	
218N.131	FORMWORK	
218N.132	REINFORCING STEEL	
218N.133	CONCRETE	
218N.134	EMBEDDED STEEL	
218N.135	FLOOR FINISH	
218N.139	WIRE FABRIC	
218N.14	SUPERSTRUCTURE	
218N.141	CONCRETE WORK	
218N.142	STRUCTURAL + MISC STEEL	
218N.1421	STRUCTURAL STEEL	
218N.1423	MISC STEEL	
218N.1425	FLOOR GRATING	
218N.1426	STAIR TREADS	
218N.143	EXTERIOR WALLS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218L.143	EXTERIOR WALLS	
218L.1432	METAL UNINSULATED WALLS	
218L.144	ROOF DECK	
218L.1441	METAL UNINSULATED ROOF	
218L.147	DOORS + WINDOWS	
218L.1472	PERSONNEL DOORS	
218L.149	PAINTING	
218L.1491	STEELWORK	
218L.1493	HANDRAIL	
218L.2	BUILDING SERVICES	
218L.22	HEATING, VENT + AIR COND	
218L.24	LIGHTING + SERVICE POWER	
218M.	COAL CAR THAW SHED	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218M.1	BUILDING STRUCTURE	
218M.11	EXCAVATION WORK	
218M.111	EXCAVATION-EARTH	
218M.114	BACKFILL-EARTH	
218M.13	SUBSTRUCTURE CONCRETE	
218M.131	FORMWORK	
218M.132	REINFORCING STEEL	
218M.133	CONCRETE	
218M.134	EMBEDDED STEEL	
218M.14	SUPERSTRUCTURE	INCLUDED IN ACCOUNT 224.13

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
2181.1472	PERSONNEL DOORS	
2181.1473	SASH + GLAZING	
2181.2	BUILDING SERVICES	
2181.21	PLUMBING + DRAINS	
2181.22	HEATING, VENT + AIR COND	
2181.24	LIGHTING + SERVICE POWER	
218L.	STACK/RECLAIM TRANSFR TOWR	SEE COST ESTIMATE FOR STRUCT QUANTITIES
218L.1	BUILDING STRUCTURE	
218L.11	EXCAVATION WORK	
218L.111	EXCAVATION-EARTH	
218L.114	BACKFILL-EARTH	
218L.13	SUBSTRUCTURE CONCRETE	
218L.131	FORMWORK	
218L.132	REINFORCING STEEL	
218L.133	CONCRETE	
218L.134	EMBEDDED STEEL	
218L.135	FLOOR FINISH	
218L.14	SUPERSTRUCTURE	
218L.142	STRUCTURAL + MISC STEEL	
218L.1421	STRUCTURAL STEEL	
218L.1422	MISC. STEEL	
218L.1423	FLOOR GRATING	
218L.1424	STAIR TREADS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218B.23	FIRE PROTECTION	
218B.231	FIRE HOSE CABINETS	
218B.232	SPRINKLERS	
218B.24	LIGHTING+SERVICE POWER	
218B.25	ELEVATOR	
218B.251	ELEVATOR EQUIPMENT	
218I.	ELECTRICAL SWITCHGR BLDGS	SEE COST ESTIMATE FOR STRUCT QUANTITIES QUANTITIES GIVEN REPRESENT TOTALS FOR 3 PREFAB BUILDINGS
218I.1	BUILDING STRUCTURE	
218I.11	EXCAVATION WORK	
218I.111	EXCAVATION-EARTH	
218I.114	BACKFILL-EARTH	
218I.13	SUBSTRUCTURE CONCRETE	
218I.131	FORMWORK	
218I.132	REINFORCING STEEL	
218I.133	CONCRETE	
218I.134	EMBEDDED STEEL	
218I.135	FLOOR FINISH	
218I.139	WIRE FABRIC	
218I.14	SUPERSTRUCTURE	
218I.142	STRUCTURAL + MISC. STEEL	
218I.1421	PREFAB BUILDING	
218I.147	DOORS + WINDOWS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218B.2231	ROTATING MACHINERY	
218B.22311	CHILLER + MOTOR	
218B.22322	CHILLED WATER PUMP + MOTOR	
218B.224	BUILDING HEATING SYSTEMS	
218B.2241	HEAT TRANSFER EQUIPMENT	
218B.22411	HEAT+VENT AIR UNIT + MOTOR	
218B.22412	ELECTRIC BASEBOARD HEATERS	
218B.225	PIPING	
218B.2251	2 IN+SMALLER	
218B.22511	CS/NNS	
218B.2252	2.5 IN+LARGER	
218B.22521	CS/NNS	
218B.226	VALVES	
218B.2261	GATE	
218B.2262	CHECK	
218B.2263	GLOBE	
218B.2265	SAFETY/RELIEF	
218B.2268	PLUG	
218B.2269	SPECIAL VALVES	
218B.227	PIPING-MISC. ITEMS	
218B.2271	HANGERS	
218B.228	DUCTWORK	
218B.229	INSTRUMENTATION+CONTROL	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218B.212	FLOOR DRAINS + PIPING	
218B.2121	DRAINS	
218B.2125	PIPING	
218B.21251	2.5 IN+LARGER(CS/NNS)	
218B.21252	2.5 IN+LARGER(C1/NNS)	
218B.213	PLUMBING FIXTURES+PIPING	
218B.2131	FIXTURES	
218B.2132	DOMESTIC WATER HEATERS	
218B.2135	PIPING	
218B.21351	2 IN + SMALLER(CS/NNS)	
218B.21352	2 IN + SMALLER(COPPER/NNS)	
218B.21353	2.5 IN+LARGER(CS/NNS)	
218B.22	HEATING, VENT + AIR COND.	
		EQUIPMENT COST INCLUDES ALL ITEMS LISTED BELOW
218B.221	AIR CONDITIONING SYSTEMS	
218B.2219	FOUNDATIONS/SKIDS	
218B.22191	MULTIZONE AIR UNIT + MOTOR	
218B.222	EXHAUST AIR SYSTEMS	
218B.2223	ROTATING MACHINERY	
218B.22231	TOILET RM EXHAUST FAN+MTR	
218B.22232	FUME HOOD EXHAUST FAN+MTR	
218B.22233	RETURN AIR FANS + MOTORS	
218B.223	REFRIG CHILLED WATER SYS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
218B.1462	MASONRY WALLS	
218B.1463	METAL PARTITIONS	
218B.147	DOORS + WINDOWS	
218B.1471	ROLLING STEEL DOORS	
218B.1472	PERSONNEL DOORS	
218B.1473	SASH + GLAZING	
218B.148	WALLS, FLOOR+CEILING FINISH	
218B.1481	VINYL FLOOR TILE	
218B.1482	CERAMIC TILE FLOOR	
218B.1483	CARPET	
218B.1484	CERAMIC TILE WALL FINISH	
218B.1485	SUSPENDED CEILING	
218B.149	PAINTING	
218B.1491	CONCRETE	
218B.1492	STEELWORK	
218B.1495	HANDRAIL	
218B.1497	DOORS + WALLS	
218B.2	BUILDING SERVICES	
218B.21	PLUMBING + DRAINS	
218B.211	ROOF DRAINS + PIPING	
218B.2111	DRAINS	
218B.2115	PIPING	
218B.21152	2.5 IN+LARGER (GALV/NNS)	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
231.2112	EXCAVATION - ROCK	
231.2114	BACKFILL - EARTH	
231.2115	DEWATERING	
231.213	SUBSTRUCTURE CONCRETE	
231.2131	FORMWORK	
231.2132	REINFORCING STEEL	
231.2133	CONCRETE	
231.2134	EMBEDDED STEEL	
231.2137	RUBBING CONCRETE SURFACE	
231.2138	EXPANSION JOINT	
231.214	SUPERSTRUCTURE	
231.2141	CONCRETE WORK	
231.21411	FORMWORK	
231.21412	REINFORCING STEEL	
231.21413	CONCRETE	
231.21414	EMBEDDED STEEL	
231.21417	RUBBING CONCRETE SURFACES	
231.21418	EXPANSION JOINT	
231.2142	STRUCTURAL + MISC STEEL	
231.21421	STRUCTURAL STEEL	
231.21425	GRATING	
231.4	LUBRICATING OIL SYSTEM	
231.43	TANKS + PRESSURE VESSELS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
231.431	LUBE OIL STORAGE TANK	QUANTITY 1 ORIENTATION HORIZONTAL DIMENSIONS VOLUME 14000 GAL DESIGN PRES. 15 PSIG DESIGN TEMP. 100 F MATERIAL A-283,GR C,CARBO-ZINC LINING DESIGN CODE API
231.45	PIPING	
231.451	2IN. + SMALLER	
231.4511	CS/NNS	
231.452	2.5IN + LARGER	
231.4521	CS/NNS	
231.46	VALVES	
231.461	GATE	
231.47	PIPING-MISC. ITEMS	
231.471	HANGERS + SUPPORTS	ALLOWANCE
231.472	INSULATION	
231.473	SPECIALTIES	
231.48	INSTRUMENTATION + CONTROL	LOCAL INDICATOR 35 TEMPERATURE ELEMENT 2 PROCESS SWITCH 20 ANNUNCIATOR 12
231.49	SKIDS / FOUNDATIONS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
231.491	LUBE OIL CONDNG EQPT SKID	LUBE OIL PURIFIER: QUANTITY 1 TYPE CENTRIFUGAL CAPACITY: MAIN TURBINE 1,050 GPH BFP TURBINE 300 GPH TRANSFER PUMPS + MOTORS: QUANTITY 2 X 100 PCT. FLOW RATE 100 GPM TDH 50 FT
231.492	FIRE PROTECTION EQPT.	TYPE AUTOMATIC DELUGE WATER SPRAY FLOW 1,000 GPM
231.5	GAS SYSTEMS	
231.51	HYDROGEN STORAGE SYSTEM	
231.513	TANKS + PRESSURE VESSELS	
231.5131	HYDROGEN STORAGE BOTTLES	PERMANENT STORAGE TANK CAPACITY FOR 51000 SCF
231.515	PIPING	
231.5151	2 IN + SMALLER	
231.5152	2.5 IN + LARGER	
231.51521	CS/NNS	
231.516	VALVES	
231.5163	GLOBE	
231.517	PIPING-MISC ITEMS	
231.5171	HANGERS + SUPPORTS	
231.5172	INSULATION	
231.5173	SPECIALTIES	
231.52	CARBON DIOXIDE STORAGE SYS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
231.523	TANKS + PRESSURE VESSELS	
231.5231	CARBON DIOXIDE TANKS	PERMANENT STORAGE TANK CAPACITY FOR 17500 SCF
231.525	PIPING	
231.5251	2 IN + SMALLER	
231.5252	2.5 IN + LARGER	
231.52521	CS/NNS	
231.526	VALVES	
231.5263	GLOBES	
231.527	PIPING-MISC ITEMS	
231.5271	HANGER + SUPPORT	
233.	CONDENSING SYSTEMS	
233.1	CONDENSER EQUIPMENT	
233.12	HEAT TRANSFER EQUIPMENT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.121	CONDENSERS	QUANTITY 1 X 100 PCT. CONDENSER WITH 2 SHELLS TYPE 1 PASS, MULTI-PRESSURE ORIENTATION LONGITUDINAL SURFACE AREA 635,749 SQ FT DESIGN EXHAUST : FIRST SHELL 2.72 IN HG ABS SECOND SHELL 3.81 IN HG ABS HEAT LOAD: TOTAL 4.07 E+09 BTU/HR TEMP RISE: TOTAL 26 F SHELL CONDITION: DES. PRESS/TEMP 80 PSIG/150 F FLOW RATE : FIRST SHELL 2.14 E+06 LB/HR SECOND SHELL 2.04 E+06 LB/HR MATERIAL CARBON STEEL TUBE CONDITION: QUANTITY 46,243 SIZE 0.75 IN DIA., 18 BWG LENGTH 70 FT DES. PRESS/TEMP MATERIAL 90 - 10 CU - NI DESIGN CODE ASME SECTION VIII, DIV 1 FLOW RATE 312,904 GPM INLET WATER: DES. 92 F MAX. 93 F VELOCITY 6.5 FPS MATERIAL 90-10 CU-NI DESIGN CODE ASME SECTION VIII, DIV 1
233.2	CONDENSATE SYSTEM	
233.21	ROTATING MACHINERY	
233.211	CONDENSATE PUMP + MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.2111	COND PUMP	QUANTITY - 3 X 50 PCT. TYPE - CENTRIFUGAL, MULTISTAGE ORIENTATION - VERTICAL FLOW RATE - 5,300 GPM SPEED - 1,750 RPM TDH - 200 FT AT DESIGN CAP. BHP - 323 HP NPSH - 16 FT EFFICIENCY - 83 PCT. DESIGN PRESS - 125 PSIG DESIGN TEMP - 150 F MATERIAL - CASING: C.I. IMPELLER: 1ST STG CAGNM SHAFT: 401 SS DESIGN CODE -
233.2112	COND PUMP MOTOR	QUANTITY - TYPE - T.E.F.C. HORSEPOWER - 350 HP SPEED - 1,750 RPM VOLTAGE - 4 KV, 3 PH, 60 HZ
233.212	BOOSTER PUMP + MOTOR	
233.2121	BOOSTER PUMP	QUANTITY - 3 X 33-1/3 PCT. TYPE - CENTRIFUGAL, MULTISTAGE ORIENTATION - HORIZONTAL FLOW RATE - 4,230 GPM SPEED - 3,500 RPM TDH - 770 FT AT DESIGN CAP. BHP - 956 HP NPSH - 50 FT EFFICIENCY - 86 PCT. DESIGN PRESS - 650 PSIA DESIGN TEMP - 120 F MATERIAL - CASING, IMPELLER AND SHAFT - CHROME STEEL DESIGN CODE -
233.2122	BOOSTER PUMP MOTOR	QUANTITY - TYPE - T.E.F.C. HORSEPOWER - 1,000 HP SPEED - 3,600 RPM VOLTAGE - 4 KV, 3 PH, 60 HZ

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MODEL 620 - 0801 MWE/2200-MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.213	TRANSFER PUMP + MOTOR	
233.2131	TRANS PUMP	QUANTITY 2 X 100 PCT. TYPE CENTRIFUGAL ORIENTATION HORIZONTAL FLOW RATE 800 GPM SPEED 3,600 RPM TDH 40 FT BHP 10 HP NPSH 15 FT EFFICIENCY 80 PCT. DESIGN PRES 50 PSI DESIGN TEMP 100F MATERIAL CASING, IMPELLER AND SHAFT -- CHROME STEEL DESIGN CODE
233.2132	TRANS PUMP MOTOR	TYPE T.E.F.C. HORSEPOWER - 15 HP SPEED 3,600 RPM VOLTAGE 460 V, 3 PH, 60 HZ
233.221	COND. STORAGE TK HEATER	QUANTITY 1 TYPE STEAM INJECTION MATERIAL S/S SIZE 1 INCH TUBING
233.23	TANKS & PRESSURE VESSELS	
233.231	CONDENSATE STORAGE TANK	QUANTITY - 1 ORIENTATION - VERTICAL DIMENSIONS - 46 FT DIA X 40 FT H VOLUME - 500,000 GAL DESIGN PRESS - ATMOS. DESIGN TEMP - 100 F MATERIAL - ALUMINUM DESIGN CODE -
233.25	PIPING	
233.251	2 IN. + SMALLER	
233.2511	CS/NNS	
233.252	2.5 IN. + LARGER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.2521	CS/NNS	
233.26	VALVES	
233.261	GATE VALVES	
233.262	CHECK VALVES	
233.263	GLÖBE VALVES	
233.266	BUTTERFLY	
233.267	BALL VALVES	
233.27	PIPING-MISC. ITEMS	
233.271	HANGERS + SUPPORTS	
233.272	INSULATION	
233.273	SPECIALTIES	
233.28	INSTRUMENTATION + CONTROL	TRANSMITTER LOCAL INDICATOR 38 BOARD MOUNTED INDICATOR 28 RECORDER 2 FLOW ELEMENT 1 CONDUCTIVE ELEMENT 4 TEMP ELEMENT 53 TEMP TRANSMITTER 31 PROCESS SWITCH 17 CONTROLLER 7 ANNUNCIATOR 12 MISC. DEVICES 10
233.29	FOUNDATIONS	
233.291	CONDENSATE TANK FDTN	
233.2911	FORMWORK	
233.2912	REINFORCING STEEL	
233.2913	CONCRETE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.292	CONDENSATE PUMP FDTN	INCLUDED WITH TURBINE ROOM AND HEATER BAY SUBSTRUCTURE CONCRETE
233.2921	FORMWORK	
233.2922	REINF. STEEL	
233.2923	CONCRETE	
233.2924	EMBEDDED IRON	
233.2925	STRUCTURAL STEEL	
233.2926	MISC. STEEL	
233.293	BOOSTER PUMP FDTN	INCLUDED WITH TURBINE ROOM AND HEATER BAY SUBSTRUCTURE CONCRETE
233.2931	FORMWORK	
233.2932	REINF. STEEL	
233.2933	CONCRETE	
233.2934	EMBEDDED IRON	
233.2935	STRUCTURAL STEEL	
233.2936	MISC. STEEL	
233.3	GAS REMOVAL SYSTEM	
233.31	CONDENSER GAS REMOVAL SYS.	
233.311	ROTATING MACHINERY	
233.3111	MECH VACUUM PUMP & MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.31111	MECH VAC PUMP	QUANTITY 2 X 100 PCT. TYPE ROTARY ORIENTATION HORIZONTAL FLOW RATE 64 SCFM AT 1.5 IN SPEED 435 RPM BHP EFFICIENCY DESIGN PRES 150 PSIG DESIGN TEMP 150 F MATERIAL C.I. SHAFT - C.S. DESIGN CODE
233.31112	MECH VAC PUMP MOTOR	TYPE T.E.F.C. HORSEPOWER 200 HP SPEED 1,800 RPM VOLTAGE 460V, 3 PH, 60 HZ
233.315	PIPING	
233.3151	2 IN. + SMALLER	
233.31511	CS/NNS	
233.3152	2.5 IN. + LARGER	
233.31521	CS/NNS	
233.316	VALVES	
233.3161	GATE	
233.3163	GLOBE	
233.317	PIPING-MISC. ITEMS	
233.3171	HANGERS + SUPPORTS	
233.3172	INSULATION	
233.3173	SPECIALTIES	
233.318	INSTRUMENTATION + CONTROL	
233.319	FOUNDATIONS/SKIDS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.3191	VACUUM PUMP FDTN.	INCLUDED WITH TURBINE ROOM AND HEATER BAY SUBSTRUCTURE CONCRETE
233.31911	FORMWORK	
233.31912	REINFORCING STEEL	
233.31913	CONCRETE	
233.31914	EMBEDDED STEEL	
233.5	CONDENSATE POLISHING	
233.51	ROTATING MACHINERY	
233.511	ACID REGEN PUMP + MOTOR	
233.5111	ACID REGEN PUMP	QUANTITY 2 X 100 PCT. TYPE POSITIVE DISPLACEMENT ORIENTATION HORIZONTAL FLOW RATE 0 - 200 GPH SPEED - TDH 100 FT BHP 0.75 HP NPSH 10 FT EFFICIENCY - DESIGN PRES 150 PSIG DESIGN TEMP 150 F MATERIAL ALLOY 20 DESIGN CODE
233.5112	ACID REGEN PUMP MOTOR	TYPE HORSEPOWER 3/4 HP SPEED 1,750 RPM VOLTAGE 460V, 3 PH, 60 HZ
233.512	CAUSTIC REGEN PUMP + MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.5121	CAUSTIC REGEN PUMP	QUANTITY 2 X 100 PCT. TYPE POSITIVE DISPLACEMENT ORIENTATION HORIZONTAL FLOW RATE 0-150 GPH SPEED - TDH 100 FT BHP 0.75 HP NPSH 10 FT EFFICIENCY - DESIGN PRES 150 PSIG DESIGN TEMP 150 F MATERIAL S.S. DESIGN CODE
233.5122	CAUSTIC REGEN PUMP MOTOR	TYPE HORSEPOWER 3/4 HP SPEED 1,750 RPM VOLTAGE 460V, 3 PH, 60 HZ
233.513	AMMONIA REGEN PUMP + MOTOR	
233.5131	AMMONIA REGEN PUMP	QUANTITY 2 X 100 PCT. TYPE CENTRIFUGAL ORIENTATION HORIZONTAL FLOW RATE 5 GPM SPEED 1,800 RPM TDH 100 FT BHP 1 HP NPSH 10 FT EFFICIENCY - DESIGN PRES 150 PSIG DESIGN TEMP 150 F MATERIAL S.S. DESIGN CODE
233.5132	AMMONIA REGEN PUMP MOTOR	TYPE HORSEPOWER 1 HP SPEED 1800 RPM VOLTAGE 460V, 3 PH, 60 HZ
233.514	SLUICE WATER REGEN P+M	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.5141	SLUICE WATER REGEN PUMP	QUANTITY 2 X 100 PCT. TYPE CENTRIFUGAL ORIENTATION HORIZONTAL FLOW RATE 250 GPM SPEED 1,800 RPM TDH 100 FT BHP 15 HP NPSH 10 FT EFFICIENCY DESIGN PRES 150 PSIG DESIGN TEMP 150 F MATERIAL S.S. DESIGN CODE
233.5142	SLUICE WATER REGEN P MOTOR	TYPE T.E.F.C. HORSEPOWER 15 HP SPEED 1800 RPM VOLTAGE 460V, 3 PH, 60 HZ
233.515	RECYCLE PUMP + MOTOR	
233.5151	RECYCLE PUMP	QUANTITY 2 X 100 PCT. TYPE CENTRIFUGAL ORIENTATION HORIZONTAL FLOW RATE 800 GPM SPEED 1,800 RPM TDH 50 FT BHP 15 HP NPSH 10 FT EFFICIENCY DESIGN PRES 150 PSIG DESIGN TEMP 150 F MATERIAL S.S. DESIGN CODE
233.5152	RECYCLE PUMP MOTOR	TYPE T.E.F.C. HORSEPOWER 15 HP SPEED 1800 RPM VOLTAGE 460V, 3 PH, 60 HZ
233.516	AIR BLOWER + MOTOR	
233.5161	AIR BLOWER	QUANTITY 1 TYPE POSITIVE DISPLACEMENT

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.5162	AIR BLOWER MOTOR	TYPE HORSEPOWER SPEED VOLTAGE T.E.F.C. 15 HP 1,800 RPM 460V, 3 PH, 60 HZ
233.53	TANKS + PRESSURE VESSELS	
233.531	RESIN SEPRTR+CATION RGN TK	QUANTITY ORIENTATION DIMENSION VOLUME DESIGN PRES. DESIGN TEMP. MATERIAL DESIGN CODE 1 VERT.W/STRUC.STEEL LEGS 5 FT DIA. X 12 FT STR. SIDE, SKID MOUNTED 260 CU FT 75 PSIG 130 F C.S., RUBBER LINED, W/S.S. INTERNALS ASME SECTION VIII
233.532	ANION REGEN TANK	QUANTITY ORIENTATION DIMENSION VOLUME DESIGN PRES. DESIGN TEMP. MATERIAL DESIGN CODE 1 VERT.W/STRUC.STEEL LEGS 4 FT DIA. X 10 FT STR. SIDE, SKID MOUNTED 135 CU FT 75 PSIG 130 F C.S. RUBBER LINED, W/S.S. INTERNALS ASME SECTION VIII
233.533	RESIN STORAGE TANK	QUANTITY ORIENTATION DIMENSION VOLUME DESIGN PRES. DESIGN TEMP. MATERIAL DESIGN CODE 1 VERT.W/STRUC.STEEL LEGS 5 FT DIA. X 12 FT STR. SIDE, SKID MOUNTED 260 CU FT 75 PSIG 130 F C.S. RUBBER LINED W/S.S. INTERNALS ASME SECTION VIII

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.534	HOT WATER HEATING TANK	QUANTITY 1 ORIENTATION VERTICAL DIMENSION 6 FT DIA X 8 FT ST SIDE VOLUME 225 CU FT DESIGN PRES. 75 PSIG DESIGN TEMP. 300 F MATERIAL C.S. DESIGN CODE ASME SECTION VIII, DIV 1
233.535	BULK ACID STORAGE TANK	QUANTITY 1 ORIENTATION HORIZONTAL DIMENSIONS 8 FT DIA X 14 FT ST. SIDE VOLUME 700 CU FT DESIGN PRES. 75 PSIG DESIGN TEMP. 150 F MATERIAL C.S. - LINED DESIGN CODE ASME SECTION VIII, DIV 1
233.536	BULK CAUSTIC STORAGE TANK	QUANTITY 1 ORIENTATION HORIZONTAL DIMENSIONS 8 FT DIA X 14 FT ST. SIDE VOLUME 700 CU FT DESIGN PRES. 75 PSIG DESIGN TEMP. 150 F MATERIAL C.S. - LINED DESIGN CODE ASME SECTION VIII, DIV 1
233.537	BULK AMMONIA STORAGE TANK	QUANTITY 1 ORIENTATION HORIZONTAL DIMENSIONS 8 FT DIA X 14 FT ST. SIDE VOLUME 700 CU FT DESIGN PRES. 75 PSIG DESIGN TEMP. 150 F MATERIAL C.S. DESIGN CODE ASME SECTION VIII, DIV 1
233.54	PURIFICATION EQUIPMENT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
233.541	MIXED BED DEMINERALIZERS	QUANTITY 5 (INCLUDING 1 SPARE) ORIENTATION VERT. W/DISHED HEADS AND STRUCT. STEEL LEGS RESIN TYPE CATION AND ANION SIZE 8 FT DIA. X 5 FT STR. SIDE RESIN VOLUME CATION - 100 CU FT ANION -- 50 CU FT FLOW RATE 2650 GPM AT 53 GPM/SQFT TOTAL FOR 4 -10,600 GPM FREEBOARD 2 FT BED DEPTH 3.0 FT SKID MOUNTED DESIGN PRES. 200 PSIG DESIGN TEMP. 130 F MATERIAL C.S. RUBBER LINED W/S.S. INTERNALS DESIGN CODE ASME SECTION VIII, DIV 1
233.58	INSTRUMENTATION + CONTROL	
234.	FEED HEATING SYSTEM	
234.1	FEEDWATER HEATERS	
234.12	HEAT TRANSFER EQUIPMENT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.121	NO.1 LP HEATERS	QUANTITY 2 X 50 PCT. TYPE SHELL AND TUBE PASS 2 ORIENTATION HORIZONTAL APPROACH TERM. DIFF. 8 F HEAT LOAD 2.46 E+08 BTU/HR SURFACE AREA SHELL CONDITION: DES.PRESS/TEMP 50 PSIA/200 F STEAM FLOW 121,490 LB/HR DRAIN FLOW 434,538 LB/HR MATERIAL TUBE CONDITION: QUANTITY SIZE DES.PRESS/TEMP 400 PSIA/250 F FLOW RATE 2,610,000 LB/HR MATERIAL 304 S/S DESIGN CODE ASME VIII, DIV 1
234.122	NO.2 LP HEATERS	QUANTITY 2 X 50 PCT. TYPE SHELL AND TUBE PASS 2 ORIENTATION HORIZONTAL APPROACH 15 F TERM. DIFF. 8 F HEAT LOAD 1.87 E+08 BTU/HR SURFACE AREA SHELL CONDITION: DES.PRESS/TEMP 50 PSIA/275 F STEAM FLOW 83,445 LB/HR DRAIN FLOW 345,307 LB/HR MATERIAL TUBE CONDITION: QUANTITY SIZE DES.PRESS/TEMP 400 PSIA/250 F FLOW RATE 2,610,000 LB/HR MATERIAL S/S DESIGN CODE ASME VIII, DIV 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.123	NO.3 LP HEATERS	QUANTITY 2 X 50 PCT. TYPE SHELL AND TUBE PASS 2 ORIENTATION HORIZONTAL APPROACH 15 F TERM. DIFF. 8 F HEAT LOAD 1.87 E+08 BTU/HR SURFACE AREA SHELL CONDITION: DES.PRESS/TEMP 50 PSIA/400 F STEAM FLOW 85,145 LB/HR DRAIN FLOW 261,862 LB/HR MATERIAL TUBE CONDITION: QUANTITY SIZE DES.PRESS/TEMP 400 PSIA/275 F FLOW RATE 2,610,000 LB/HR MATERIAL C.S. DESIGN CODE ASME VIII, DIV 1
234.124	NO 4 LP HEATER	QUANTITY 2 X 50 PCT TYPE SHELL AND TUBE PASS 2 ORIENTATION HORIZONTAL APPROACH 15 F TERM. DIFF. 8 F HEAT LOAD 3.85 E+08 BTU/HR SURFACE AREA SHELL CONDITION: DES.PRESS/TEMP 75 PSIA/500 F STEAM FLOW 176,717 LB/HR DRAIN FLOW 176,717 LB/HR MATERIAL TUBE CONDITION: QUANTITY SIZE DES.PRESS/TEMP 400 PSIA/315 F FLOW RATE 2,610,000 LB/HR MATERIAL 304 S/S DESIGN CODE ASME VIII, DIV 1
234.125	NO 5 LP HEATER/DEAERATOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.1251	DEAERATOR	QUANTITY 1 X 100 PCT. TYPE TRAY ORIENTATION HORIZONTAL APPROACH TERM. DIFF. HEAT LOAD 3.30 E+08 BTU/HR DIMENSIONS VOLUME SHELL CONDITION: DES.PRESS/TEMP 200 PSIA/400 F STEAM FLOW 340,000 LB/HR DRAIN FLOW 6,405,000 LB/HR MATERIAL TRAY CONDITION: QUANTITY MATERIAL DESIGN CODE
234.1252	DEAERATOR STORAGE TANK	QUANTITY 1 X 100 PCT. ORIENTATION HORIZONTAL DIMENSION 12 FT.DIA X 100 FT L VOLUME 84,590 GAL STORAGE BASIS 5MIN STG W/2FT FREEBRD DESIGN PRESS. 200 PSIA DESIGN TEMP. 400 F MATERIAL DESIGN CODE ASME VIII, DIV 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.126	NO 6 HP HEATER	QUANTITY 2 X 50 PCT TYPE SHELL AND TUBE PASS 2 ORIENTATION HORIZONTAL APPROACH 10 F TERM. DIFF. 3 F HEAT LOAD 2.83 E+08 BTU/HR SURFACE AREA SHELL CONDITION: DES.PRESS/TEMP 315 PSIA/625 F STEAM FLOW 117,942 LB/HR DRAIN FLOW 442,309 LB/HR MATERIAL TUBE CONDITION: QUANTITY SIZE DES.PRESS/TEMP 4500 PSIA/425 F FLOW RATE 3,202,500 LB/HR MATERIAL S.S. DESIGN CODE ASME VIII, DIV 1
234.127	NO 7 HP HEATER	QUANTITY 2 X 50 PCT TYPE SHELL AND TUBE PASS 2 ORIENTATION HORIZONTAL APPROACH 10 F TERM. DIFF. 3 F HEAT LOAD 5.56 E+08 BTU/HR SURFACE AREA SHELL CONDITION: DES.PRESS/TEMP 675 PSIA/580 F STEAM FLOW 324,368 LB/HR DRAIN FLOW 324,368 LB/HR MATERIAL TUBE CONDITION: QUANTITY SIZE DES.PRESS/TEMP 4,500 PSIA/525 F FLOW RATE 3,202,500 LB/HR MATERIAL 304 S/S DESIGN CODE ASME VIII, DIV 1
234.2	FEEDWATER SYSTEM	
234.21	ROTATING MACHINERY	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.211	MAIN BOILER FEED PUMP-MBFP	QUANTITY - 2X50 PCT TYPE - CENTRIFUGAL, 4 STAGES ORIENTATION - HORIZONTAL FLOW RATE - 8,750 GPM SPEED - 5,800 RPM TDH - 11,200 FT BHP - 27,160 HP NPSH - 150 FT EFFICIENCY - 80 PCT. DESIGN PRESS - 5,000 PSIA DESIGN TEMP - 375 F MATERIAL - CHROME STEEL DESIGN CODE -
234.212	MBFP TURBINE DRIVES	QUANTITY - 2 X 50 PCT. TYPE - MULTI-STAGE STEAM CONDENSER HORSEPOWER - 27,160 HP SPEED - 5,800 RPM VOLTAGE - ACCESSORIES - LUBE OIL SYSTEM GLAND SEAL SYSTEM
234.216	MAIN BF BOOSTER PUMP + MTR	
234.2161	MAIN BF BOOSTER PUMP	QUANTITY - 2 X 50 PCT TYPE - ORIENTATION - HORIZONTAL FLOW RATE - 8,750 GPM SPEED - 1,750 RPM TDH - 150 FT DES. CAPACITY BHP - 365 HP NPSH - 70 FT EFFICIENCY - 80 PCT. DESIGN PRESS - 250 PSI DESIGN TEMP - 370 F MATERIAL - DESIGN CODE -
234.2162	MAIN BF BOOSTER PUMP MTR.	TYPE - A.C. INDUCTION HORSEPOWER - 400 HP SPEED - 1,750 RPM VOLTAGE - 4 KV, 3 PH, 60 HZ
234.22	HEAT TRANSFER EQUIPMENT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.221	MAIN BOILER FP CONDENSER	NONE. USES MAIN CONDENSER
234.25	PIPING	
234.251	2 IN + SMALLER	
234.2511	CS/PC	
234.2512	CS/BC	
234.252	2.5IN + LARGER	
234.2521	CS/PC	
234.26	VALVES	
234.261	GATE	
234.262	CHECK	
234.263	GLOBE	
234.27	PIPING-MISC. ITEMS	
234.271	HANGERS & SUPPORTS	
234.272	INSULATION	
234.273	SPECIALTIES	
234.28	INSTRUMENTATION + CONTROL	TRANSMITTER 28 LOCAL INDICATOR 23 BOARD MOUNTED INDICATOR 70 RECORDER 2 FLOW ELEMENT 11 TEMP ELEMENT 21 TEMP TRANSMITTER 12 PROCESS SWITCH 4 CONTROLLER 5 ANNUNCIATOR 2 MISC. DEVICES 18
234.29	SKIDS/FOUNDATIONS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.291	MBFP	INCLUDED WITH TURBINE ROOM AND HEATER BAY SUBSTRUCTURE CONCRETE
234.2911	FORMWORK	
234.2912	REINFORCING STEEL	
234.2913	CONCRETE	
234.2914	EMBEDDED STEEL	
234.3	EXTRACTION STEAM SYSTEM	
234.35	PIPING	
234.351	2 IN + SMALLER	
234.3511	CS/NNS	
234.352	2.5IN + LARGER	
234.3521	CS/NNS	
234.36	VALVES	
234.361	GATE	
234.362	CHECK	
234.363	GLOBE	
234.37	PIPING-MISCELLANEOUS	
234.371	HANGER + SUPPORTS	
234.372	INSULATION	
234.373	SPECIALTIES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.38	INSTRUMENTATION + CONTROL	TRANSMITTER 21 LOCAL INDICATOR 4 BOARD MOUNTED INDICATOR 32 FLOW ELEMENT 10 PROCESS SWITCH 17 CONTROLLER 1 ANNUNCIATOR 20 MISC. DEVICES 11
234.4	FWH VENT + DRAIN SYSTEM	
234.41	ROTATING MACHINERY	
234.411	HEATER DRAIN PUMP + MOTOR	
234.4111	HEATER DRAIN PUMP	QUANTITY 2 X 50 PCT. ORIENTATION VERTICAL FLOW RATE 1,060 GPM SPEED 1,780 RPM TDH 200 FT BHP 67 HP NPSH 17.4 FT EFFICIENCY 80 PCT. DESIGN PRESS. 350 PSIG DESIGN TEMP. 350 F MATERIAL CASING : C.S. IMPELLER: CHR. NI DESIGN CODE
234.4112	HEATER DRAIN PUMP MOTOR	TYPE A.C. INDUCTION HORSEPOWER 75 HP SPEED 1,800 RPM VOLTAGE 460 V, 3 PH, 60 HZ
234.43	TANKS + PRESSURE VESSELS	
234.431	HEATER DRAIN TANK	QUANTITY 1 ORIENTATION - HORIZONTAL DIMENSIONS.- 6 FT DIA X 9.5 FT ST SD VOLUME - 1,930 GAL DESIGN PRESS.- 50 PSIG DESIGN TEMP.- 200 F MATERIAL - S.S. DESIGN CODE - ASME SECTION VIII DESIGN CODE - ASME SECTION VIII

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
234.45	PIPING	
234.451	2 IN + SMALLER	
234.4511	CS/PC	
234.452	2.5IN + LARGER	
234.4521	CS/PC	
234.4522	CR-MO/PC	
234.46	VALVES	
234.461	GATE	
234.462	CHECK	
234.463	GLOBE	
234.47	PIPING-MISC. ITEMS	
234.471	HANGERS & SUPPORTS	
234.472	INSULATION	
234.473	SPECIALTIES	
234.48	INSTRUMENTATION + CONTROL	TRANSMITTER 22 LOCAL INDICATOR 20 BOARD MOUNTED INDICATOR 4 FLOW ELEMENT 3 TEMP ELEMENT 17 PROCESS SWITCH 25 CONTROLLER 18 ANNUNCIATOR 23
235.	OTHER TURBINE PLANT EQUIP.	
235.1	MAIN VAPOR PIPING SYSTEM	
235.11	MAIN STEAM SYSTEM	
235.115	PIPING	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.1151	2 IN + SMALLER	
235.11511	CR-MO	
235.1152	2.5 IN + LARGER	
235.11521	CR-MO	
235.116	VALVES	
235.1161	GATE	
235.1162	CHECK	
235.1163	GLOBE	
235.1165	RELIEF	
235.117	PIPING-MISC ITEMS	
235.1171	HANGERS + SUPPORTS	
235.1172	INSULATION	
235.1173	SPECIALTIES	
235.11732	STEAM TRAPS + STRAINERS	
235.118	INSTRUMENTATION+CONTROL	TRANSMITTER 9 LOCAL INDICATOR 4 BOARD MOUNTED INDICATOR 4 RECORDER 3 TEMPERATURE ELEMENT 24 CONTROLLER 1 ANNUNCIATOR 1 MISCELLANEOUS DEVICES 2
235.12	HOT REHEAT SYSTEM	
235.125	PIPING	
235.1251	2 IN + SMALLER	
235.12511	CR-MO/PC	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.1252	2.5IN + LARGER	
235.12521	CR-MO/PC	
235.126	VALVES	
235.1261	GATE	
235.1263	GLOBE	
235.1265	SAFETY/RELIEF	
235.127	PIPING-MISC. ITEMS	
235.1271	HANGERS + SUPPORTS	
235.1272	INSULATION	
235.1273	SPECIALTIES	
235.12732	TRAPS + STRAINERS	
235.128	INSTRUMENTATION + CONTROL	TRANSMITTER 5 LOCAL INDICATOR 7 RECORDER 1 TEMPERATURE ELEMENT 24 ANNUNCIATOR 1 MISCELLANEOUS DEVICES 1
235.13	COLD REHEAT SYSTEM	
235.135	PIPING	
235.1351	2 IN + SMALLER	
235.13511	CS/PC	
235.1352	2.5 IN + LARGER	
235.13521	CS/PC	
235.136	VALVES	
235.1361	GATE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.1362	CHECK	
235.1363	GLOBE	
235.1365	RELIEF	
235.137	PIPING-MISC. ITEMS	
235.1371	HANGERS + SUPPORTS	
235.1372	INSULATION	
235.1373	SPECIALTIES	
235.13732	TRAPS + STRAINERS	
235.138	INSTRUMENTATION + CONTROL	TRANSMITTER 5 LOCAL INDICATOR 2 TEMPERATURE ELEMENT 18 PROCESS SWITCH 4 CONTROLLER 2 ANNUNCIATOR 1
235.15	ATTEMPERATING SYSTEM	FOR COLD REHEAT, SUPERHEAT DND AUXILIARY STEAM
235.155	PIPING	
235.1551	2 IN + SMALLER	
235.15511	CS/PC	
235.1552	2.5 IN + LARGER	
235.15521	CS/PC	
235.156	VALVES	
235.1561	GATE	
235.1562	CHECK	
235.157	PIPING-MISC ITEMS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.1571	HANGERS + SUPPORTS	
235.1572	INSULATION	
235.1573	SPECIALTIES	
235.15732	STEAM TRAPS + STRAINERS	
235.158	INSTRUMENTATION + CONTROL	
235.173	SPECIALTIES	
235.2	TURBINE AUXILIARIES	
235.21	MAIN STM/RHT VENTS & DRAIN	
235.215	PIPING	
235.2151	2 IN + SMALLER	
235.21511	CS/PC	
235.21512	CR-MO/PC	
235.2152	2.5 IN + LARGER	
235.21521	CS/PC	
235.21522	CR-MO/PC	
235.216	VALVES	
235.217	PIPING-MISC. ITEMS	
235.2171	HANGERS + SUPPORTS	
235.2172	INSULATION	
235.2173	SPECIALTIES	
235.218	INSTRUMENTATION + CONTROL	
235.3	TB CLOSED CLG WATER SYS	
235.31	ROTATING MACHINERY	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.311	TB CLOSED CLG WTR PUMP	
235.3111	TB CCW PUMP	QUANTITY 3 X 50 PCT. TYPE CENTRIFUGAL ORIENTATION HORIZONTAL FLOW RATE 4,000 GPM SPEED 1,775 RPM TDH 120 FT BHP 151 HP NPSH 16 FT EFFICIENCY 80 PCT. DESIGN PRESS 250 PSIG DESIGN TEMP 150 F MATERIAL CAST IRON CASING CHROME STEEL IMPELLER DESIGN CODE
235.3112	TB CCW PUMP MOTOR	TYPE AC INDUCTION HORSEPOWER 200 HP SPEED 1,800 RPM VOLTAGE 460 V, 3 PH, 60 HZ
235.32	HEAT TRANSFER EQUIPMENT	
235.321	HEAT EXCHANGERS	QUANTITY 2 X 50 PCT. TYPE SHELL AND TUBE TEMA TYPE AFL ORIENTATION HORIZONTAL HEAT LOAD 2.66 E07 BTU/HR SURFACE AREA 9,340 SQ FT SHELL CONDITION DES.PRES/TEMP 150 PSIG / 150 F TEMP IN/OUT 108 F / 95 F FLOW RATE 4,000 GPM MATERIAL CARBON STEEL TUBE CONDITION QUANTITY 2,380 - 20 FT LONG SIZE 3/4 IN O.D. 18 BWG DES.PRES/TEMP 150 PSIG / 100 F TEMP IN/OUT 85 F / 95 F FLOW RATE 5,400 GPM MATERIAL 90:10 CU-NI DESIGN CODE ASME SECTION VIII
235.33	TANKS + PRESSURE VESSELS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.331	HEAD TANK	QUANTITY 1 ORIENTATION HORIZONTAL DIMENSION 4.5 FT DIA X 7 FT LONG 3/8 INCH WALL VOLUME 900 GAL DESIGN PRES. 15 PSIG DESIGN TEMP. 100 F MATERIAL ASTM A283 GRC DESIGN CODE API
235.35	PIPING	
235.351	2 IN. + SMALLER	
235.3511	CS/NNS	
235.352	2.5 IN + LARGER	
235.3521	CS/NNS	
235.36	VALVES	
235.361	GATE	
235.362	CHECK	
235.363	GLOBE	
235.365	RELIEF	
235.366	BUTTERFLY	
235.368	PLUG	
235.37	PIPING-MISC. ITEMS	
235.371	HANGERS + SUPPORTS	
235.372	INSULATION	
235.373	SPECIALTIES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.38	INSTRUMENTATION + CONTROL	TRANSMITTER 1 LOCAL INDICATOR 74 TEMPERATURE ELEMENT 100 ANNUNCIATOR 2 MISCELLANEOUS DEVICES 2
235.4	DEMIN.WATER MAKE-UP SYSTEM	TYPE - ACTIVATED CARBON PREFILTERS, FOLLOWED BY CATION-ANION MIXED BED DEMINERALIZERS, ARRANGED IN TWO TRAINS WITH COMMON VACUUM DEGASIFIER. FLOW RATE 360,000 GPD DESIGN CODE ASME SECTION VIII
235.45	PIPING	
235.451	2 IN + SMALLER	
235.4511	CS/NNS	
235.452	2.5 IN + LARGER	
235.4521	CS/NNS	
235.46	VALVES	
235.47	PIPING-MISC ITEMS	
235.48	INSTRUMENTATION + CONTROL	ALLOWANCE
235.49	SKIDS / FOUNDATIONS	
235.491	DEMINERALIZER PACKAGE	
235.4911	ROTATING MACHINERY	
235.49111	ACID REGENERANT P+M	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.491111	ACID REGENERANT PUMP	QUANTITY 2 X 100 PCT. TYPE POSITIVE DISPLACEMENT ORIENTATION HORIZONTAL FLOW RATE 0 - 200 GPH SPEED VARIABLE TDH 100 PSIG BHP 3/4 HP NPSH 10 FT EFFICIENCY DESIGN PRES. 150 PSIG DESIGN TEMP. 100 F MATERIAL ALLOY 20 DESIGN CODE ASME VIII, DIV 1
235.491112	ACID REGENERANT PUMP MOTOR	TYPE T.E.F.C. HORSEPOWER 3/4 HP SPEED VARIABLE VOLTAGE 460V, 3 PH, 60 HZ
235.49112	CAUSTIC REGENERANT P+M	
235.491121	CAUSTIC REGEN PUMP	QUANTITY 2 X 100 PCT. TYPE POSITIVE DISPLACEMENT ORIENTATION HORIZONTAL FLOW RATE 0 - 85 GPH SPEED VARIABLE TDH 100 PSIG BHP 3/4 HP NPSH 10 FT EFFICIENCY DESIGN PRESS 150 PSIG DESIGN TEMP 100 F MATERIAL 316 S.S. DESIGN CODE ASME VIII, DIV 1
235.491122	CAUSTIC REGEN PUMP MOTOR	TYPE T.E.F.C. HORSEPOWER 3/4 HP SPEED VARIABLE VOLTAGE 460 V, 3 PH, 60 HZ
235.49113	DEGASIFIER EVACUATING P+M	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.491131	DEGASIFIER EVAC PUMP	QUANTITY 3 X 50 PCT. TYPE ROTARY - WATER SEALED ORIENTATION FLOW RATE 200 ACFM AT 20 MM HG.A SPEED TDH BHP 0.6 HP NPSH EFFICIENCY DESIGN PRES. DESIGN TEMP. MATERIAL S/S DESIGN CODE ASME VIII, DIV 1
235.491132	DEGASIFIER EVAC PUMP MOTOR	TYPE HORSEPOWER 20 HP SPEED VOLTAGE 460 V, 3 PH, 60 HZ
235.49114	DEGASIFIER BOOSTER P+M	
235.491141	DEGASIFIER BOOSTER PUMP	QUANTITY 2 X 100 PCT TYPE CENTRIFUGAL ORIENTATION HORIZONTAL FLOW RATE 250 GPM SPEED 1,800 RPM TDH 200 FT BHP 16 HP EFFICIENCY 80 DESIGN PRES. 150 PSIG DESIGN TEMP. 100 F MATERIAL 316 S.S. DESIGN CODE
235.491142	DEGASIFIER BOOSTER P MOTOR	TYPE T.E.F.C. HORSEPOWER 20 HP SPEED 1,800 RPM VOLTAGE 460V, 3 PH, 60 HZ
235.49121	DILUTE CAUSTIC WATER HTR.	
235.4913	TANKS + PRESSURE VESSELS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.49131	VACUUM DEGASIFIER	8 FT DIA. BY 7 FT HIGH STORAGE SECTION WITH 4 FT DIA. BY 18 FT HIGH TWO STAGE DEGASIFIER
235.49132	ACID REGENERANT DAY TANK	QUANTITY 1 ORIENTATION VERTICAL DIMENSIONS 2.5 FT DIA X 3 FT HIGH VOLUME 135 GAL DESIGN PRES. ATMOSPHERIC DESIGN TEMP. 100 F MATERIAL 10 GAUGE C.S. WITH 1/8 IN PLASTISOL LINER DESIGN CODE API
235.49133	CAUSTIC REGENERANT DAY TK	QUANTITY 1 ORIENTATION VERTICAL DIMENSION 2.5 FT DIA X 3.5 FT HIGH VOLUME 215 GAL DESIGN PRES. ATMOSPHERIC DESIGN TEMP. 100 F MATERIAL 10 GAUGE C.S. WITH 1/8 IN PLASTISOL LINER DESIGN CODE API
235.49134	HT WTR CAUSTIC DILUTION TK	QUANTITY 1 ORIENTATION VERTICAL-W STEEL LEGS DIMENSIONS 4 FT DIA X 5 FT STR VOLUME 600 GAL DESIGN PRES. 75 PSIG DESIGN TEMP. 200 F MATERIAL STEEL WITH RUBBER LINER DESIGN CODE ASME VIII, DIV 1
235.4914	PURIFICATION+FILTRATION EQ	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.49141	FILTERS	QUANTITY - 3 X 50 PCT. TYPE - CHARCOAL FILTER MEDIA - 150 CU FT CARBON VESSEL SIZE - 5.5 FT DIA FLOW RATE - 250 GPM DESIGN PRESS - 100 PSIG DESIGN TEMP - 100 F DIFF. PRESS - CLEAN/DIRTY - RATING/SIZE - MATERIAL - CS DIRT CAPACITY - 17 LB DESIGN CODE ASME VIII, DIV 1
235.49142	CATION ION EXCHANGE BEDS	QUANTITY - 2 X 100 PERCENT ORIENTATION - VERTICAL RESIN TYPE - IR-200, STRONG ACID RESIN SIZE - 5.5 FT DIA RESIN VOLUME - 110 CU FT FLOW RATE - 250 GPM FREEBOARD - 4FT BED DEPTH - 4FT DESIGN PRESS - 100 PSIG DESIGN TEMP - 100 F MATERIAL - CS W RUBBER LINER, SS INTERNALS
235.49143	ANION ION EXCHANGE BEDS	QUANTITY - 2 X 100 PERCENT ORIENTATION - VERTICAL IRA-402, STRONG BASE SIZE - 5 FT DIA RESIN VOLUME - 70 CU FT FLOW RATE - 250 GPM FREEBOARD - 3.25FT BED DEPTH - 3.25FT DESIGN PRESS - 100 PSIG DESIGN TEMP - 100 F MATERIAL - CS W RUBBER LINER, SS INTERNALS

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT
NUMBER

ITEM

DESCRIPTION

235.49144 MIXED-BED ION EXCHANGE BED

QUANTITY - 2 X 100 PERCENT
ORIENTATION - VERTICAL
IR-120,STRONG ACID RES
IRA-402,STRONG BASE RES
SIZE 5 FT DIA
RESIN VOLUME 22.5 CU FT:IR-120
30 CU FT:IRA-402
FLOW RATE 250 GPM
FREEBOARD - 2.5FT
BED DEPTH - 2.5FT
DESIGN PRESS - 100 PSIG
DESIGN TEMP - 100 F
MATERIAL - CS W RUBBER LINER,
SS INTERNALS

235.5 CHEMICAL TREATMENT SYSTEM

235.51 ROTATING MACHINERY

235.511 AMMONIA FEED PUMP + MOTOR

235.5111 AMMONIA FEED PUMP

QUANTITY 2 X 100 PCT.
TYPE POSITIVE DISPLACEMENT
ORIENTATION HORIZONTAL
FLOW RATE 0 - 5 GPH
SPEED VARIABLE
TDH 900 PSIG
BHP 3/4 HP
NPSH 10FT
EFFICIENCY
DESIGN PRES. 1000 PSIG
DESIGN TEMP. 100 F
MATERIAL WETTED PARTS 316 SS
CONTROL AUTOMATIC ON CHEMICAL
DEMAND

235.5112 AMMONIA FEED PUMP MOTOR

TYPE T.E.F.C.
HORSEPOWER 3/4 HP
SPEED VARIABLE
VOLTAGE 460V, 3 PH, 60 HZ

235.512 HYDRAZINE FEED PUMP+MOTOR

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.5121	HYDRAZINE FEED PUMP	QUANTITY 2 X 100 PCT. TYPE POSITIVE DISPLACEMENT ORIENTATION HORIZONTAL FLOW RATE 0 - 5 GPH SPEED VARIABLE TDH 900 PSIG BHP 3/4 HP NPSH 10FT EFFICIENCY DESIGN PRES. 1000 PSIG DESIGN TEMP. 100 F MATERIAL WETTED PARTS 316 SS DESIGN CODE ASME VIII, DIV 1 CONTROL AUTOMATIC ON CHEMICAL DEMAND
235.5122	HYDRAZINE FEED PUMP MOTOR	TYPE T.E.F.C. HORSEPOWER 3/4 HP SPEED VARIABLE VOLTAGE 460V, 3 PH, 60 HZ
235.53	TANKS + PRESSURE VESSELS	
235.531	AMMONIA STORAGE TANK	QUANTITY 1 ORIENTATION VERTICAL DIMENSION 3 FT DIA X 4 FT HIGH VOLUME 100 DESIGN PRES. ATMOSPHERIC DESIGN TEMP. 100 F MATERIAL 304 S.S. DESIGN CODE NONE
235.532	HYDRAZINE STORAGE TANK	QUANTITY 1 ORIENTATION VERTICAL DIMENSION 3 FT DIA X 4 FT HIGH VOLUME 100 DESIGN PRES. ATMOSPHERIC DESIGN TEMP. 100 F MATERIAL 304 S.S. DESIGN CODE NONE
235.55	PIPING	
235.551	2 IN + SMALLER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.33112	FUEL OIL PUMP MOTOR	QUANTITY - 3 TYPE - HORSEPOWER - 5 HP SPEED - 1800 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.335	PIPING	
252.3351	2IN + SMALLER	
252.33511	CS/NNS	
252.3352	2.5IN + LARGER	
252.33521	CS/NNS	
252.336	VALVES	
252.3362	CHECK	
252.3368	PLUG	
252.337	PIPING - MISC ITEMS	
252.3371	HANGERS + SUPPORTS	
252.3372	INSULATION	
252.3373	SPECIALTIES	
252.34	AUX DEAR + MAKEUP SYSTEM	
252.341	ROTATING MACHINERY	
252.3411	CONDENSATE RETURN PUMP+MT	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.32511	CS/NNS	
252.3252	2.5 IN + LARGER	
252.32521	CS/NNS	
252.326	VALVES	
252.3261	GATE	
252.3262	CHECK	
252.3263	GLOBE	
252.327	PIPING - MISC. ITEMS	
252.3271	HANGERS + SUPPORTS	
252.3272	INSULATION	
252.3273	SPECIALTIES	
252.33	AUX FUEL OIL SYSTEM	
252.331	ROTATING MACHINERY	
252.3311	FUEL OIL PUMPS + MOTORS	
252.33111	FUEL OIL PUMP	QUANTITY - 3 X 50 PCT. TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 30 GPM SPEED - 1800 RPM TDH - 350 FT BHP - 3 HP NPSH - 10 FT EFFICIENCY - 70 PCT. DESIGN PRESS - 200 PSIG DESIGN TEMP - 125 F. MATERIAL - CAST IRON CASING DESIGN CODE -

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.316	VALVES	
252.3161	GATE	
252.3162	CHECK	
252.3163	GLOBE	
252.317	PIPING - MISC ITEMS	
252.3171	HANGERS + SUPPORTS	
252.3172	INSULATION	
252.3173	SPECIALTIES	
252.32	AUX BOILER FEEDWATER SYS	
252.321	ROTATING MACHINERY	
252.3211	AUX FW PUMPS + MOTORS	INCLUDED WITH AUXILIARY BOILER PACKAGE
252.32111	AUX FW PUMPS	QUANTITY - 3 X 50 PCT. TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 285 GPM SPEED - 1775 RPM TDH - 700 FT BHP - 71 HP NPSH - 11 FT EFFICIENCY - 57 PCT. DESIGN PRESS - 275 PSI DESIGN TEMP - 300 F MATERIAL - IMP. CHROME STEEL DESIGN CODE -
252.32112	AUX FW MOTORS	QUANTITY - 3 TYPE - TENV HORSEPOWER - 75 HP SPEED - 1800 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.325	PIPING	
252.3251	2 IN + SMALLER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.24691	SAFETY SHOWER	
252.24692	EYE WASH	
252.24693	HOSE BIBBS	
252.247	PIPING-MISC ITEMS	
252.2471	HANGERS + SUPPORTS	
252.2472	INSULATION	
252.2473	SPECIALTIES	
252.248	INSTRUMENTATION + CONTROL	ALLOWANCE
252.3	AUXILIARY STEAM SYSTEM	
252.31	AUXILIARY BOILER SYSTEM	
252.312	HEAT TRANSFER EQUIPMENT	
252.3121	AUXILIARY BOILERS	QUANTITY - 2 X 100 PCT. TYPE - PRESSURIZED FURN., W.T. RATING - 125,000 LB/HR SUPERHEAT STEAM AT 600 F, 225 PSIG HEAT RELEASE - HEAT ABSORP. - FURN. SURFACE - HEATING SURF. - DES. PRESS. - DES. TEMP. - BURNER TYPE - AIR/STEAM ATOMIZING IGNITOR TYPE - ELEC. ARC
252.315	PIPING	
252.3151	2IN + SMALLER	
252.31511	CS/NNS	
252.3152	2.5IN + LARGER	
252.31521	CS/NNS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.227	PIPING - MISC ITEMS	
252.2271	HANGERS + SUPPORTS	
252.2272	INSULATION	
252.2273	SPECIALTIES	
252.22731	HOSE HOUSES	
252.22732	FIRE HYDRANTS	
252.228	INSTRUMENTATION+CONTROL	
		QUANTITY
		LOCAL INDICATOR - 18
		BOARD MOUNTED INDICATOR - 6
		PROCESS SWITCH - 6
		CONTROLLERS - 4
252.24	POTABLE WATER SYSTEM	
252.245	PIPING	
252.2451	2IN + SMALLER	
252.24511	GALV/NNS	
252.24512	CU/NNS	
252.2452	2.5IN + LARGER	
252.24521	GALV/NNS	
252.246	VALVES	
252.2461	GATE	
252.2462	CHECK	
252.2463	GLOBE	
252.2465	SAFETY/RELIEF	
252.2469	SPECIAL VALVES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.22131	JOCKEY PUMP	QUANTITY - 1 X100 PCT. TYPE - CENTRIFUGAL ORIENTATION - VERTICAL FLOW RATE - 50 GPM SPEED - 1770 RPM TDH - 125 PSI BHP - 8.1 HP NPSH - EFFICIENCY - 45 PCT. DESIGN PRESS - 200 PSIG DESIGN TEMP - 100 F MATERIAL - C.S. DESIGN CODE - NATIONAL FIRE PROTECTION ASSOCIATION
252.22132	JOCKEY PUMP MOTOR	TYPE - HORSEPOWER - 10 HP SPEED - 1770 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.225	PIPING	
252.2252	2.5IN + LARGER	
252.22521	CS/NNS	
252.22522	CS/NNS	
252.226	VALVES	
252.2261	STANDARD VALVES	
252.2262	E-RATED VALVES	
252.22621	GATE	
252.22622	CHECK	
252.22625	RELIEF	
252.22629	SPECIAL VALVES	
252.226291	POST INDICATOR GATE	
252.226292	DELUGE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.2211	DIESEL ENGINE FIRE PUMPS	QUANTITY - 1 TYPE - CENTRIFUGAL ORIENTATION - VERTICAL FLOW RATE - 1500 GPM SPEED - 1750 RPM TDH - 125 PSI BHP - 148 HP NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE - NATIONAL FIRE PROTECTION ASSOCIATION COMPLETE WITH ALL ACCESSORIES AND CONTROLS
252.2212	MOTOR DRIVEN FIRE PUMPS	
252.22121	FIRE PUMP	QUANTITY - 2 X100 PCT. TYPE - CENTRIFUGAL ORIENTATION - VERTICAL FLOW RATE - 1500 GPM SPEED - 1770 RPM TDH - 125 PSI BHP - 148 HP NPSH - EFFICIENCY - 74 PCT. DESIGN PRESS - 200 PSIG DESIGN TEMP - 100 F MATERIAL - C.S. SAFETY CLASS - NNS SEISMIC CAT. - NONE DESIGN CODE - NATIONAL FIRE PROTECTION ASSOCIATION COMPLETE WITH ALL ACCESSORIES AND CONTROLS
252.22122	FIRE PUMP MOTOR	TYPE - TENV HORSEPOWER - 200 HP SPEED - 1770 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.2213	JOCKEY PUMP + MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.21521	CS/NNS	
252.216	VALVES	
252.2161	GATE	
252.2162	CHECK	
252.2163	GLOBE	
252.2166	BUTTERFLY	
252.217	PIPING-MISC ITEMS	
252.2171	HANGERS AND SUPPORTS	
252.2172	INSULATION	
252.2173	SPECIALTIES	
252.2174	PIPE TRENCHING	INCLUDED WITH STRUCTURE ASSOCIATED YARDWORK
252.218	INSTRUMENTATION & CONTROL	TRANSMITTERS - 2 LOCAL IND - 7 BOARD MTD IND - 1 FLOW ELEMENTS - 1 TEMP ELEMENTS - 1 PROCESS SWITCH - 11 CONTROLLERS - 4 ANNUNCIATORS - 3
252.22	YARD FIRE PROTECTION	
252.221	ROTATING MACHINERY	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.118	INSTRUMENTATION+CONTROL	QUANTITY - TRANSMITTER - 4 LOCAL INDICATOR - 39 BOARD MOUNTED INDICATOR - 2 TEMP TRANSMITTER - 6 PROCESS SWITCH - 26 ANNUNCIATOR - 24 MISC. - 4
252.2	WATER SYSTEMS	
252.21	SERVICE WATER SYSTEM	
252.211	ROTATING MACHINERY	
252.2111	SERVICE WATER PUMP & MOTOR	
252.21111	SERVICE WATER PUMP	QUANTITY - 3 X 50 PCT. TYPE - MIXED FLOW ORIENTATION - VERTICAL FLOW RATE - 5500 GPM SPEED - 880 RPM TDH - 90 FT BHP - 156 HP NPSH - 20 FT EFFICIENCY - 80 PCT DESIGN PRESS - 100 PSI DESIGN TEMP - 100 F MATERIAL - N1-RESIST COLUMN AND BOWL, S.S. IMPELLER DESIGN CODE -
252.21112	SERVICE WATER PUMP MOTOR	QUANTITY - 3 TYPE - HORSEPOWER - 200 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
252.215	PIPING	
252.2151	2IN & SMALLER	
252.21511	CS/NNS	
252.2152	2.5IN & LARGER	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.1131	AIR RECEIVERS	QUANTITY - 2 ORIENTATION - VERTICAL DIMENSIONS - VOLUME - 96 CU FT DESIGN PRESS - 135 PSIG DESIGN TEMP - MATERIAL - C.S. DESIGN CODE - ASME VIII
252.1132	AIR DRYERS	QUANTITY - 2 TYPE - REGENERANT DESSICANT FLOW RATE - 700 CFM AIR PRESS - 100 PSIG DES. PRESS - 135 PSIG DES. TEMP. - TEMP. IN/OUT - 105 F / -40 F DEWPOINT COOLING FLOW - 15 GPM @ 95 F
252.115	PIPING	
252.1151	2IN + SMALLER	
252.11511	CS/NNS	
252.1152	2.5IN + LARGER	
252.11521	CS/NNS	
252.116	VALVES	
252.1161	GATE	
252.1162	CHECK	
252.1163	GLOBE	
252.1165	RELIEF	
252.117	PIPING - MISC ITEMS	
252.1171	HANGERS + SUPPORTS	
252.1172	INSULATION	
252.1173	SPECIALTIES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
251.3	ROADWAY EQUIPMENT	
251.34	BULLDOZERS	TWO BULLDOZERS ARE PROVIDED FOR USE WITH THE COAL HANDLING SYSTEM
252.	AIR, WATER+STEAM SERVICE SY	
252.1	AIR SYSTEMS	
252.11	COMPRESSED AIR SYSTEM	
252.111	ROTATING MACHINERY	
252.1111	AIR COMPRESSORS + MOTORS	
252.11111	AIR COMPRESSORS	QUANTITY - 3 X 50 PCT TYPE - RECIPROCATING, OIL-FREE ORIENTATION - VERTICAL CAPACITY - 350 CFM @ 100 PSIG SPEED - 450 RPM COOLING FLOW - 7.5 GPM @ 20 F RISE INTAKE FILTER - DRY TYPE AFTER COOLER: TYPE - SHELL AND TUBE SURF. AREA - 33.4 SQ FT COOLING FLOW - 12.4 GPM @ 20 F RISE DESIGN PRES - 150 PSIG DESIGN TEMP - DESIGN CODE -
252.11112	AIR COMPRESSOR MOTOR	QUANTITY - 3 TYPE - HORSEPOWER - 100 HP SPEED - 1750 RPM VOLTAGE - 460 V, 3 PHASE, 60 HZ FRAME - 404 T
252.113	TANKS AND PRESSURE VESSELS	

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ACCOUNT NUMBER	ITEM	DESCRIPTION
251.111	TG OVERHEAD TRAVELING CRAN	QUANTITY - 1 TYPE - OVERHEAD TRAVELING BRIDGE CAPACITY: MAIN HOIST - 100 TONS AUX. HOIST - 30 TONS BRIDGE SPAN - 92 FT HOOK TRAVEL: MAIN HOIST - 75 FT AUX. HOIST - 100 FT MAX. SPEEDS: BRIDGE - 50 FPM TROLLEY - 50 FPM MAIN HOIST - 8 FPM AUX. HOIST - 28 FPM
251.112	HEATER BAY CRANE	NONE REQUIRED
251.14	INTAKE STRUCTURE CRANE	NONE
251.15	CIRC WATER PUMPHOUSE CRANE	NONE
251.16	MISC. CRANES, HOISTS + MONORLS	
251.161	10 TON CRANE	QUANTITY - 1 TYPE - MONORAIL CAPACITY - 10 TONS LIFT - 30 FT INDUSTRY STANDARD SPEEDS, SINGLE SPEED PENDANT CONTROL
251.162	5 TON CRANES	QUANTITY - 9 TYPE - MONORAIL CAPACITY - 5 TONS LIFT - 30 FT INDUSTRY STANDARD SPEEDS, SINGLE SPEED PENDANT CONTROL
251.17	DIESEL BUILDING CRANES	NONE REQUIRED
251.2	RAILWAY EQUIPMENT	
251.21	DIESEL LOCOMOTIVE	ONE LOCOMOTIVE IS PROVIDED FOR ONSITE MOVING OF LIME CARS AND COAL UNIT TRAINS.

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
246.2221	LOW VOLTAGE POWER CABLE	VOLTAGE 600V TYPE SINGLE CONDUCTOR WITH PRIMARY INSULATION AND OUTER JACKET, TRIPLEXED FOR THREE-CONDUCTOR CONFIGURATION CONDUCTOR MATERIAL COATED, ANNEALED COPPER, CLASS B STRANDED PER ASTM B-8 TEMP. 90 C INSULATION PRIMARY ETHYLENE-PROPYLENE RUBBER JACKET HYPALON CABLE SIZE AND LENGTH IN THREE (TRIPLEXED)-CONDUCTOR (FEET) 500 KCMIL 8500 LF 250 KCMIL 16600 LF NO. 2/0 AWG 9900 LF NO. 2 AWG 14400 LF NO. 4 AWG 110000 LF NO. 8 AWG 168000 LF NO. 12 AWG 173000 LF
246.3	CONTROL CABLE	TYPE -INDIVIDUALLY INSULATED CONDUCTORS CABLED TOGETHER WITH FILLERS AND BINDER, AN OVERALL TAPE SHIELD AND AN OVERALL JACKET CONDUCTOR MATERIAL COATED, ANNEALED COPPER, CLASS C STRANDED PER ASTM B-8 TEMP. 90 C INSULATION PRIMARY ETHYLENE-PROPYLENE RUBBER JACKET HYPALON CABLE SIZE: NO. 12 AWG CABLE LENGTH IN 5/C FEET - 1.6 E06 FT LENGTH IN FEET - 0.625 E06 FT
246.4	INSTRUMENT WIRE	
25 .	MISCELLANEOUS PLANT EQUIPT	
251.	TRANSPORTATION & LIFT EQPT	
251.1	CRANES & HOISTS	
251.11	TURBINE BUILDING CRANE	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
246.2121	15 KV CABLE	VOLTAGE 15 KV TYPE SINGLE CONDUCTOR WITH STRAND SHIELD, PRIMARY INSULATION SHIELD, AND OUTER JACKET, TRIPLEXED FOR THREE-CONDUCTOR CONFIGURATION CONDUCTOR MATERIAL COATED, ANNEALED COPPER, CLASS B STRANDED PER ASTM B-8 TEMP. 90 C INSULATION PRIMARY ETHYLENE-PROPYLENE RUBBER JACKET HYPALON CABLE SIZE AND LENGTH IN THREE (TRIPLEXED)-CONDUCTOR FEET 750 KCMIL 3800 LF 350 KCMIL 4700 LF NO. 2/0 AWG 16500 LF
246.2122	8 KV CABLE	
246.2123	5 KV CABLE	VOLTAGE 5 KV TYPE SINGLE CONDUCTOR WITH STRAND SHIELD, PRIMARY INSULATION SHIELD, AND OUTER JACKET, TRIPLEXED FOR THREE CONDUCTOR CONFIGURATION CONDUCTOR MATERIAL COATED, ANNEALED COPPER, CLASS B STRANDED PER ASTM B-8 TEMP. 90 C INSULATION PRIMARY ETHYLENE-PROPYLENE RUBBER JACKET HYPALON CABLE SIZE AND LENGTH IN THREE (TRIPLEXED) CONDUCTOR FEET: 750 KCMIL 36000 LF NO. 4/0 AWG 5000 LF NO. 2/0 AWG 16000 LF
246.22	LOW VOLTAGE BUS+CABLE	
246.221	BUS DUCT	
246.222	CABLE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
246.11	MAIN GENERATOR BUS DUCT	ISOLATED PHASE DUCT : NOMINAL/MAX VOLTAGE 26/27.5 KV BIL 150 KV CONTINUOUS CURRENT MAIN BUS 25000A TAPS TO GSU 15000A TAPS TO UAT'S 3000A COOLING MAIN BUS FORCED COOLED TAPS TO UAT'S SELF COOLED SHORT CIRCUIT CURRENT (SYMM.) MAIN BUS 230KA TAPS TO UAT'S & GEN'S 337KA TAPS TO PT'S 340KA SHORT CIRCUIT CURRENT (ASSYMM. PEAK) MAIN BUS 369KA TAPS TO UAT'S & GEN'S 538KA TAPS TO PT'S 544KA TEMP. RISE 65 C LENGTH (INCL. ELBOW EQUIV.) MAIN BUS - 615-SINGLE PHASE FT TAPS TO UAT'S - 500- SINGLE PHASE FT
246.12	DG UNIT BUS DUCT	
246.2	STATION SERVICE PWR WIRING	
246.21	HIGH VOLTAGE BUS+CABLE	
246.211	BUS DUCT	
246.2111	15 KV BUS DUCT	
246.2112	8 KV BUS DUCT	
246.2113	5 KV BUS DUCT	
246.212	CABLE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
245.11	DUCT BANKS	POLYVINYL CHLORIDE TYPE DUCTS IN REINFORCED AND UNREINFORCED CONCRETE ENVELOPE WITH 18 REINFORCED CONCRETE MANHOLES
245.111	PVC DUCT	
245.112	STEEL CONDUIT	
245.113	STRUCTURAL WORK	
245.1131	EXCAVATION WORK	INCLUDED WITH STRUCTURE ASSOCIATED YARDWORK
245.1132	SUBSTRUCTURE CONCRETE	
245.11321	FORMWORK	
245.11322	REINFORCING STEEL	
245.11323	CONCRETE	
245.2	CABLE TRAY	A COMPLETE CABLE TRAY RACEWAY SYSTEM IS PROVIDED COMPRISING LADDER TYPE TRAY FOR POWER CABLES AND CONTROL CABLES AND LADDER TRAY WITH SOLID COVERS AND BOT- TOM PLATES FOR LOW-SIGNAL-LEVEL CABLES. ALL TRAYS AND FITTINGS ARE HOT-DIPPED GALVANIZED AFTER FABRICATION : SIZE 24 IN., 12 IN. QUANTITY 61,000 LF
245.3	CONDUIT	A COMPLETE CONDUIT RACEWAY SYSTEM IS PROVIDED : TYPE GALVANIZED RIGID STEEL AND FLEXIBLE STEEL, INCLUDING PULL BOXES, FITTINGS AND HANGERS. QUANTITY 335,000 LF
246.	POWER & CONTROL WIRING	
246.1	GENERATOR CIRCUITS WIRING	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
244.11	EQUIPMENT GROUNDING SYSTEM	A COMPLETE GROUNDING SYSTEM IS PROVIDED FOR EQUIPMENT AND RACEWAYS CONSISTING OF JUMPERS FROM CONDUIT TO GRID, A BARE COPPER WIRE IN AND BONDED TO TRAYS, A GROUND BUS MOUNTED IN ALL METAL ENCLOSURES, PIGTAILS FROM EQUIPMENT FRAMES TO GROUND GRID AND AN INSTRUMENT GROUNDING SYSTEM.
244.12	YARD + STRUCTURE GROUNDING	A COMPLETE YARD GROUNDING SYSTEM IS PROVIDED AS THE PLANT GROUNDING GRID CONSISTING OF BUILDING GROUND GRIDS AND INTERCONNECTIONS, COMPOSED OF BARE COPPER CONDUCTORS, GROUND RODS AND GROUNDING WELLS.
244.2	FIRE DETECTION+SUPPRESSION	DRY-PIPE DELUGE SPRAY AND FIRE DETECTION SYSTEMS ARE PROVIDED FOR THE MAIN AND AUXILIARY TRANSFORMERS, AND THE DIESEL-GENERATOR UNIT FUEL OIL STORAGE AND TRANSFER SYSTEM.
244.3	LIGHTNING PROTECTION	UNDERWRITERS LABORATORIES APPROVED LIGHTNING PROTECTION SCHEMES ARE PROVIDED FOR THE BOILER HOUSE, TURBINE HALL AND SELECTED HIGH STRUCTURES SUCH AS COAL CONVEYOR TOWERS
244.4	CATHODIC PROTECTION	A COMPLETE SYSTEM WITH TRANSFORMER, RECTIFIERS, ANODES, COKE BREEZE BEDS, SPECIAL WIRE AND TERMINATORS
244.5	HEAT TRACING + FREEZE PROT	A COMPLETE SYSTEM WITH HEAT TRACING WIRE, THERMAL CEMENT, THERMOSTATS, CONTROL AND ALARM PANELS AND INTERCONNECTING POWER AND CONTROL WIRE AND RACEWAYS IS PROVIDED FOR DIESEL-GENERATOR UNIT FUEL OIL PIPING AND SELECTED WATER PIPING LOCATED OUTDOORS
245.	ELECT.STRUC +WIRING CONTNR	
245.1	UNDERGROUND DUCT RUNS	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
243.11	GEN+AUX POWER SYS CTRL PNL	SIXTEEN FEET OF CONTROL DUPLEX BENCH-BOARD CONTAINING SWITCHES, ANNUNCIATORS AND RECORDING AND INDICATING INSTRUMENTS FOR CONTROL AND DATA ACQUISITION OF THE MAIN GENERATOR, AND AUXILIARY ELECTRIC POWER SYSTEM
243.12	CONSOLES	
243.13	VERTICAL PANELS	
243.14	GEN PROTECTIVE RELAY PANEL	ONE ELECTRIC SYSTEM RELAY PANEL, COMPOSED OF TWO GENERATOR, TWO UNIT AUXILIARY, AND TWO RESERVE AUXILIARY TRANSFORMER SUBPANELS, IS PROVIDED. IT CONTAINS ALL OF THE GENERATOR AND AUXILIARY TRANSFORMER PROTECTIVE FUNCTION CONTROL CIRCUITS, FUSES, AUXILIARY RELAYS AND AUXILIARY INSTRUMENT TRANSFORMERS
243.2	AUX. POWER & SIGNAL BOARDS	
243.21	POWER DISTRIBUTION PANELS	
243.211	AC PANELS	TWO 120/240 VOLT 225 AMPERE, SINGLE PHASE, 3 WIRE WALL MOUNTED PANELBOARDS WITH 36 MOLDED CASE CIRCUIT BREAKER BRANCH CIRCUITS
243.22	BATTERY CNTRL+DC DIST PNL	
243.221	DC PANELS	ONE 125/250 VOLT D-C, 1600 AMPERE, THREE WIRE METAL ENCLOSED SWITCHGEAR ASSEMBLY WITH MOLDED CASE AIR CIRCUIT BREAKERS IN THE MAINS AND BRANCH CIRCUITS
243.223	MISC. PUSHBUTTONS, PNLS+FUSE	ALLOWANCE
243.224	BATTERY FUSES	
244.	PROTECTIVE EQUIPMENT	
244.1	GENRL STATION GROUND SYS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76.

ACCOUNT NUMBER	ITEM	DESCRIPTION
242.321	DIESEL GENERATOR UNITS	TWO REDUNDANT 400 KW SKID MOUNTED DIESEL GENERATORS : GENERATOR -NOMINAL RATING - 625 KVA NOMINAL VOLTAGE- 480 V POLES -- 4 POWER FACTOR -- 0.8 PHASE -- 3 PHASE, 3 WIRE CONNECTION - WYE ELECTRIC AUXILIARIES - STATIC EXCITER VOLTAGE REGULATOR, CONTROL PROTECTION, SURVEILLANCE ENGINE -NO. CYLINDERS - 16 SPEED -- 1800 MECHANICAL AUXILIARIES : FUEL OIL SYSTEM LUBE OIL SYSTEM RADIATOR COOLING SYSTEM AIR INTAKE, EXHAUST AND CRANKCASE VACUUM SYSTEM ELECTRIC STARTING SYSTEM HYDRAULIC GOVERNOR AND ENGINE CONTROL PANEL
242.322	DIESEL GEN SUBSYSTEMS	INCLUDES: FUEL OIL TRANSFER PUMPS AND MOTORS, FILTERS, STRAINERS, PIPING, VALVES, HANGERS, SUPPORTS, INSULA- TION AND SPECIALTIES
242.34	INVERTERS	
242.341	GENERAL PLANT INVERTERS	TWO DUAL INPUT INVERTERS WITH STATIC TRANSFER SWITCHES, ONE AT 30 KVA DEDICATED TO COMPUTER USE AND ONE AT 20 KVA FOR AUXILIARY POWER: INPUTS - 480 VAC, 3 PHASE, OR 125 VAC OUTPUT - 118 VAC, SINGLE PHASE, 60 HZ
243.	SWITCHBOARDS.	
243.1	CONTROL PANELS	

EQUIPMENT LIST - REPORT 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
242.222	PRECIPITATOR LD CTR XFMRs	OUTDOOR VENTILATED DRY TYPE TRANSFORMERS COMPLETE WITH CONTROL AND PROTECTION EQUIPMENT : RATING -- 750/1000 KVA COOLING -- AA/FA VOLTAGE -- 13800-480 VOLTS TEMP. RISE - 150 C CONNECTION - DELTA-WYE IMPEDANCE -- 3.9 PCT @ 750 KVA QUANTITY -- 6
242.23	MISCELLANEOUS XFMRs	ALLOWANCE
242.3	AUXILIARY POWER SOURCES	
242.31	BATTERY SYSTEMS	
242.311	STATION BATTERIES	
242.3111	BATTERIES	TWO 125V BATTERIES CONFIGURED AS ONE 125/250 VOLTS, 3 WIRE BATTERY TYPE -- LEAD ANTIMONY NO. OF CELLS - 60 EACH. NOMINAL CAPACITY (@ HR DISCHARGE RATE)- 1650 AH EACH COMPLETE WITH BATTERY RACKS
242.312	BATTERY CHARGERS	
242.3121	CHARGERS	THREE BATTERY CHARGERS (TWO INSTALLED AND ONE STORED SPARE) TO SUPPLY THE 125/250 VDC BUS: NORMAL RATING -- 25 KW INPUT -- 480 VAC, 3 PHASE, 60 HZ OUTPUT-- 125 TO 140 VDC ADJUSTABLE OUTPUT CURRENT - 200 A
242.32	EMERGENCY DIESEL GEN SYS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
242.2211	COOLING TOWER	INDOOR VENTILATED DRY TYPE TRANSFORMERS COMPLETE WITH CONTROL AND PROTECTION EQUIPMENT : RATING -- 750/1000 KVA COOLING -- AA/FA VOLTAGE -- 13800 - 480 VOLTS TEMP. RISE - 150 C CONNECTION - DELTA - WYE IMPEDANCE -- 3.9 PCT. @ 750 KVA QUANTITY -- 4
242.2212	BALANCE OF PLT 13800-480V	INDOOR VENTILATED DRY TYPE TRANSFORMERS COMPLETE WITH CONTROL AND PROTECTION EQUIPMENT : RATING - 500 KVA OR 750 KVA COOLING - AA VOLTAGE - 13800-480V TEMP. RISE - 150 C CONNECTION - DELTA - WYE IMPEDANCE - 3.2 PCT @ 500 KVA 3.9 PCT @ 750 KVA QUANTITY - 500 KVA - 2 750 KVA - 11
242.2213	BALANCE OF PLT 4160-480V	INDOOR VENTILATED DRY TYPE TRANSFORMERS COMPLETE WITH CONTROL AND PROTECTION EQUIPMENT : RATING -- 750 OR 1000/1333 KVA COOLING -- AA OR AA/FA VOLTAGE -- 4160-480 VOLTS TEMP. RISE - 150 C CONNECTION - DELTA - WYE IMPEDANCE -- STANDARD QUANTITY -- 750 KVA - 6 1000/1333 KVA - 1

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT
NUMBER

ITEM

DESCRIPTION

242.2112 BALANCE OF PLANT-NO CT

TWENTY 480V LOAD CENTER BUSES CONSISTING OF INDOOR DEAD FRONT METAL-ENCLOSED SWITCHGEAR :
TYPE - ELECTRIC OR MANUAL OPERATION, STORED ENERGY DRAW-OUT, THREE POLE, SINGLE THROW WITH DIRECT ACTING OVER CURRENT TRIPPING DEVICE
VOLTAGE - 600 V
MAIN BUS RATING - 1600 A OR 2000 A
FRAME SIZE-INCOMING LINE-1600 OR 2000
MCC FEEDER - 1600 A
MOTOR FEEDER - 600 A
INTERRUPTING RATING
2000A FRAME - 50000A @480V
1600A FRAME - 50000A @480V
600A FRAME - 30000A @480V WITH L,I TRIP
QUANTITIES - 2000A FRAME - 1
1600A FRAME - 79
600A FRAME - 20

242.212 PRECIPITATOR SWITCHGEAR

SIX 480 V POWER BUSES CONSISTING OF OUTDOOR DEADFRONT METAL ENCLOSED SWITCHBOARDS:
TYPE - MANUAL OPERATION STORED ENERGY DRAWOUT, THREE-POLE, SINGLE THROW MAIN DEVICE WITH DIRECT ACTING OVERCURRENT TRIPPING DEVICE AND 600 V, 25000 AIC ADJUSTABLE INSTANTANEOUS MAGNETIC TRIP, MOLDED CASE INDIVIDUALLY MOUNTED DEVICES
VOLTAGE - 600 V
MAIN BUS RATING - 1600 A
FRAME SIZE - INCOMING LINE - 1600 A
LOAD FEEDER - 400 A
INTERRUPTING RATING
1600A FRAME - 50000A @480V
400A FRAME - 30000A @480V
QUANTITIES - 1600A FRAME - 6
400A FRAME - 30

242.22 LOAD CENTER TRANSFORMERS

242.221 GENERAL PLANT LD CTR XFMRs

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
242.132	SUBSTRUCTURE CONCRETE	
242.1321	FORMWORK	
242.1322	REINFORCING STEEL	
242.1323	CONCRETE	
242.1324	EMBEDDED STEEL	
242.1325	FLOOR FINISH	NONE
242.1326	WATERPROOFING	NONE
242.1327	CONSTRUCTION JOINTS	
242.1328	RUBBING CONCRETE SURFACES	
242.133	CRUSHED STONE FILL	
242.2	UNIT SUBSTATIONS	
242.21	LOAD CENTER SWITCHGEAR	
242.211	GENERAL PLANT SWITCHGEAR	
242.2111	COOLING TOWER	

FOUR 480V LOAD CENTER BUSES CONSISTING
 OF INDOOR DEAD FRONT METAL-ENCLOSED
 SWITCHGEAR :
 TYPE - ELECTRIC OR MANUAL OPERATION,
 STORED ENERGY DRAW-OUT, THREE-POLE
 SINGLE THROW WITH DIRECT ACTING
 OVER-CURRENT TRIPPING DEVICE.
 VOLTAGE - 600V
 MAIN BUS RATING - 1600A
 FRAME SIZE - INCOMING LINE - 1600A
 LOAD FEEDER - 1600A
 MOTOR FEEDER - 600A
 INTERRUPTING RATING
 1600A FRAME-50000A@480V
 600A FRAME-30000A@480V WITH L,I TRIP
 QUANTITIES - 1600 A FRAME - 6
 600 A FRAME - 16

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
242.122	4.16 KV TRANSFORMER	ONE TRANSFORMER : TYPE - OUTDOOR, OIL-INSULATED, THREE PHASE, THREE WINDING COOLING - OA/FA/FOA TEMP. RISE - 55 C RATING - H WINDING - 10/12.5 MVA X WINDING - 5/6.25 Y WINDING - 5/6.25 VOLTAGE- H WINDING - 230 KV X WINDING - 4.16 KV Y WINDING - 4.16 KV CONNECTIONS - H WINDING - WYE, SOLID GROUND X WINDING - WYE, HIGH RESISTANCE GROUNDED Y WINDING - WYE, HIGH RESISTANCE GROUNDED TAPS - TWO 2-1/2 PCT FULL CAPACITY TAPS ABOVE AND BELOW NORMAL, DE-ENERGIZED OPERATION ON H WINDING BIL - H WINDING AND BUSHINGS - 900 KV H WINDING NEUTRAL - 150 KV X WINDING AND BUSHINGS - 75 KV Y WINDING AND BUSHINGS - 75 KV IMPEDANCE - H-X: 5.02 PCT (@ 10 MVA) H-Y: 5.02 PCT (@ 10 MVA) NOISE LEVEL - 68/70 DB(A) (OA/FA).
242.13	FOUNDATIONS FOR XFMRs	
242.131	EXCAVATION WORK	
242.1311	EARTH EXCAVATION	INCLUDED WITH STRUCTURE ASSOCIATED YARDWORK
242.1312	ROCK EXCAVATION	NONE
242.1313	CONCRETE FILL	NONE
242.1314	FILL + BACKFILL	INCLUDED WITH STRUCTURE ASSOCIATED YARDWORK
242.1315	DEWATERING	INCLUDED WITH STRUCTURE ASSOCIATED YARDWORK

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
242.113	4.16 KV TRANSFORMER (2W)	ONE TRANSFORMER : TYPE - OUTDOOR, OIL INSULATED, THREE PHASE, TWO WINDING COOLING - OA TEMP. RISE - 55C RATING - H WINDING - 8.5 MVA VOLTAGE - H WINDING - 25.5 KV X WINDING - 4.16 KV CONNECTIONS - H WINDING - DELTA X WINDING - WYE, HIGH RESISTANCES GROUNDED TAPS - TWO 2 1/2 PCT FULL CAPACITY TAPS ABOVE AND BELOW NORMAL, DE-ENERGIZED OPERATION BIL - H WINDING AND BUSHINGS - 150 KV X WINDING AND BUSHINGS - 75 KV IMPEDANCE - 4.0 PCT (@ 8.5 MVA) NOISE LEVEL - 63 DB (A) (OA)
242.12	RESERVE AUXILIARY XFMR	
242.121	13.8 KV TRANSFORMER	ONE TRANSFORMER : TYPE - OUTDOOR, OIL INSULATED, THREE PHASE, TWO WINDING COOLING - OA/FA/FOA TEMP. RISE - 55 C RATING - H WINDING - 18/24/30 MVA VOLTAGE - H WINDING - 230 KV X WINDING - 13.8 KV CONNECTIONS - H WINDING - WYE, SOLID GROUND X WINDING - WYE, HIGH RESIS- TANCE GROUNDED TAPS - TWO 2-1/2 PCT. FULL CAPACITY TAPS ABOVE AND BELOW NORMAL, DE-ENERGIZED OPERATION ON H WINDING BIL - H WINDING AND BUSHINGS - 900 KV H WINDING NEUTRAL - 150 KV X WINDING AND BUSHINGS - 110 KV IMPEDANCE - H-X : 4.0 PCT (@ 18 MVA) NOISE LEVEL - 68/70 DB(A) (OA/FA)

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT
NUMBER

ITEM

DESCRIPTION

242.112 4.16 KV TRANSFORMER (3W)

ONE TRANSFORMER :
TYPE - OUTDOOR, OIL INSULATED, THREE
PHASE, THREE WINDING
COOLING - OA/FA
TEMP. RISE - 55 C
RATING - H WINDING - 10/12.5 MVA
X WINDING - 5/6.25 MVA
Y WINDING - 5/6.25 MVA
VOLTAGE- H WINDING - 25.5 KV
X WINDING 4.16 KV
Y WINDING 4.16 KV
CONNECTIONS - H WINDING - DELTA
X WINDING - WYE, HIGH
RESISTANCE GROUNDED
Y WINDING - WYE, HIGH
RESISTANCE GROUNDED
TAPS - TWO 2-1/2 PCT FULL CAPACITY
TAPS ABOVE AND BELOW NORMAL
DE-ENERGIZED OPERATION ON
H WINDING
BIL - H WINDING AND BUSHINGS - 150 KV
X WINDING AND BUSHINGS - 75 KV
Y WINDING AND BUSHINGS - 75 KV
IMPEDANCE - H-X : 4.98 PCT (@ 10 MVA)
H-Y : 4.98 PCT (@ 10 MVA)
NOISE LEVEL - 63/65 DB(A) (OA/FA)

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT
NUMBER

ITEM

DESCRIPTION

242. STATION SERVICE EQUIPMENT

242.1 STATION SERV&STARTUP XFMR

242.11 UNIT AUXILIARY TRANSFORMER

242.111 13.8 KV TRANSFORMERS

TWO TRANSFORMERS:

TYPE - OUTDOOR, OIL INSULATED, THREE
PHASE, TWO WINDING:
COOLING - OA/FA/FOA
TEMP. RISE - 55 C
RATING - H WINDING - 18/24/30 MVA
VOLTAGE- H WINDING - 25.5 KV
X WINDING - 13.8 KV
CONNECTIONS - H WINDING - DELTA
X WINDING - WYE, HIGH
RESISTANCE GROUNDED
TAPS - TWO 2-1/2 PCT FULL CAPACITY
TAPS ABOVE AND BELOW NORMAL
DE-ENERGIZED OPERATION
H WINDING
BIL - H WINDING AND BUSHINGS - 150 KV
X WINDING AND BUSHINGS - 110 KV
IMPEDANCE - H-X: 4.0 PCT (@ 18 MVA)
NOISE LEVEL - 63/65 DB(A) (OA/FA)

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN. HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
241.221	GENERAL PLANT	FORTY-EIGHT MOTOR CONTROL CENTERS OF STANDARD NEMA CLASS 1 CONSTRUCTION WITH TYPE B WIRING, DRAWOUT TYPE, A 600A HORIZONTAL BUS, A 300A VERTICAL BUS AND BRACED FOR 42000A, RMS, SYMMETRICAL : MOTOR FEEDERS (COMBINATION STARTERS) CONTACTOR : 3 POLE, 600V, FULL VOLT- AGE MAGNETIC, SIZE 1 TO SIZE 4 CIRCUIT BREAKERS : 600V, 25000 AIC, ADJUSTABLE INSTANTANEOUS MAGNETIC TRIP, MOLDED CASE TYPE THERMAL OVERLOAD UNIT : ONE PER PHASE CONTROL TRANSFORMER : ONE PER STARTER 480-120 V. MISC. FEEDERS (COMBINATION CONTACTORS) SIMILAR TO MOTOR FEEDERS EXCEPT SIZE 1, SIZE 2 AND SIZE 4 ONLY, THERMAL MAGNETIC CIRCUIT BREAKERS AND NO THERMAL OVERLOAD UNITS LIGHTING AND MISC LOADS CIRCUIT BREAKER : 600V, 25000 AIC, THERMAL, MAGNETIC, MOLDED CASE TYPE SPACE HEATER LOAD (SHL) PACKAGE MAIN CIRCUIT BREAKER : 600V, 25000 AIC THERMAL, MAGNETIC, MOLDED CASE TYPE TRANSFORMER : 7.5 OR 15 KVA SINGLE PHASE, 480-120/240V, 60 HZ, DRY TYPE DISTRIBUTION PANEL : 12 OR 24 SINGLE POLE, 20A, E FRAME ACB; 120/240 V, 3 WIRE QUANTITIES -- FULL VOLTAGE, SINGLE SPEED, NONREVERS- ING COMBINATION STARTERS NEMA SIZE 1 - 312, NEMA SIZE 2 - 60 NEMA SIZE 3 - 58, NEMA SIZE 4 - 48 FULL VOLTAGE, SINGLE SPEED, REVERSING COMBINATION STARTERS NEMA SIZE 1 - 146, NEMA SIZE 2 - 17 FULL VOLTAGE, NON-REVERSING COMBINATION CONTACTORS NEMA SIZE 1 - 22, NEMA SIZE 2 - 4 CIRCUIT BREAKERS 100A FRAME - 308, 225A FRAME - 33 SHL PACKAGES - 24 CIRCUIT 48

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
241.211	13.8 KV	TWO 13.8 KV BUSES CONSISTING OF INDOOR METAL CLAD SWITCHGEAR : NOMINAL VOLTAGE : 15 KV NOMINAL MVA CLASS : 750 MVA CONTINUOUS CURRENT- INCOMING LINE ACB : 2000 A FEEDER ACB : 1200 A BUS : 2000 A RATED SHORT CIRCUIT CURRENT: 28000 A, RMS@15 KV INTERRUPTING TIME : 5 CYCLES CLOSING AND LATCHING CAPABILITY : 58000 A, RMS QUANTITIES - INCOMING LINES : 4 FEEDER : 31 PT COMP'TS : 6 SPACE : 2 EACH BUS IS COMPLETE WITH METERING, PROTECTIVE RELAYING, AND CONTROL LOGIC
241.212	6.9 KV	
241.213	4.16 KV	(3)- 4.16 KV BUSES CONSISTING OF INDOOR METAL CLAD SWITCHGEAR : NOMINAL VOLTAGE: 5 KV NOMINAL MVA CLASS : 250 MVA CONTINUOUS CURRENT - INCOMING LINE ACB : 1200 A FEEDER ACB : 1200 A BUS : 1200 A RATED SHORT CIRCUIT CURRENT: 29000 A, RMS@4.76 KV INTERRUPTING TIME : 5 CYCLES CLOSING AND LATCHING CAPABILITY : 58000 A, RMS QUANTITIES - INCOMING LINE : 6 FEED : 32 SPACE : 3 PT COM'TS : 9 EACH BUS IS COMPLETE WITH METERING, PROTECTIVE RELAYING, AND CONTROL LOGIC
241.22	STATION MOTOR CONTROL CNTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
241.12	GEN NEUTRAL GROUNDING EQPT	GENERATOR NEUTRAL GROUNDING CUBICLE CONSISTING OF : TRANSFORMER-- 50 KVA, SINGLE PHASE 22900-120/240 VOLTS VENTILATED, DRY-TYPE SELF-COOLED, 150 KV BIL RESISTOR--INDOOR, 0.24 OHMS RESISTANCE 600 VOLTS
241.13	GEN CURRENT+POTENTIAL XFMR	
241.131	GEN. CURRENT TRANSFORMERS	GENERATOR PROVIDED WITH 3 CT'S PER BUSHING RATED AT 20 KA
241.132	GEN. POTENTIAL TRANSFORMERS	GENERATOR BUS PROVIDED WITH 6 PT'S RATED AT 26400-120/120 VOLTS
241.14	GEN SURGE PROTECTION EQPT	GENERATOR PROVIDED WITH ONE 30 KV LIGHTNING ARRESTER AND ONE 0.125 MICRO FARAD CAPACITOR PER PHASE
241.15	GEN EXCITATION SWITCHGEAR	GENERATOR PROVIDED WITH EXCITATION SWITCHGEAR CONSISTING OF EXCITER FIELD CIRCUIT BREAKER AND VOLTAGE REGULATOR
241.2	STATION SERVICE SWITCHGEAR	
241.21	MEDIUM VOLTAGE METAL CLAD	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
236.116	TURBINE + UNIT MISC PANEL	VERTICAL PANEL FOR STARTING UP SYSTEM, EXTRACTION STEAM NON RETURN VALVES, AUX STEAM SYSTEM, CIRC. WATER
236.13		INCLUDED IN ACCOUNT 231.1
236.2	PROCESS COMPUTER	INCLUDED IN ACCOUNT 227.2
236.3	TURB PLT I+C TUBING	INCLUDED WITH ACCOUNT 227.5 LINEAR FEET OF TUBING LINEAR FEET OF TUBING - 28,300
237.	TURBINE PLANT MISC ITEMS	
237.1	MISC SUSPENSE ITEMS	
237.11	PIPE	
237.12	FIELD PAINTING	ALLOWANCE FOR PAINTING OF ALL TURBINE PLANT EQUIPMENT AND PIPING.
237.13	QUALIFICATION OF WELDERS	ALLOWANCE FOR QUALIFYING WELDERS AND WELDING PROCEDURES.
237.3	TURBINE PLANT INSULATION	
237.31	PIPE INSULATION	TOTAL COST OF TURBINE PLANT PIPE INSULATION.
237.32	EQUIPMENT INSULATION	TOTAL COST OF TURBINE PLANT EQUIPMENT INSULATION.
24 .	ELECTRIC PLANT EQUIPMENT	
241.	SWITCHGEAR	
241.1	GEN EQPT SWITCHGEAR	
241.11	GEN LOAD BREAK SWITCH	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.68	INSTRUMENTATION + CONTROL	LOCAL INDICATOR 10 RECORDER 1 FLOW ELEMENT 4 TEMPERATURE ELEMENT 3 CONTROLLER 6 LOCAL PANEL 1 ANALYTICAL ELEMENT 4
236.	INSTRUMENTATION + CONTROL	
236.1	PROCESS IC EQUIPMENT	
236.11	BENCHBOARD, PANELS + RACKS	
236.111	TURBINE PLT MAIN CONTRL BD	MAIN STEAM FEEDWATER HEATER VENTS AND DRAINS TURBINE CIRCULATING WATER CONDENSATE PANEL PROVIDED WITH ACCT 227.11 SEE 243.11 FOR ELECTRICAL SECTION OF MCB (MAIN CONTROL BOARD)
236.112	TURBINE PANELS	
236.1121	TURBINE SUPERVISORY PANELS	FURNISHED W/231.1
236.1122	EHG CONTROL CABINET	FURNISHED W/231.1
236.1123	TURBINE ACCESSORY PANELS	INCLUDED WITH ACCOUNT 231.1 TG CONTROL PANELS HYDROGEN AND COOLING WATER CABINET TURING GEAR MOTOR PANEL PRESSURE TRANSDUCER PANEL EXCITATION CONTROL CUBICLE REHEATER PROTECTION PIPING CTL PANEL TURBINE SUPERVISORY INSTRUMENT CABINET ALL FURNISHED W/231.1
236.113	TURBINE PLANT HVAC PANELS	TURBINE BUILDING AIR HANDLING INTAKE STRUCTURE VENTILATION ADMINISTRATION BUILDING HVAC
236.115	INSTRUMENT RACK-TURB PLANT	LOCAL INSTRUMENT RACKS - 57

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.612	BLOWER + MOTOR	
235.6121	BLOWER	QUANTITY 2 X 100 PERCENT TYPE ROOTS BLOWER CAPACITY 1600 CFM AT 5 PSIG MATERIAL CS
235.6122	BLOWER MOTOR	TYPE T.E.F.C. HORSEPOWER 10 HP SPEED VOLTAGE 460 V, 3 PH, 60 HZ
235.63	TANKS AND PRESSURE VESSELS	
235.631	NEUTRALIZATION TANK	QUANTITY 2 ORIENTATION HORIZONTAL DIMENSIONS 12 FT DIA X 34 FT LONG VOLUME 30,000 GAL DESIGN PRES. ATMOSPHERIC DESIGN TEMP. 100 F MATERIAL FIBERGLASS DESIGN CODE TANK INTERNALS AIR DISTRIBUTER HEADERS LATERALS AND SPARGERS OF PVC MATERIAL
235.65	PIPING	
235.651	2IN & SMALLER	
235.6511	CS/NNS	
235.652	2.5 IN & LARGER	
235.6521	CS/NNS	
235.66	VALVES	
235.67	PIPING - MISC ITEMS	
235.671	HANGERS + SUPPORTS	
235.672	INSULATION	
235.673	SPECIALTIES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
235.5511	SS/NNS	
235.552	2.5 IN + LARGER	
235.56	VALVES	
235.563	GLOBE	
235.57	PIPE-MISC. ITEMS	
235.571	HANGERS + SUPPORTS	
235.572	INSULATION	
235.573	SPECIALTIES	
235.58	INSTRUMENTATION + CONTROL	LOCAL INDICATOR 4 PROCESS SWITCH 4 MISC. 2
235.6	NEUTRALIZATION SYSTEM	
235.61	ROTATING MACHINERY	
235.611	OVERBOARD/RECIR PUMP+MOTOR	
235.6111	OVERBOARD/RECIR PUMP	QUANTITY 2 X 100 PERCENT TYPE IN-LINE CENTRIFUGAL ORIENTATION VERTICAL FLOW RATE 300 GPM SPEED 1750 RPM TDH 40 FT BHP 4.1 HP NPSH 10 FT EFFICIENCY 74 PERCENT DESIGN PRES. 100 PSIG DESIGN TEMP. 100 F MATERIAL 316 SS DESIGN CODE
235.6112	OVERBOARD/RECIR PUMP MOTOR	TYPE OPEN DRIP PROOF HORSEPOWER 5 HP SPEED 1800 RPM VOLTAGE 460V, 3 PH, 60 HZ

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.34111	CONDENSATE RETURN PUMPS	QUANTITY - 3 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 170 GPM SPEED - 1775 RPM TDH - 100 FT BHP - 6.1 FT NPSH - 10 FT EFFICIENCY - 70 PCT. DESIGN PRESS - 100 PSIG DESIGN TEMP - 130 F MATERIAL - CAST IRON CASING. DESIGN CODE -
252.34112	CONDENSATE RETURN PUMP MT	QUANTITY - 3 TYPE - HORSEPOWER - 7.5 HP SPEED - 1800 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.343	TANKS AND PRESSURE VESSELS	
252.3431	DEAERATOR	INCLUDED WITH AUXILIARY BOILER PACKAGE TYPE - TRAY QUANTITY - 1 TYPE - TRAY CAPACITY - 250,000 LB/HR STR. TANK CAP Y 230 CU FT OPER PRESS - 5 PSIG DES. PRESS - 30 PSIG STM. INLET TEMP - 307 F WATER INLET TEMP - 65 F (MIN.) WATER OUTLET TEMP - 228 F
252.345	PIPING	
252.3451	2 IN + SMALLER	
252.34511	CS/NNS	
252.3452	2.5 IN + LARGER	
252.34521	CS/NNS	
252.346	VALVES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.3461	GATE	
252.3462	CHECK	
252.3463	GLOBE	
252.347	PIPING - MISC. ITEMS	
252.3471	HANGERS + SUPPORTS	
252.3472	INSULATION	
252.3473	SPECIALTIES	
252.35	AUX CHEM. FEED SYSTEM	
252.351	ROTATING MACHINERY	
252.3511	CHEM FEED PUMPS + MOTORS	
252.35111	CHEM FEED PUMP	QUANTITY - 4 TYPE - POSITIVE DISPLACEMENT ORIENTATION - HORIZONTAL FLOW RATE - 7 GPH SPEED - 1750 RPM TDH - 250 PSIG BHP - NPSH - 3 FT EFFICIENCY - DESIGN PRESS - 300 PSIG DESIGN TEMP - 300 PSIG MATERIAL - C.S. CASING, 316 SS WETTED PARTS DESIGN CODE -
252.35112	CHEM FEED PUMP MOTOR	TYPE - TENV HORSEPOWER - 1 HP SPEED - 1750 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.353	TANKS AND PRESSURE VESSELS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT
NUMBER

ITEM

DESCRIPTION

252.3531 CHEM FEED TANKS

QUANTITY - 2
 ORIENTATION - VERTICAL
 DIMENSIONS -
 VOLUME - 300 GAL
 DESIGN PRESS - ATMOS
 DESIGN TEMP. - 90 F
 MATERIAL - 304 SS
 DESIGN CODE -
 AGITATOR:
 MATERIAL - 316 SS SHAFT AND PROP.
 MOTOR HP - 1/8 HP

252.355 PIPING

252.3551 2 IN + SMALLER

252.35511 SS/NNS

252.3552 2.5 IN + LARGER

252.356 VALVES

252.3561 GATE

252.3562 CHECK

252.3563 GLOBE

252.3569 SPECIAL VALVES

252.35691 NEEDLE

252.357 PIPING - MISC ITEMS

252.3571 HANGERS + SUPPORTS

252.3572 INSULATION

NONE

252.3573 SPECIALTIES

252.36 AUX. STEAM + CONDENSATE RETRN

252.361 ROTATING MACHINERY

252.3611 HEATING DRAIN TANK PUMP + MT

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.36111	HEATING DRAIN TANK PUMP	QUANTITY - 2 X 50 PCT. TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 285 GPM SPEED - 1775 RPM TDH - 75 FT BHP - 8 HP NPSH - 10 FT EFFICIENCY - 70 PCT. DESIGN PRESS - 100 PSIG DESIGN TEMP - 250 F MATERIAL - CAST IRON CASING CHROME STEEL IMPELLER DESIGN CODE -
252.36112	HEATING DRAIN TANK PUMP MT	QUANTITY - 2 TYPE - HORSEPOWER - 10 HP SPEED - 1800 RPM VOLTAGE - 460V, 3 PHASE, 60 HZ
252.363	TANKS AND PRESSURE VESSELS	
252.3631	HEATING DRAIN TANK	QUANTITY - 1 ORIENTATION - HORIZONTAL DIMENSIONS - 6 FT D X 10 FT VOLUME - 230 CU FT DESIGN PRESS - 15 PSIG DESIGN TEMP - 250 F MATERIAL - CARBON STEEL DESIGN CODE -
252.365	PIPING	
252.3651	2 IN + SMALLER	
252.36511	CS/NNS	
252.3652	2.5 IN + LARGER	
252.36521	CS/NNS	
252.366	VALVES	
252.3661	GATE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.3662	CHECK	
252.3663	GLOBE	
252.367	PIPING - MISC. ITEMS	
252.3671	HANGERS + SUPPORTS	
252.3672	INSULATION	
252.3673	SPECIALTIES	
252.37	AUX BOILER STACKS + DUCT	INCLUDED WITH AUXILIARY BOILER PACKAGE
252.38	AUX BOILER BLOWDOWN	
252.383	TANKS AND PRESSURE VESSELS	
252.3831	AUX BOILER BLOWDOWN TANK	QUANTITY - 1 ORIENTATION - VERTICAL DIMENSIONS - 3 FT D X 5 FT VOLUME - 35 CU FT DESIGN PRESS - 25 PSIG DESIGN TEMP - 275 F MATERIAL - CARBON STEEL DESIGN CODE -
252.385	PIPING	
252.3851	2 IN + SMALLER	
252.38511	CS/NNS	
252.3852	2.5 IN + LARGER	
252.386	VALVES	
252.3861	GATE	
252.3862	CHECK	
252.3869	SPECIAL VALVES	
252.38691	BLOWDOWN	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.387	PIPING - MISC ITEMS	
252.3871	HANGERS + SUPPORTS	
252.3872	INSULATION	
252.3873	SPECIALTIES	
252.39	AUX STEAM SYS COMPLETE I+C	
252.4	PLANT FUEL OIL SYSTEM	
252.41	ROTATING MACHINERY	
252.411	FUEL OIL UNLOAD PUMP+MOTOR	
252.4111	FUEL OIL UNLOADING PUMP	QUANTITY - 1 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 200 GPM SPEED - TDH - BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - CAST IRON CASING DESIGN CODE -
252.4112	FUEL OIL UNLOAD PUMP MOTOR	
252.43	TANKS AND PRESSURE VESSELS	
252.431	PLANT FUEL OIL STORAGE TK	QUANTITY - 1 ORIENTATION - VERTICAL DIMENSIONS - 38 FT D X 15 FT VOLUME - 125,000 GAL DESIGN PRESS - ATMOS DESIGN TEMP - 100 F MATERIAL - CARBON STEEL DESIGN - API
252.45	PIPING	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
252.451	2 IN + SMALLER	
252.4511	CS/NNS	
252.452	2.5 IN + LARGER	
252.4521	CS/NNS	
252.46	VALVES	
252.468	PLUG	
252.47	PIPING-MISC ITEMS	
252.471	HANGERS + SUPPORTS	
252.472	INSULATION	
252.473	SPECIALTIES	
252.49	FOUNDATIONS/SKIDS	
252.491	PLANT FUEL OIL STG TK FNDT	
252.4911	EXCAVATION WORK	
252.49111	EARTH EXCAVATION	
252.49112	BACKFILL	
252.4912	CONCRETE WORK	
252.49121	FORMWORK	
252.49122	REINFORCING STEEL	
252.49123	CONCRETE	
252.4913	COMPACTED SAND BED	
252.4914	DIKE	
253.	COMMUNICATIONS EQUIPMENT	
253.1	LOCAL COMMUNICATIONS SYS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
253.11	GEN.PURPOSE TELEPHONE SYS	A COMPLETE DIAL AUTOMATIC TELEPHONE SYSTEM CONSISTING OF AN AUTOMATIC SWITCHBOARD AND DIAL TELEPHONES IS PROVIDED
253.12	SOUND POW TELEPHONE SYS	PORTABLE SOUND POWERED PHONE HAND-SETS AND JACKS LOCATED THROUGHOUT THE PLANT ARE PROVIDED
253.15	PA + INTERCOM SYS.	A PA SYSTEM IS PROVIDED COMPRISED OF HANDSETS, AMPLIFIERS AND LOUDSPEAKERS
253.2	SIGNAL SYSTEMS	
253.21	FIRE DETECTION SYSTEM	ALLOWANCE
253.211		
253.212		
254.	FURNISHINGS + FIXTURES	
254.1	SAFETY EQUIPMENT	
254.11	PORTABLE FIRE EXTINGUISHRS	ALLOWANCE
254.2	CHEMICAL LAB + INSTR SHOP	
254.223	INSTRUMENT SHOP APPARATUS	ALLOWANCE
254.23	SPEC LAB FURNITURE+FIXTURE	ALLOWANCE
254.3	OFFICE EQUIP+FURNISHINGS	
254.31	OFFICE FURNITURE	
254.4	CHANGE ROOM EQUIPMENT	
254.41	LOCKERS+BENCHES	ALLOWANCE
254.5	ENVIRONMENT MONIT EQUIP	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
254.52	METEOROLOGICAL MONIT.EQUIP	QUANTITY: MET TOWER - 1 WIND SPEED AND DIR.-SENSORS - 2 TEMP. AND DEN POINT SENSORS - 2 DIFF. TEMP SENSORS - 1 BAROMETRIC PRESS SENSORS - 1 RAIN GAGES - 1 RELATIVE HUMIDITY SENSORS - 2 SIGNAL TRANSMITTERS - 9 STRIP CHART RECORDERS - 3
254.53	WATER QUALITY MONITORING	WATER QUALITY ANALYZER EQUIPMENT
254.54	THERMAL EFFLUENT MONITOR	TEMPERATURE DETECTORS
254.56	AIR QUALITY MONITORING	QUANTITY: SULFUR DIOXIDE MONITORS - 1 NO X MONITORS - 1 PARTICULATE MONITORS - 1 OXYGEN MONITORS - 1
254.6	DINING FACILITIES	
254.61	CAFETERIA EQUIPMENT	ALLOWANCE
255.	WASTE WATER TREATMENT EQPT	
255.1	ROTATING MACHINERY	
255.11	GROUP I -	
255.111	BATCH WASTE TRANS PUMP+MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.1111	BATCH WASTE TRANSFER PUMP	QUANTITY - 2 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 1100 GPM SPEED - TDH - 150 FT BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE -
255.1112	BATCH WASTE TRANS PUMP MTR	QUANTITY - 2 TYPE - HORSEPOWER - 125 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.112	SLUDGE FEED PUMP + MOTOR	
255.1121	SLUDGE FEED PUMP	QUANTITY - 2 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 75 GPM SPEED - TDH - 150 FT BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE -
255.1122	SLUDGE FEED PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 15 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.113	FILTRATE SUMP PUMP + MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.1131	FILTRATE SUMP PUMP	QUANTITY - 2 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 75 GPM SPEED - TDH - 75 FT BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE -
255.1132	FILTRATE SUMP PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 7.5 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.114	LIME SLURRY PUMP + MOTOR	
255.1141	LIME SLURRY PUMP	QUANTITY - 1 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 25 GPM SPEED - TDH - 75 FT BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE -
255.1142	LIME SLURRY PUMP MOTOR	QUANTITY - 1 TYPE - HORSEPOWER - 1 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.115	REGENERATION WASTE PMP+MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.1151	REGENERATION WASTE PUMP	QUANTITY - 2 TYPE - CENTRIFUGAL ORIENTATION - HORIZONTAL FLOW RATE - 75 GPM SPEED - TDH - 75 FT BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - DESIGN CODE -
255.1152	REGENERATION WASTE PMP MTR	QUANTITY - 2 TYPE - HORSEPOWER - 7.5 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.116	BATCH HOLD TK BLOWER + MTR	
255.1161	BATCH HOLDING TANK BLOWER	QUANTITY - 2 TYPE - FLOW RATE - 2000 SCFM STATIC PRESS - 20 PSIG SPEED - BHP - EFFICIENCY - DESIGN CODE -
255.1162	BATCH HOLD TK BLOWER MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 200 HP SPEED - VOLTAGE - 460, 3 PHASE, 60 HZ
255.117	ROT DRUM VAC FILT PUMP+MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.1171	ROTARY DRUM VACUUM PUMP	QUANTITY - 2 TYPE - ORIENTATION - FLOW RATE - 600 SQ FT SPEED - TDH - BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
255.1172	ROTARY DRUM MOTOR	QUANTITY - 2 TYPE - HORSEPOWER 100 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.1173	VACUUM PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 10 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.12	GROUP II	
255.121	SULFURIC ACID FEED PMP+MTR	
255.1211	SULFURIC ACID FEED PUMP	QUANTITY - 2 TYPE - GEAR ORIENTATION - HORIZONTAL FLOW RATE - 7.5 GPM SPEED - TDH - BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.1212	SULFURIC ACID FEED PMP MTR	QUANTITY - 2 TYPE - HORSEPOWER - 1 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.122	CAUSTIC FEED PUMP + MOTOR	
255.1221	CAUSTIC FEED. PUMP	QUANTITY - 2 TYPE - GEAR ORIENTATION - HORIZONTAL FLOW RATE - 7.5 GPM SPEED - TDH - BHP - NPSH - EFFICIENCY - DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
255.1222	CAUSTIC FEED PUMP MOTOR	QUANTITY - 2 TYPE - HORSEPOWER - 1 HP SPEED - VOLTAGE - 460V, 3 PHASE, 60 HZ
255.123	LIME SLRY TNK AGITATOR+MTR	
255.1231	LIME SLRY TANK AGITATOR	
255.1232	LIME SLRY TNK AGITATOR MTR	
255.124	REGENER TANK AGITATOR+MTR	
255.1241	REGENERATION TANK AGITATOR	
255.1242	REGENER TANK AGITATOR MTR	
255.125	PH ADJUST TNK AGITATOR+MTR	
255.1251	PH ADJUST TANK AGITATOR	
255.1252	PH ADJUST TNK AGITATOR MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.126	SLUDGE CONVEYOR + MOTOR	
255.1261	SLUDGE CONVEYOR	
255.1262	SLUDGE CONVEYOR MOTOR	
255.3	TANKS AND PRESSURE VESSELS	
255.31	BATCH HOLDING TANK	QUANTITY - 2 ORIENTATION - DIMENSIONS - 80 FT D X 36 FT H VOLUME - 1,350,000 GAL DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
255.32	LIME SLURRY HOLDING TANK	QUANTITY - 1 ORIENTATION - DIMENSIONS - 9 FT D X 12 FT H VOLUME - 5000 GAL DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
255.33	API SEPARATOR TANK	QUANTITY - 1 ORIENTATION - 3 FT X 6 FT X 44 FT H DIMENSIONS - VOLUME - DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
255.34	CAUSTIC STORAGE TANK	QUANTITY - 1 ORIENTATION - DIMENSIONS - 8.5 FT D X 14 FT H VOLUME - 6000 GAL DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.35	SULFURIC ACID STORAGE TANK	QUANTITY - 1 ORIENTATION - DIMENSIONS - 8.5 FT D X 14 FT H VOLUME - 6000 GAL DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL DESIGN CODE -
255.36	REGENERANT HOLDING TANK	QUANTITY - 1 ORIENTATION - DIMENSIONS - 11 FT D X 15 FT H VOLUME - 40000 GAL DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL-EPOXY COAT DESIGN CODE - DESIGN CODE -
255.37	PH ADJUSTMENT TANK	QUANTITY - 1 ORIENTATION - DIMENSIONS - 9 FT D X 12 FT H VOLUME - 5000 GAL DESIGN PRESS - DESIGN TEMP - MATERIAL - CARBON STEEL-EPOXY COAT DESIGN CODE -
255.5	PIPING	
255.51	2 IN + SMALLER	
255.511	CS/NNS	
255.52	2.5 IN + LARGER	
255.521	CS/NNS	
255.6	VALVES	
255.61	GATE	
255.7	PIPING-MISC ITEMS	
255.71	HANGERS AND SUPPORTS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.8	WASTE WATER I+C	TEMP ELEMENTS 5 CONTROLLERS 4 ANALYTICAL INSTRUMENTS 5 FLOW ELEMENTS 2 PROCESS SWITCHES 15 INDICATORS 15 ANNUNCIATORS 40 MISC DEVICES 20
255.9	FOUNDATIONS/SKIDS	
255.91	BATCH HOLDING TANK FOUND	
255.911	EXCAVATION WORK	
255.9111	EXCAVATION-EARTH	
255.913	SUBSTRUCTURE CONCRETE	
255.9131	FORMWORK	
255.9132	REINFORCING STEEL	
255.9133	CONCRETE	
255.92	LIME SLURRY HOLD TNK FOUND	
255.921	EXCAVATION WORK	
255.923	SUBSTRUCTURE CONCRETE	
255.9231	FORMWORK	
255.9232	REINFORCING STEEL	
255.9233	CONCRETE	
255.93	PH ADJUSTMENT TANK FOUND	
255.931	EXCAVATION WORK	
255.933	SUBSTRUCTURE CONCRETE	
255.9331	FORMWORK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.9332	REINFORCING STEEL	
255.9333	CONCRETE	
255.94	DEWATERING MACHINE FOUND	
255.941	EXCAVATION WORK	
255.9411	EXCAVATION-EARTH	
255.9414	BACKFILL-EARTH	
255.943	SUBSTRUCTURE CONCRETE	
255.9431	FORMWORK	
255.9432	REINFORCING STEEL	
255.9433	CONCRETE	
255.95	CAUSTIC + ACID TANKS FOUND	
255.951	EXCAVATION WORK	
255.9511	EXCAVATION-EARTH	
255.9514	BACKFILL-EARTH	
255.953	SUBSTRUCTURE CONCRETE	
255.9531	FORMWORK	
255.9532	REINFORCING STEEL	
255.9533	CONCRETE	
255.96	MISC PUMP FOUNDATIONS	FOUNDATIONS INCLUDED FOR :
		2 CAUSTIC PUMPS
		2 SULFURIC ACID PUMPS
		1 LIME SLURRY PUMP
		2 FILTRATE PUMPS
		2 SLUDGE TRANSFER PUMPS
255.961	EXCAVATION WORK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.9611	EXCAVATION-EARTH	
255.9614	BACKFILL-EARTH	
255.963	SUBSTRUCTURE CONCRETE	
255.9631	FORMWORK	
255.9632	REINFORCING STEEL	
255.9633	CONCRETE	
255.9634	EMBEDDED STEEL	
255.97	BATCH WASTE TNK BLOW FOUND	
255.971	EXCAVATION WORK	
255.9711	EXCAVATION-EARTH	
255.9714	BACKFILL-EARTH	
255.973	SUBSTRUCTURE CONCRETE	
255.9731	FORMWORK	
255.9732	REINFORCING STEEL	
255.9733	CONCRETE	
255.98	REGENERAT WASTE TANK FOUND	
255.981	EXCAVATION WORK	
255.9811	EXCAVATION-EARTH	
255.9814	BACKFILL-EARTH	
255.983	SUBSTRUCTURE CONCRETE	
255.9831	FORMWORK	
255.9832	REINFORCING STEEL	
255.9833	CONCRETE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
255.99	BATCH WST TRANS PUMP FOUND	
255.991	EXCAVATION WORK	
255.9911	EXCAVATION-EARTH	
255.9914	BACKFILL-EARTH	
255.993	SUBSTRUCTURE CONCRETE	
255.9931	FORMWORK	
255.9932	REINFORCING STEEL	
255.9933	CONCRETE	
26 .	MAIN COND HEAT REJECT SYS	
261.	STRUCTURES	
261.1	MAKEUP WTR INT + DISCH STR	SEE COST ESTIMATE FOR STRUCT QUANTITIES
261.11	INTAKE STRUCTURE	
261.111	EXCAVATION WORK	
261.1111	EARTH EXCAVATION	
261.1112	ROCK EXCAVATION	
261.1113	SHEETING (TEMP COFFERDAM)	
261.1114	STRCT STL (TEMP COFFERDAM)	
261.1115	PUMPING	
261.112	BEARING PILES (STEEL)	
261.113	SUBSTRUCTURE CONCRETE	
261.1131	FORMWORK	
261.1132	REINFORCING STEEL	
261.1133	CONCRETE	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM.	DESCRIPTION
261.1134	EMBEDDED STEEL	
261.1135	CONCRETE FINISH	
261.1136	WATERPROOFING	
261.1137	CONSTRUCTION JOINTS	
261.1138	RUBBING CONCRETE SURFACES	
261.114	SUPERSTRUCTURE	
261.1141	CONCRETE WORK	
261.1142	STRUCTURAL + MISC. STEEL	
261.11421	STRUCTURAL STEEL	
261.11422	GRATING (GALV)	
261.11423	HANDRAIL	
261.1143	EXTERIOR WALLS	
261.11431	CONCRETE	
261.11432	MASONRY	
261.1144	ROOF DECK	
261.11441	METAL ROOF DECK	
261.1145	ROOFING + FLASHING	
261.11451	B.U. ROOFG, INSULTN, + FLA	
261.1146	INTERIOR WALLS	
261.11461	CONCRETE WALLS	
261.11462	MASONRY WALLS	
261.11463	PARTITIONS	
261.1147	DOORS + WINDOWS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.11471	ROLLING STEEL DOORS	
261.11472	PERSONNEL DOORS	
261.11473	SASH + GLAZING	
261.1149	PAINTING	
261.11491	CONCRETE	
261.11492	STEELWORK	
261.11493	METAL DECK	
261.11494	HANDRAIL	
261.117	BULKHEAD	
261.1171	STEEL SHEETING	
261.1172	STRUCTURAL STEEL	
261.1173	GRAVEL FILL	
261.1174	DREDGING	
261.1175	RIP-RAP (12 IN. THICK)	
261.1176	CHAIN LINK FENCE(7FT HIGH)	
261.118	PROTECTIVE DOLPHINS	
261.1181	WOOD PILES	
261.119	BUILDING SERVICES	
261.1191	FLOOR DRAINS + PIPING	
261.1192	HEATING + VENTILATING	
261.11921	AXIAL WALL FANS	
261.11922	ELECTRIC UNIT HEATERS	
261.11928	INSTRUMENTATION + CONTROL	

ALLOWANCE

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.12	DISCHARGE STRUCTURE	
261.121	EXCAVATION WORK	
261.1211	EARTH EXCAVATION	
261.1212	BACKFILL	
261.1213	DREDGING	
261.122	BEARING PILES (STEEL)	
261.127	RIP-RAP (12 IN. THICK)	
261.128	MARKER PILES (WOOD)	
261.2	CIRC WATER PUMP HOUSE	SEE COST ESTIMATE FOR STRUCT QUANTITIES
261.21	BUILDING STRUCTURE	
261.211	EXCAVATION WORK	
261.2111	EARTH EXCAVATION	
261.2112	ROCK EXCAVATION	
261.2113	CONCRETE FILL	
261.2114	BACKFILL	
261.2115	PUMPING	
261.213	SUBSTRUCTURE CONCRETE	
261.2131	FORMWORK	
261.2132	REINFORCING STEEL	
261.2133	CONCRETE	
261.2134	EMBEDDED STEEL	
261.2135	FLOOR FINISH	
261.2136	WATERPROOFING	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.2137	CONSTRUCTION JOINTS	
261.2138	RUBBING CONCRETE SURFACES	
261.2139	WIRE FABRIC	
261.214	SUPERSTRUCTURE	
261.2141	CONCRETE WORK	
261.21411	FORMWORK	
261.214111	FORMWORK-WOOD	
261.214112	FORMWORK-METAL	
261.21412	REINF. STEEL	
261.21413	CONCRETE	
261.21414	EMBEDDED STEEL	
261.21415	FLOOR FINISH	
261.21416	WATERPROOFING	
261.21417	RUBBING CONCRETE SURFACES	
261.21418	CONSTRUCTION JOINTS	
261.2142	STRUCT + MISC. STEEL	
261.21421	STRUCT. STEEL	
261.21423	MISC. FRAMES, ETC.	
261.21425	FLOOR GRATING (GALV.)	
261.21426	STAIR TREADS	
261.21427	HANDRAILS	
261.2143	EXTERIOR WALLS	
261.21431	CONCRETE WALLS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.21432	METAL SIDING(INSULATED)	
261.2144	ROOF DECK	
261.21441	METAL ROOF DECK	
261.2145	ROOFING + FLASHING	
261.21451	B.U. ROOFING, FLASHING+INS	
261.2146	INTERIOR WALLS + PARTIT.	
261.21461	CONCRETE WALLS	
261.21462	MASONRY WALLS	
261.21463	PARTITIONS	
261.2147	DOORS + WINDOWS	
261.21471	ROLLING STEEL DOORS	
261.21472	PERSONNEL DOORS	
261.21473	SASH + GLAZING	
261.2149	PAINTING	
261.21491	CONCRETE	
261.21492	STEELWORK	
261.21493	METAL DECK	
261.21494	HANDRAIL	
261.22	BUILDING SERVICE	
261.221	PLUMBING + DRAINS	
261.2211	ROOF DRAINS & PIPING	
261.22111	DRAINS	

QUANTITY -	5
SIZE -	6 IN

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.22115	PIPING (ALL 2.5 IN + LGR)	
261.221151	GALV STEEL/NNS	
261.2212	FLOOR DRAINS & PIPING	
261.22121	DRAINS	QUANTITY - 4 SIZE - 4 IN MATERIAL - PVC QUANTITY - 15 SIZE - 4 IN MATERIAL - STEEL
261.22125	PIPING (ALL 2.5 IN + LGR)	
261.221251	CI/NNS	
261.221252	PVC/NNS	
261.222	HEATING, VENT, + AIR COND	
261.2221	ROTATING MACHINERY	
261.22211	PROPELLER FAN + MOTOR	
261.222111	PROPELLER FAN	QUANTITY - 3 X 33 1/3 PCT TYPE - WITH GUARD AND AUTO OUTLET DAMPERS FLOW RATE - 1.0 EOS CFM S.P. - 0.5 IN SAFETY CLASS - NNS SEISMIC CAT - NONE DESIGN CODE -
261.222112	PROPELLER FAN MOTOR	TYPE - HORSEPOWER - 20 HP SPEED - VOLTAGE - 460 V, 3 PHASE, 60 HZ
261.2222	HEAT TRANSFER EQUIPMENT	
261.22221	ELECTRIC UNIT HEATERS+MTR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.222211	ELECTRIC UNIT HEATERS	QUANTITY 3 HEAT ELEMENTS: NUMBER - POWER - 30 KW VOLTAGE - 460 V, 3 PHASE, 60 HZ FAN: FLOW - 2,200 CFM S.P. - SAFETY CLASS - SEISMIC CAT - DESIGN CODE -
261.222212	ELECTRIC UNIT HTR MOTORS	TYPE - HORSEPOWER - 0.25 HP SPEED - VOLTAGE - 115 V, 1 PH, 60 HZ
261.22226	VALVES + DAMPERS	
261.22269	SPECIAL VALVES + DAMPERS	
261.222691	INTAKE LOUVERS	QUANTITY - 3 TYPE - MANUAL OP INTAKE LOUVER FLOW - 1.0 EOS CFM SIZE - 44 FT W X 8 FT H MATERIAL - SAFETY CLASS - SEISMIC CAT -
261.224	LIGHTING & SERVICE POWER	
261.228	INSTRUMENTATION + CONTROL	ALLOWANCE
261.3	MAKEUP WTR PRETREATMNT BLG	SEE COST ESTIMATE FOR STRUCT QUANTITIES
261.31	BUILDING STRUCTURE	
261.311	EXCAVATION WORK	
261.3111	EARTH EXCAVATION	
261.3112	ROCK EXCAVATION	
261.3113	CONCRETE FILL	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.3114	FILL + BACKFILL	
261.3115	DEWATERING	
261.313	SUBSTRUCTURE CONCRETE	
261.3131	FORMWORK	
261.3132	REINFORCING STEEL	
261.3133	CONCRETE	
261.3134	EMBEDDED STEEL	
261.3135	FLOOR FINISH	
261.3136	WATERPROOFING	
261.3137	CONSTRUCTION JOINTS	
261.3138	RUBBING CONCRETE SURFACES	
261.314	SUPERSTRUCTURE	
261.3141	CONCRETE WORK	
261.31411	FORMWORK	
261.314111	FORMWORK-WOOD	
261.314112	FORMWORK-METAL	
261.31412	REINFORCING STEEL	
261.31413	CONCRETE	
261.31414	EMBEDDED STEEL	
261.31415	FLOOR FINISH	
261.31416	WATERPROOFING	
261.31417	RUBBING CONCRETE SURFACES	
261.31418	CONSTRUCTION JOINTS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.3142	STRUCTURAL + MISC STEEL	
261.31421	STRUCTURAL STEEL	
261.31423	MISCELLANEOUS FRAMES,ETC.	
261.31425	FLOOR GRATING (GALV.)	
261.31426	STAIR TREADS	
261.31427	HANDRAIL	
261.3143	EXTERIOR WALLS	
261.31431	CONCRETE WALLS	
261.31432	MASONRY WALLS	
261.31433	METAL INSULATED SIDING	
261.31434	WINDOW WALL	
261.3144	ROOF DECK	
261.31441	METAL ROOF DECK	
261.31442	PRECAST CONCRETE PANELS	
261.31443	CONCRETE FILL	
261.31444	REINFORCING STEEL	
261.3145	ROOFING + FLASHING	
261.31451	B.U. ROOFING,INSUL.+FLASH.	
261.31452	B.U. ROOF+FLASH(NO INSUL)	
261.3146	INTERIOR WALLS + PARTITION	
261.31461	CONCRETE WALLS	
261.31462	CONCRETE BLOCK	
261.31463	METAL PARTITIONS	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.31464	PLASTER BD PARTITIONS	
261.3147	DOORS + WINDOWS	
261.31471	ROOLING STEEL DOORS	
261.31472	PERSONNEL DOORS	
261.31473	SASH + GLAZING	
261.3148	WALLS,FLOORS+CEILG FINISHS	
261.3149	PAINTING	
261.31491	CONCRETE	
261.31492	STEELWORK	
261.31493	METAL DECK	
261.31494	SPECIAL METALLIC PAINT	
261.31495	HANDRAIL	
261.31496	EPOXY	
261.32	BUILDING SERVICES	
261.321	PLUMBING + DRAINS	
261.3211	ROOF DRAINS + PIPING	
261.32111	DRAINS	QUANTITY - 3 SIZE - 6 IN
261.32115	PIPING (ALL 2.5 IN+LARGER)	
261.321151	GALV STEEL/NNS	
261.3212	FLOOR DRAINS + PIPING	
261.32121	DRAINS	QUANTITY- 4 SIZE - 4 IN
261.32125	PIPING (ALL 2.5 IN+LARGER)	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.321251	CS/NNS	
261.321252	CI/NNS	
261.322	HEATING, VENT, + AIR COND	
261.3221	ROTATING MACHINERY	
261.32211	ROOF VENTILATORS + MOTORS	
261.322111	ROOF VENTILATORS	QUANTITY- 3 X 33 1/3 PCT TYPE - AXIAL FAN FLOW RATE - 20,000 CFM S.P. - 0.5 IN SAFETY CLASS - NNS SEISMIC CAT. - NONE DESIGN CODE -
261.322112	ROOF VENTILATORS MOTORS	TYPE - AC INDUCTION HORSEPOWER - 5 HP SPEED - VOLTAGE - 460 V, 3 PH, 60 HZ
261.3222	HEAT TRANSFER EQUIPMENT	
261.32221	ELECTRIC UNIT HEATER+MOTOR	
261.322211	ELECTRIC UNIT HEATER	QUANTITY- 3 X 33 1/3 PCT HEATER: TYPE - ELECTRIC KW - 38 KW VOLTAGE - 460 V, 3 PH, 60 HZ FAN: TYPE - CENTRIFUGAL FLOW RATE 2800 CFM STATIC PRESS -
261.322212	ELECTRIC UNIT HEATER+MOTOR	TYPE - AC INDUCTION HORSEPOWER - 0.5 HP SPEED VOLTAGE 115 V, 1 PH, 60 HZ
261.3226	VALVES + DAMPERS	
261.32269	SPECIAL VALVES	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.322691	INTAKE LOUVERS	QUANTITY- 3 X 33 1/3 PCT TYPE - FLOW - 20,000 CFM SIZE - 140 IN W X 60 IN H MATERIAL - EXTRUDED ALUMINUM SAFETY CLASS - NNS SEISMIC CAT. - NONE
261.3228	INSTRUMENTATION + CONTROL	
261.324	LIGHTING + SERVICE POWER	
261.4	CHLORINATION BUILDING	SEE COST ESTIMATE FOR STRUCT QUANTITIES
261.41	BUILDING STRUCTURE	
261.411	EXCAVATION WORK	
261.4111	EARTH EXCAVATION	
261.4114	BACKFILL	
261.413	SUBSTRUCTURE CONCRETE	
261.4131	FORMWORK	
261.4132	REINF. STEEL	
261.4133	CONCRETE	
261.4134	EMBEDDED STEEL	
261.4135	FLOOR FINISH	
261.4136	WATERPROOFING	
261.4137	CONSTRUCTION JOINTS	
261.4138	RUBBING CONCRETE SURFACES	
261.4139	WIRE FABRIC	
261.414	SUPERSTRUCTURE	
261.4141	CONCRETE WORK	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
261.4142	STRUCT. + MISC. STEEL	
261.41421	STRUCT. STEEL	
261.41423	MISC. FRAMES, ETC.	
261.4143	EXTERIOR WALLS	
261.41432	MASONRY	
261.4144	ROOF DECK	
261.41441	METAL ROOF DECK	
261.4145	ROOFING + FLASHING	
261.41451	B.U. ROOFING, FLASHING+INSUL	
261.4147	DOORS + WINDOWS	
261.41472	PERSONNEL DOORS	
261.41473	SASH + GLAZING	
261.4149	PAINTING	
261.41492	STEELWORK	
261.41493	METAL DECK	
261.424	LIGHTING + SERVICE POWER	
262.	MECHANICAL EQUIPMENT	
262.1	HEAT REJECTION SYSTEM	
262.11	WATER INTAKE EQUIPMENT	
262.111	ROTATING MACHINERY	
262.1111	SCREEN WASH PUMP+MOTOR	

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.11111	SCREEN WASH PUMP	QUANTITY 2 X 100 PCT. TYPE CENTRIFUGAL ORIENTATION VERTICAL FLOW RATE 90 GPM SPEED 3600 RPM TDH 100 FT BHP 3 HP NPSH EFFICIENCY 75 PCT. DESIGN PRES. 100 PSI DESIGN TEMP 100 F MATERIAL NI-RESIST COL. AND BOWL S.S. IMPELLER SAFETY CLASS NNS SEISMIC CAT. NONE DESIGN CODE
262.11112	SCREEN WASH PUMP MOTOR	TYPE RATING 5 HP SPEED 3600 RPM VOLTAGE 460V, 3 PHASE, 60 HZ
262.114	PURIFICATION+FILTRATION EQ	
262.1141	TRAVELING SCREENS	QUANTITY 2 X 50 PERCENT SCREEN SIZE 5 FT WIDE X 29 FT HIGH BASKET SIZE 4FT-6IN WIDE X 30IN HI. 3/8 IN. S.S. MESH SCREEN SPEED HIGH - LOW - FLOW VEL. 1/2 FPS APPROACH SCREEN 1 FPS THROUGH MESH DESIGN FLOW 10100 GPM
262.1142	TRASH RACK	TYPE VERTICAL BARS DIMENSION 0.5 IN WIDE BY 3.5 IN DEEP BY 28 FT HIGH; BAR SPACING 3.5 IN APART MATERIAL CARBON STEEL
262.1143	TRASH RAKE	MOTORIZED, FULLY AUTOMATIC RAKING TYPE, SIZED TO CLEAN RACK IN FRONT OF EACH SCREEN IN SINGLE PASS

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MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.1144	STOP LOGS	REINFORCED CONCRETE PLANKS, 6 IN THICK BY 18 IN HIGH BY 6 FT LONG, AS REQUIRED
262.1145	SCREEN WASH STRAINER	QUANTITY 1 TYPE AUTOMATIC-SELF CLEANING FLOW RATE 90 GPM DESIGN PRES. 50 PSIG DESIGN TEMP 100 F DIFF. PRES. CLEAN/DIRTY RATING SIZE MATERIAL C.S. BODY, S.S. MESH DIRT CAPACITY SAFETY CLASS NNS SEISMIC CAT. NONE DESIGN CODE
262.115	PIPING-SCREEN WASH	
262.1151	2 IN. + SMALLER	
262.1152	2.5 IN. + LARGER	
262.11521	CS/NNS	
262.116	VALVES-SCREEN WASH	
262.1162	CHECK	
262.1166	BUTTERFLY	
262.117	PIPING-MISC ITEMS	
262.1171	HANGERS + SUPPORTS	
262.1172	INSULATION	
262.1173	SPECIALTIES	
262.12	CIRCULATING WATER SYSTEM	
262.121	ROTATING MACHINERY	
262.1211	CIRCULATING WATER PUMP+MTR	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.12111	CIRC WATER PUMP	QUANTITY 3 X 33-1/3 PCT TYPE MIXED FLOW ORIENTATION VERTICAL FLOW RATE 104,300 GPM SPEED 391 RPM TDH 92 FT BHP 2,754 HP NPSH 30 FT EFFICIENCY 88 PCT DESIGN PRESS 150 PSIA DESIGN TEMP 100 F MATERIAL NI-RESIST COL. AND BOWL S.S. IMPELLER SAFETY CLASS NNS SEISMIC CAT. NONE DESIGN CODE
262.12112	CIRC WATER PUMP MOTOR	TYPE HORSEPOWER 3000 HP. SPEED 400 RPM VOLTAGE
262.125	PIPE	
262.1251	2 IN + SMALLER	
262.1252	2.5 IN + LARGER	
262.12521	CONCRETE/NNS	
262.12522	CS/NNS	
262.126	VALVES	
262.1266	BUTTERFLY	
262.127	PIPING / MISC. ITEMS	
262.1271	HANGERS + SUPPORTS	NONE
262.1272	INSULATION	
262.1273	SPECIALTIES	
262.1274	PIPE TRENCHING	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.12741	EXCAVATION	
262.127411	EARTH EXCAVATION	
262.127412	ROCK EXCAVATION	
262.12742	BACKFILL	
262.12743	COMPACTED SAND BED	
262.12744	SUBSTRUCTURE CONCRETE	
262.127441	FORMWORK	
262.127442	REINF STEEL	
262.127443	CONCRETE	
262.128	INSTRUMENTATION + CONTROL	TRANSMITTER 1 LOCAL INDICATOR 3 BOARD MOUNTED INDICATOR 15 FLOW ELEMENT 1 TEMP ELEMENT 11 TEMP TRANSMITTER 3 PROCESS SWITCH 4 MISC DEV 1
262.129	SKIDS / FOUNDATIONS	
262.1291	CHLORINATION SYSTEM	5,000 LB PER DAY CHLORINATOR USING LIQUID CHLORINE STORED IN ONE TON CYLINDERS. CHLORINATOR IS COMPLETE WITH REGULATOR, WATER DILUTION STATION AND EVAPORATOR .
262.1292	SULPHURIC ACID FEED SYSTEM	
262.12921	ROTATING MACHINERY	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS, 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.129211	SULFURIC ACID FEED PUMP+MT	QUANTITY 2 X 100 PCT. TYPE POSITIVE DISPLACEMENT ORIENTATION HORIZONTAL FLOW RATE 0 - 50 GPH SPEED TDH BHP NPSH EFFICIENCY DESIGN PRES. DESIGN TEMP MATERIAL ALLOY 20 SAFETY CLASS NNS SEISMIC CAT. NONE DESIGN CODE
262.129212	SULF ACID FEED PUMP MOTOR	TYPE HORSEPOWER 0.5 HP SPEED VOLTAGE 460V, 3 PH, 60 HZ
262.12923	TANKS AND PRESSURE VESSELS	
262.12925	PIPING	
262.129251	2 IN. + SMALLER-CS/NNS	
262.129252	2.5 IN. + LARGER	
262.12926	VALVES	ALLOWANCE
262.13	COOLING TOWERS	
262.132	HEAT XFER EQUIPMENT	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.1321	COOLING TOWERS(CT)-MAIN	QUANTITY 2 X 50 PCT. TYPE CIRCULAR MECH. DRAFT CONCRETE SHELL WIDTH 210 FT HEIGHT TO FAN DECK 49 FT VOLUME OF BASIN 225,000 CF EACH NO. OF FANS 8 EACH DESIGN FLOW 162,000 GPM EACH DIAMETER OF FAN 33 FT POWER OF FAN 200 HP DESIGN WET BULB 74 F DESIGN APPROACH 18 F DESIGN RANGE 26 F SAFETY CLASS NNS SEISMIC NONE DESIGN CODE
262.138	INSTRUMENTATION + CONTROL	TRANSMITTERS 9 LOCAL INDICATORS - 6 BOARD MOUNTED INDICATOR 10 FLOW ELEMENT 7 RECORDER 8 TEMP ELEMENT 32 TEMP. TRANSMITTER 20 CONTROLLER 5 ANALYTICAL INSTRUMENT 3 PROCESS SWITCH 1 ANNUNCIATOR 21 MISC. DEVICES 29
262.15	MAIN CT.MAKEUP+BLOWDN SYS.	
262.151	MAKE-UP WATER SYSTEM	
262.1511	ROTATING MACHINERY	
262.15111	MAKE-UP PUMP + MOTOR	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN,USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.151111	MAKE-UP PUMP	QUANTITY 2 X 100 PCT. TYPE CENTRIFUGAL ORIENTATION VERTICAL FLOW RATE 10,100 GPM SPEED 870 RPM TDH 35 FT. BHP 99 HP NPSH 20 FT EFFICIENCY 90 PCT. DESIGN PRES 150 PSI DESIGN TEMP 100 F MATERIAL NI-RESIST COL. AND BOWL S.S. IMPELLER SAFETY CLASS NNS SEISMIC CAT. NONE DESIGN CODE
262.151112	MAKE-UP PUMP MOTOR	TYPE RATING 100 HP SPEED 900 RPM VOLTAGE
262.1515	PIPING	
262.15151	2IN.+ SMALLER	
262.15152	2.5IN + LARGER	
262.151521	CONCRETE/NNS	
262.1516	VALVES	
262.15162	CHECK VALVES	
262.15163	GLOBE VALVES	
262.15166	BUTTERFLY VALVES	
262.1517	PIPING - MISC. ITEMS	
262.15171	HANGERS + SUPPORTS	
262.15172	INSULATION	NONE
262.15173	SPECIALTIES	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.15174	PIPE TRENCHING	
262.151741	EXCAVATION	
262.151742	BACKFILL	
262.151743	COMPACTED SAND BED	
262.1518	INSTRUMENTATION + CONTROL	
262.152	BLOWDN SYSTEM	
262.1525	PIPING	
262.15251	2 IN. + SMALLER	
262.15252	2.5 IN. + LARGER	
262.152521	CONCRETE/NNS	
262.1526	VALVES	
262.15266	BUTTERFLY	
262.1527	PIPING-MISC ITEMS	
262.15271	HANGERS + SUPPORTS	
262.15272	INSULATION	
262.15273	SPECIALTIES	
262.15274	PIPE TRENCHING	INCLUDED IN ACCOUNT 262.15174
262.1528	INSTRUMENTATION & CONTROL	

EQUIPMENT LIST - REPORT 1

08/30/77

MODEL 620 - 0801 MWE/2200 MWT COAL - 2.5/1.7 IN HG AV - MIDDLETOWN, USA - LOW SULFUR - COST BASIS 07/76

ACCOUNT NUMBER	ITEM	DESCRIPTION
262.153	MAKEUP WTR PRETREATMNT SYS	TYPE - HORIZONTAL CLARIFIERS INCLUDING ALL PIPING, VALVES AND ACCESSORIES AS REQUIRED FOR A COMPLETE SYSTEM. FLOW RATE - 10,100 GPM SAFETY CLASS - NNS SEISMIC CAT. - NONE DESIGN CODE - EQUIPMENT SUMMARY: HORIZONTAL CLARIFIERS - 3 X 33.3 PCT SAND FILTERS - 3 X 50 PCT CARBON FILTERS - 3 X 50 PCT CHEMICAL FEEDS - 1 LOT SLUDGE DEWATERING SYS - 1 LOT

C

SECTION 6
SITE DESCRIPTION

SECTION 6

SITE DESCRIPTION

6.1 GENERAL

This section provides the site and environmental data as derived from Appendix A of "Guide for Economic Evaluation of Nuclear Reactor Plant Designs", USAEC Report NUS-531, and modified to reflect Coal Plant Siting. These data form the bases of the criteria used for designing the facility and for evaluating the release of liquids and gases to the environment.

6.2 TOPOGRAPHY AND GENERAL SITE CHARACTERISTICS

The site is located on the east bank of the North River at a distance of approximately twenty-five miles south of Middletown, the nearest large city. The North River flows from north to south and is one-half mile (2600 ft) wide adjacent to the plant site. A flood plain extends from both river banks an average distance of one-half mile, ending with hilltops generally 150 to 250 ft above the river level. Beyond this area, the topography is gently rolling, with no major critical topographical features. The plant site itself extends from river level to elevations to 50 ft above river level. The primary structures and the switchyard are located on level ground at an elevation of 18 ft above the mean river level. This elevation is ten ft above the 100 year maximum river level, according to U. S. Army Corps of Engineers studies of the area.

In order to optimize land area requirements for the coal fueled plant site, maximum use of the river location is employed. The primary structure is located 1200 ft from the east bank of the river. The site land area

is approximately 500 acres. An additional 2,000 acres, approximately six miles from the plant site, are available for solid waste disposal.

6.3 SITE ACCESS

Highway access is provided to the hypothetical site by five miles of secondary road connecting to a State highway. This road is in good condition and needs no additional improvements. Railroad access is provided by constructing a railroad spur which intersects the B&M Railroad. The length of the required spur from the main line to the plant site is assumed to be five miles in length. The North River is navigable throughout the year with a 40 ft wide by 12 ft deep channel. The distance from the shoreline to the center of the ship channel is 2,000 ft. All plant shipments are assumed to be made overland except that heavy equipment may be transported by barge. The Middletown Municipal Airport is located three miles west of the State highway, 15 miles south of Middletown, and ten miles north of the site.

6.4 POPULATION DENSITY AND LAND USE

The hypothetical site is near a large city (Middletown, of 250,000 population) but in an area of low population density. Variation in population with distance from the site boundary is:

<u>Miles</u>	<u>Cumulative Population</u>
0.5	0
1.0	310
2.0	1,370
5.0	5,020
10.0	28,600
20.0	133,000
30.0	1,010,000

There are five industrial manufacturing plants within 15 miles of the hypothetical site. Four are small plants employing less than 100 people each. The fifth, near the airport, employs 2,500 people. Closely populated areas are found only in the centers of the small towns, so the total land area used for housing is small. The remaining land, including that across the river, is used as forest or cultivated crop land, except for railroads and highways.

6.5 NEARBY FACILITIES

Utilities are available as follows:

- o Natural gas service is available two miles from the site boundary on the same side of the river
- o Communication lines will be furnished to the project boundaries at no cost
- o Power and water for construction activities are available at the southwest corner of the site boundary
- o The design provides a connection to the utility grid at two different voltage levels; 500 kV for the generator connection and 230 kV for the reserve auxiliary transformer connection.

6.6 METEOROLOGY AND CLIMATOLOGY

6.6.1 Ambient Temperatures

The winters in the Middletown area are moderately cold, with average temperatures in the low 30's. The summers are fairly humid with average temperatures in the low 70's, and with high temperatures averaging around 82 F. The historic maximum wet bulb and dry bulb temperatures are 78 F and 99 F respectively.

The year-round temperature duration curves for the dry bulb temperatures and coincident wet bulb temperatures are shown in Figure 6-1.

6.6.2 Prevailing Wind

According to Weather Bureau records at the Middletown Airport, located ten miles North of the site on a low plateau just east of the North River, surface winds are predominantly southwesterly 4-10 knots during the warm months of the year, and westerly 6-13 knots during the cool months.

There are no large diurnal variations in wind speed or direction. Observations of wind velocities at altitudes indicate a gradual increase in mean velocity and a gradual veering of the prevailing wind direction from southwest and west near the surface to westerly and northwesterly aloft.

In addition to the above, studies of the area indicate that there is a significant channeling of the winds below the surrounding hills into the north-south orientation of the North River. It is estimated that these winds within the river valley blow approximately parallel to the valley orientation in excess of 50 percent of the time.

6.6.3 Atmospheric Diffusion Properties

The transport and dilution of materials in the form of aerosols, vapors, or gases released into the atmosphere from the Middletown coal power station are a function of the state of the atmosphere along the plume path, the topography of the region, and the characteristics of the effluents themselves. For a routine airborne release, the concentration of materials in the surrounding region depends on the amount of effluent released, the height of the release, the windspeed, atmospheric stability, and airflow patterns of the site, and various effluent removal mechanisms. Geographic features such as hills and valleys influence diffusion and airflow patterns. Of the diffusion models that have been developed, the straight line trajectory model is utilized to calculate the atmospheric diffusion from the Middletown site.

The straight-line trajectory model assumes that the airflow transports and diffuses effluents along a straight line through the entire region of interest in the airflow direction at the release point. The version of this model which is used is the Gaussian straight-line trajectory model. In this model, the windspeed and atmospheric stability at the release point are assumed to determine the atmospheric diffusion characteristics in the direction of airflow.

6.6.4 Severe Meteorological Phenomena

A maximum instantaneous wind velocity of 100 mph has been recorded at the site. During the past 50 years, three tropical storms, all of them in

the final dissipation stages, have passed within 50 miles of the site. Some heavy precipitation and winds in excess of 40 miles/hr were recorded, but no significant damage other than to crops resulted.

The area near the site experiences an average of 35 thunderstorms a year, with maximum frequency in early summer. High winds near 60 mph, heavy precipitation, and hail are recorded about once every four years.

In forty years of record, there have been twenty tornadoes reported within fifty miles of the site. Maximum tornado frequency occurs during the months of May and June.

During the past forty years, there have been ten storms in which freezing rain has caused power transmission line disruptions. Most of these storms have occurred early in December.

6.6.5 Ambient Background Concentrations

Background concentrations of SO_2 , NO_x and particulates are typical of a rural area approximately 30 miles from a major industrial metropolitan center. They are considered when determining the plant's adherence to the guidelines.

6.6.6 Air Quality Estimation

Ambient pollutant levels are estimated through the application of atmospheric diffusion models. The estimates are based primarily upon the pollutant emissions, meteorology, topography, and background concentration as previously described. Modeling techniques described in the Turner Atmospheric Dispersion Workbook are used for concentration estimates.*

6.7 HYDROLOGY

The North River provides an adequate source of raw makeup water for the station. The average maximum temperature is 75 F and the average minimum is 39 F. The mean annual temperature is 57 F.

U.S. Army Corps of Engineers' studies indicate that the 100 year maximum flood level rose to eight feet above the mean river level. There are no dams near the site whose failure could cause the river to rise above the eight foot level.

6.8 GEOLOGY AND SEISMOLOGY

6.8.1 Soil Profiles and Load Bearing Characteristics

Soil profiles for the site show alluvial soil and rock fill to a depth of eight feet; Brassfield limestone to a depth of 30 ft; blue weathered shale and fossiliferous Richmond limestone to a depth of 50 ft; and bedrock over a depth of 50 ft. Allowable soil bearing is 6,000 psf and rock bearing characteristics are 18,000 psf and 15,000 psf for Brassfield and Richmond strata, respectively. No underground cavities exist in the limestone.

* Turner, D. B., "Workbook of Atmospheric Dispersion Estimates", Public Health Service Publication No. 999-AP-26, U.S. Department of Health, Education, and Welfare, Public Health Service, Consumer Protection and Environmental Health Service, National Air Pollution Control Administration, Cincinnati, Ohio Revised 1969.

6.8.2 Seismology

The site is located in a generally seismically inactive region. Historical records show three earthquakes have occurred in the region between 1870 and 1975.

6.9 SEWAGE AND LIQUID EFFLUENTS

All sewage receives primary and secondary treatment prior to discharge into the North River. Other wastewater is discharged in compliance with EPA effluent standards as promulgated in 40 CFR 423.

6.10 AIR EMISSIONS

Air emissions comply with EPA New Source Performance Standards as promulgated in 40 CFR 60. Discharge of SO_2 , does not exceed 1.2 lb per million Btu heat input; NO_x does not exceed 0.70 lb per million Btu heat input; and particulate does not exceed 0.1 lb per million Btu heat input.

The plant air emissions do not cause air quality levels to exceed national primary and secondary air quality standards as defined in 42 CFR 410.

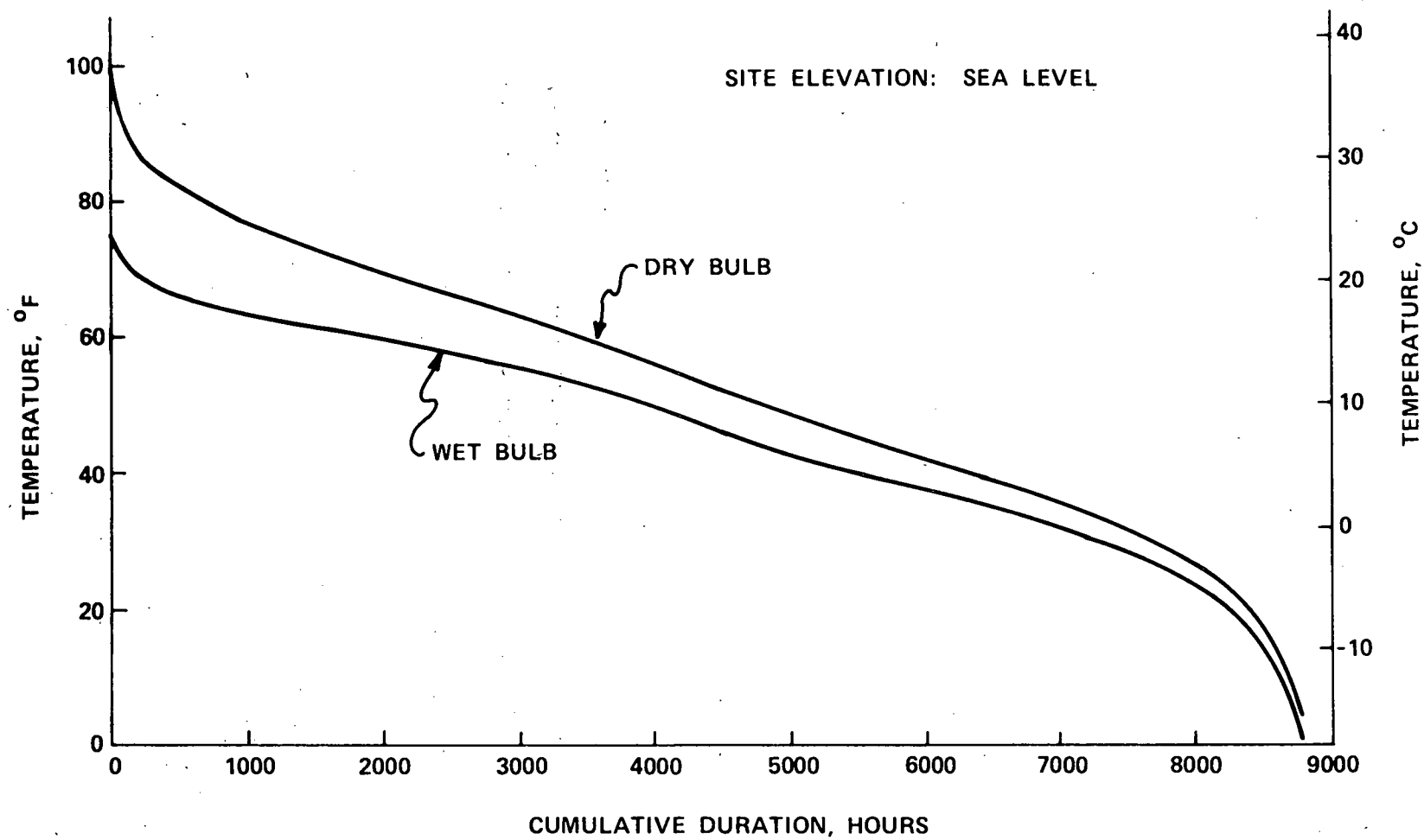


FIGURE 6-1 TEMPERATURE DURATION CURVES: MIDDLETOWN, U.S.A.

VALVE BODIES

OPEN	CLOSED	
		SLIDING GATE
		GATE
		GLOBE
		BUTTERFLY
		THREE WAY
		ANGLE
		SAFETY OR RELIEF
		SWING CHECK
		STOP CHECK
		SAUNDERS (WEIR)
		POWER ASSISTED NON-RETURN
		POWER ACTUATE PRESSURE RELIEF

PIPING SYMBOLS

	EXPANSION JOINT
	ORIFICE
	REDUCER

VALVE ACTUATOR

T	HANDWHEEL - MANUAL
	GEAR-MANUAL
	ELECTRIC MOTOR
	SOLENOID (SPRING OPPOSED)
	PISTON OR CYLINDER
	ELECTRO-HYDRAULIC
	DIAPHRAGM (SPRING OPPOSED)

INSTRUMENT SYMBOL

	FLOW NOZZLE
--	-------------

LINE DESIGNATIONS

	LINE CONTINUES TO
	LINE CONTINUES FROM
	PRIMARY PROCESS FLOW
	SECONDARY PROCESS FLOW

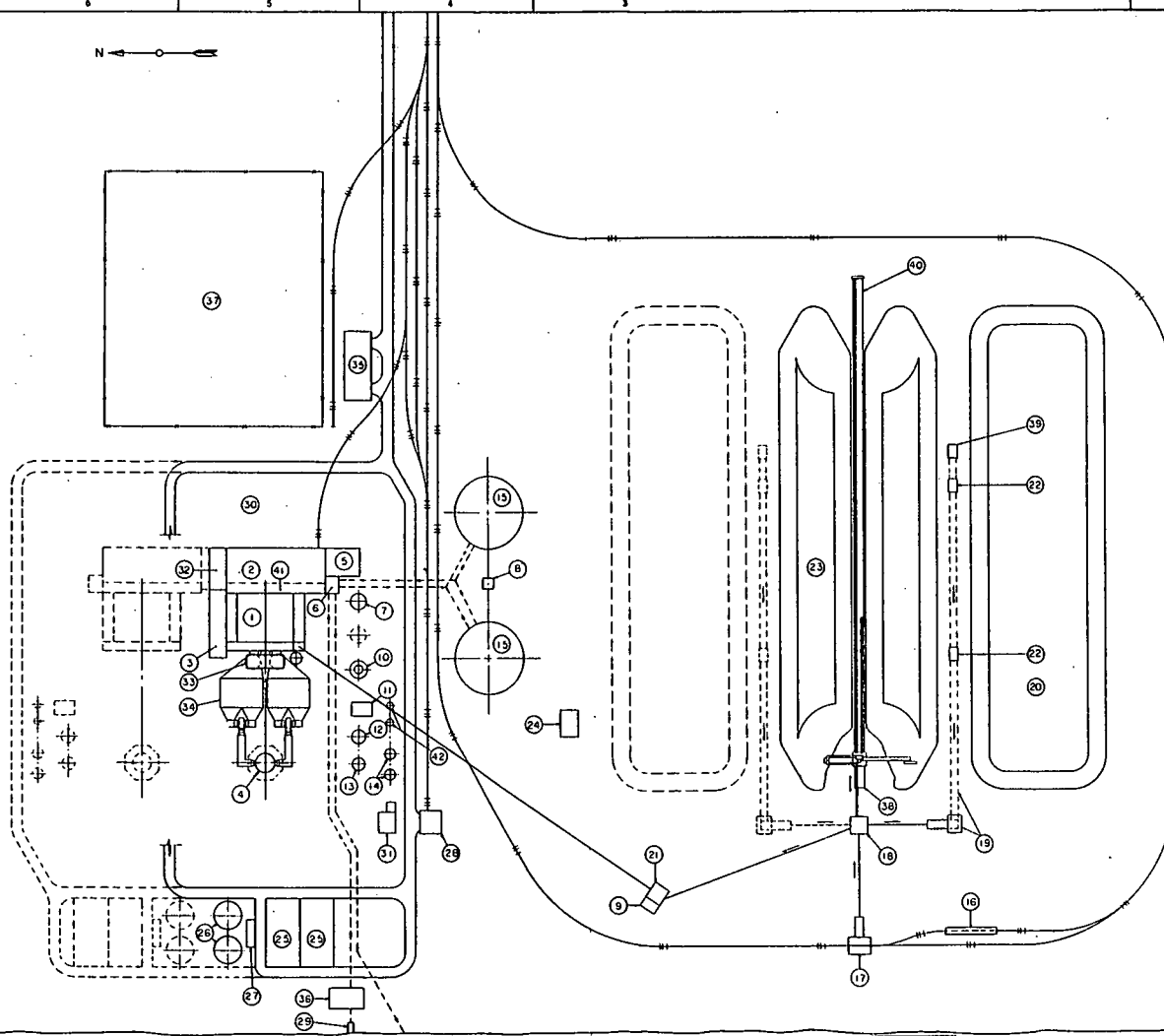
EQUIPMENT SYMBOLS

	FILTER		STRAINER
	HEAT EXCHANGER TUBE END		
	HEAT EXCHANGER SHELL SIDE		
	TANK		
	FEEDWATER (F.W.) HEATER VENTS & DRAINS		
	HORIZONTAL PUMP		
	VERTICAL PUMP		
	POSITIVE DISPLACEMENT PUMP		
	FAN OR BLOWER		

PLANT NOMENCLATURE

- 1-BOILER HOUSE
- 2-TURBINE HALL
- 3-SERVICE AREA
- 4-STACK
- 5-ADMINISTRATION BUILDING
- 6-CIRCULATING WATER PUMP HOUSE
- 7-CONDENSATE STORAGE TANK
- 8-COOLING TOWER SWITCHGEAR BUILDING
- 9-COAL HANDLING SYSTEM SWITCHGEAR BUILDING
- 10-FUEL OIL TANK
- 11-BATCH WASTE SUMP
- 12-RECIRCULATING TANK
- 13-SETTLING TANK
- 14-DEWATERING BINS
- 15-MAIN COOLING TOWERS
- 16-CAR THAW SHED
- 17-ROTARY CAR DUMPER
- 18-STACKER/RECLAIMER TRANSFER TOWER
- 19-RECLAIM TRANSFER TUNNEL
- 20-COAL PILE (45 DAY-DEAD STORAGE)
- 21-CRUSHER HOUSE
- 22-RECLAIM HOPPERS
- 23-COAL PILE (15 DAY-ACTIVE STORAGE)
- 24-COAL PILE SETTLING BASIN
- 25-WASTE WATER SETTLING BASIN
- 26-BATCH HOLDING TANK
- 27-WASTE WATER TREATMENT BUILDING
- 28-LOCOMOTIVE REPAIR SHOP
- 29-MAKE-UP WATER INTAKE STRUCTURE/FIRE PUMP HSE
- 30-TRANSFORMER YARD
- 31-MATERIAL HANDLING & SERVICE SWITCHGEAR BUILDING
- 32-CONTROL SWITCHGEAR AREA
- 33-SECONDARY AIR PREHEATERS
- 34-PRECIPITATORS
- 35-WAREHOUSE
- 36-MAKE-UP WATER PRETREATMENT BUILDING
- 37-SWITCHYARD
- 38-BUCKET WHEEL STACKER/RECLAIMER
- 39-VENTILATION FAN HOUSE
- 40-STACKER/RECLAIMER YARD CONVEYOR
- 41-AUXILIARY BAY
- 42-FLY ASH SILOS

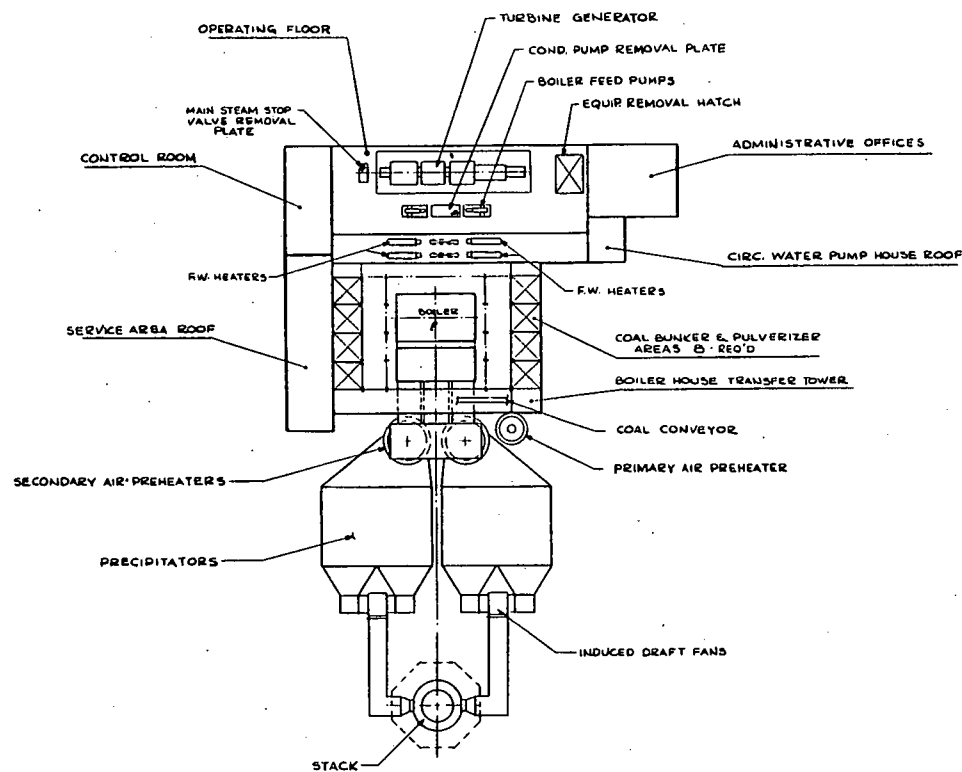
N



NORTH RIVER
FLOW

100 50 100 200
SCALE-(FEET)

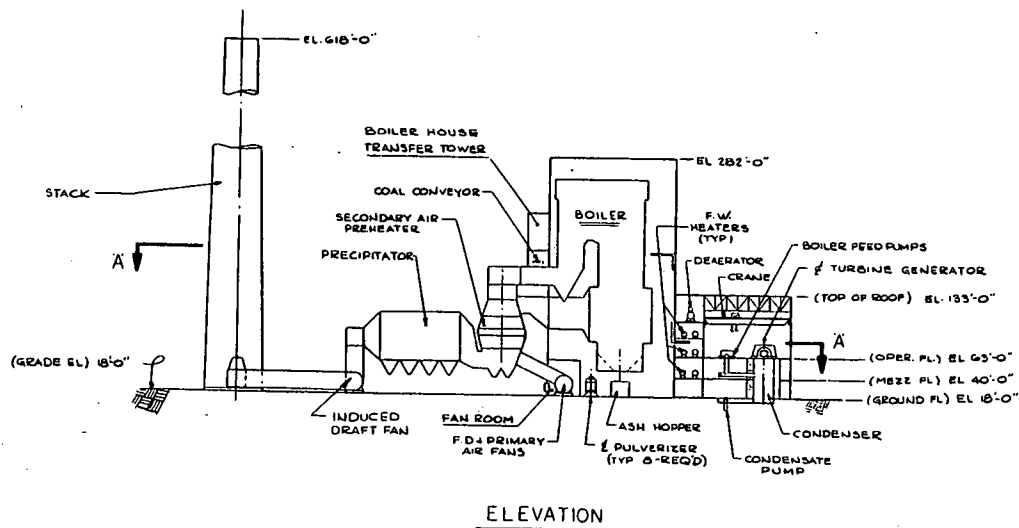
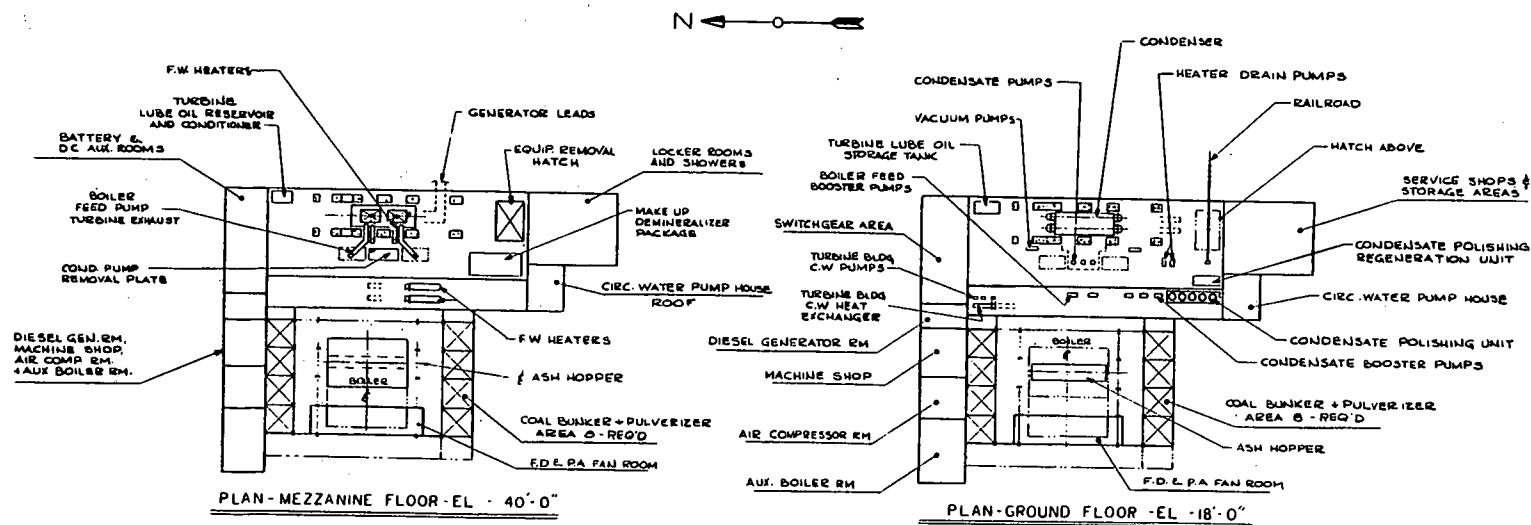
PLOT PLAN
801 MW FOSIL PLANT
HIDLETON HYPOTHEICAL SITE
United Engineers
6515001-1SC-2



NOTE
FOR PLANE OF SECTION 'A-A'
SEE 6515.001-LSC-4.

0' 60' 120'
SCALE - FEET

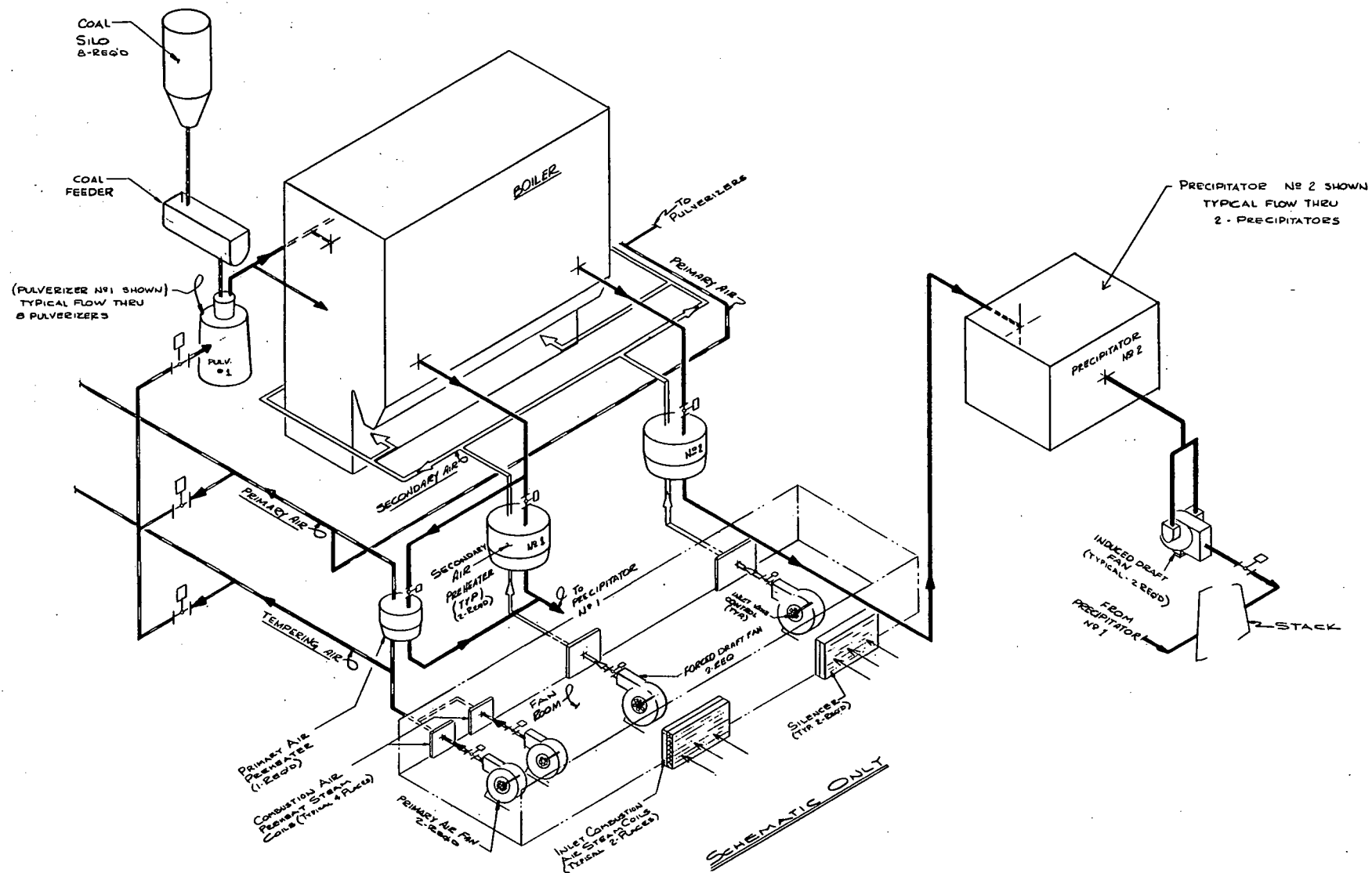
GENERAL ARRANGEMENT
PLAN 'A-A' (EL 63'-0" TO 180'-0")
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
 united engineers & constructors, inc.
6515.001-LSC-3



NOTE
FOR PLAN "A-A" SEE 6315.001-LSC-3.

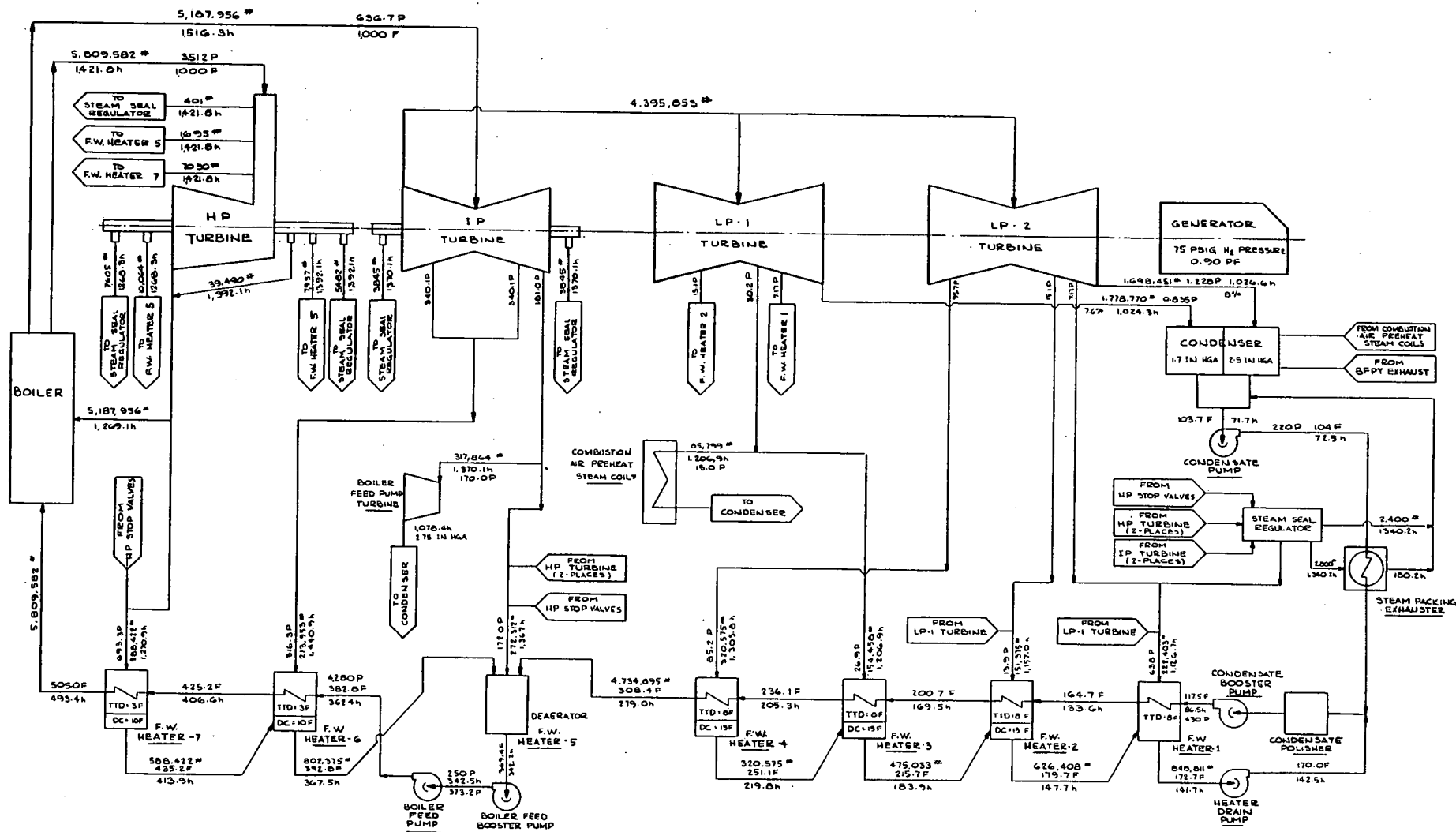
0' 60' 120'
SCALE FEET

GENERAL ARRANGEMENT
PLANS (EL. 18'-0" & 40'-0")
AND ELEVATION
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
United engineers
6315.001-LSC-4



NOTE
FOR SYMBOL LEGEND SEE
6515.001-LSC-1.

FLOW DIAGRAM
BALANCED DRAFT SYSTEM
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
United engineers & architects inc.
6515.001-LSC-5



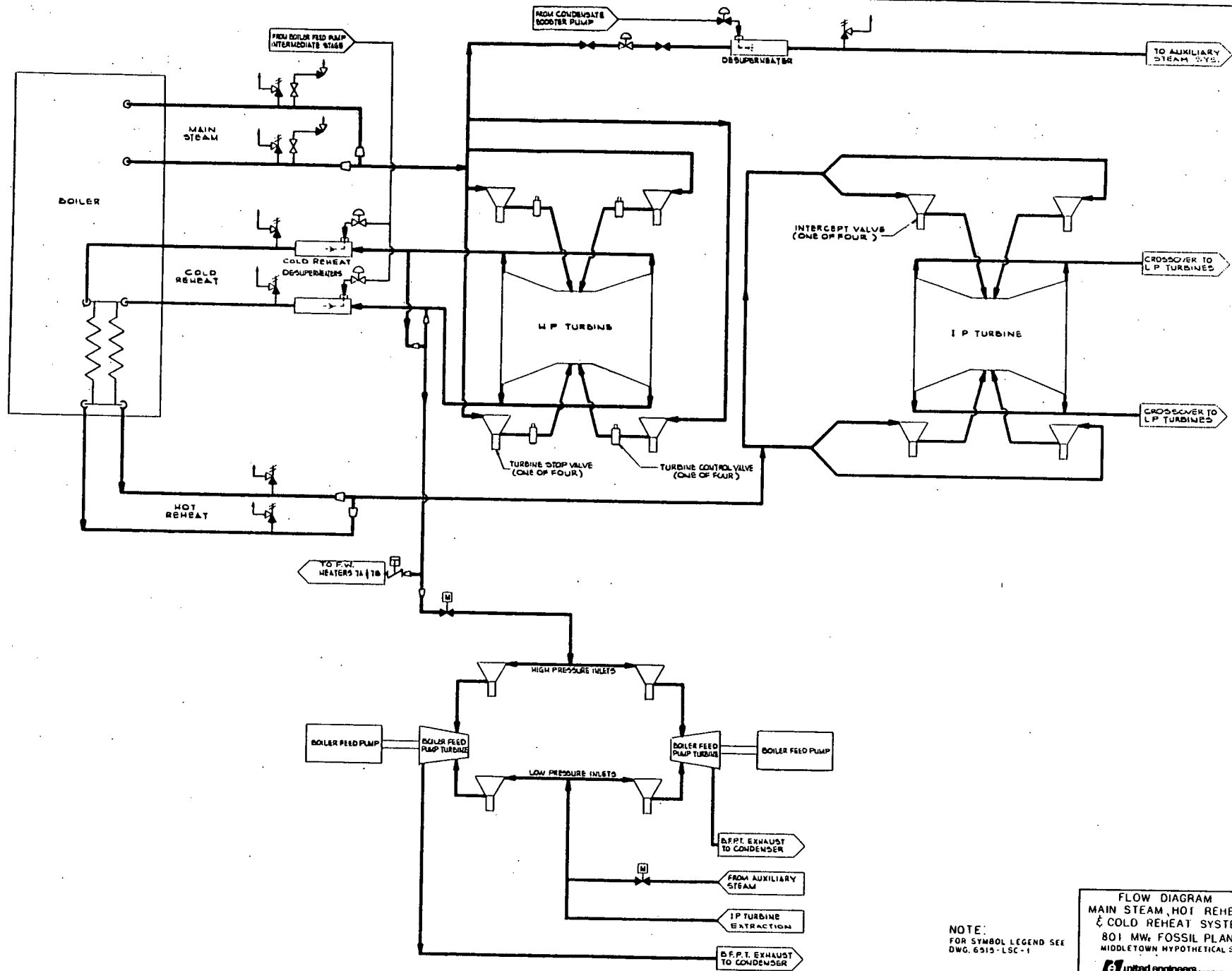
LEGEND

- P - PRESSURE - PSIA
- F - TEMPERATURE - DEGREES FAHRENHEIT
- h - ENTHALPY - BTU/LB
- # - FLOW - LB / HR
- % - PERCENT MOISTURE

PERFORMANCE DATA:

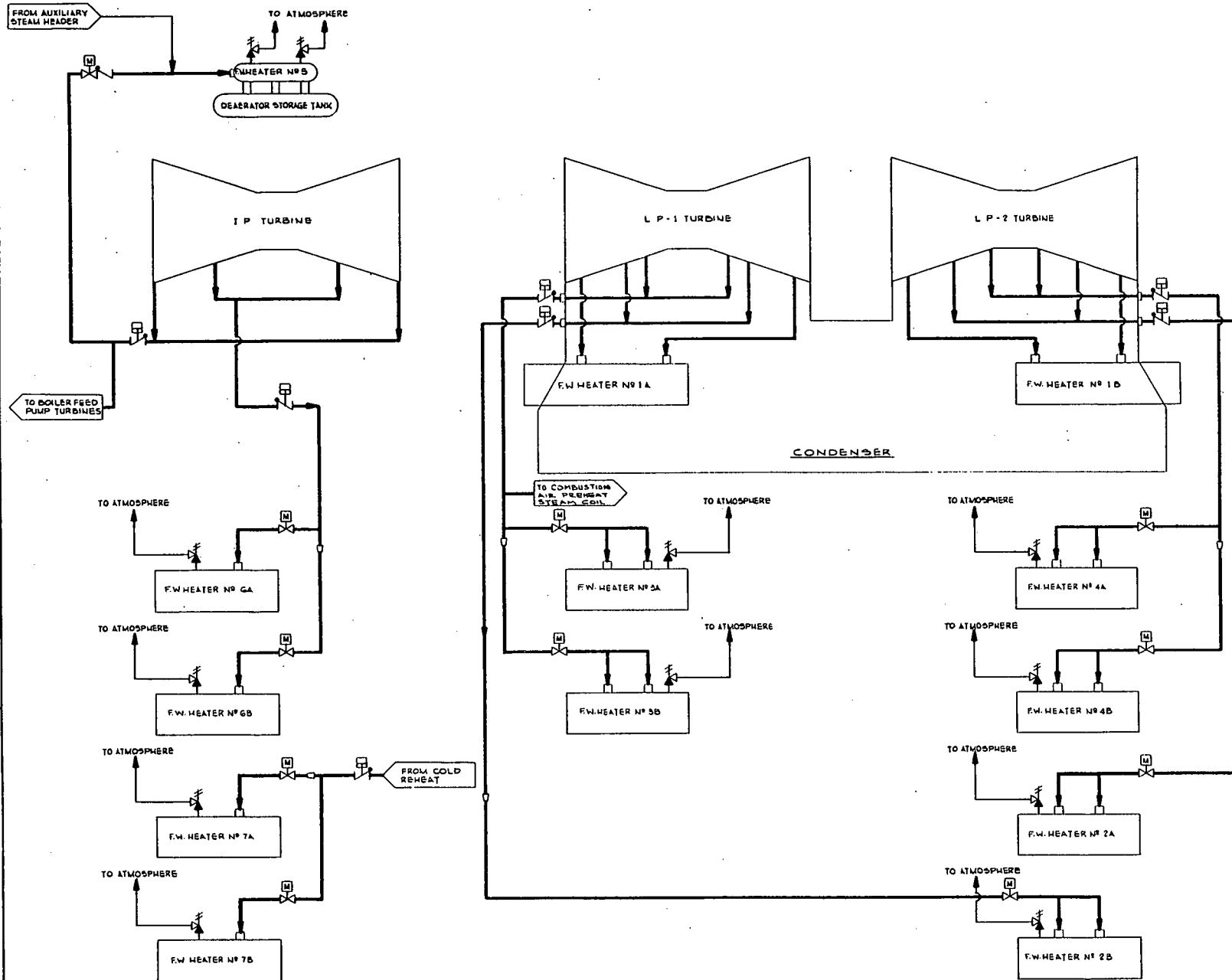
- TOTAL TURBINE OUTPUT 868,867 KW
- FIXED LOSSES 2,779 KW
- GENERATOR LOSSES 11,373 KW
- GENERATOR OUTPUT 854,715 KW
- AUXILIARY POWER 53,300 KW
- NET POWER TO TRANSFORMER 801,415 KW
- NET STATION STEAM RATE 7.25 #/KW
- NET STATION HEAT RATE 9,405 BTU/KW-HR
- THERMAL EFFICIENCY 36.23 %

STEAM HEAT BALANCE
DIAGRAM (MAX GUARANTEE)
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
United engineers & architects
6515.001-LSC-6

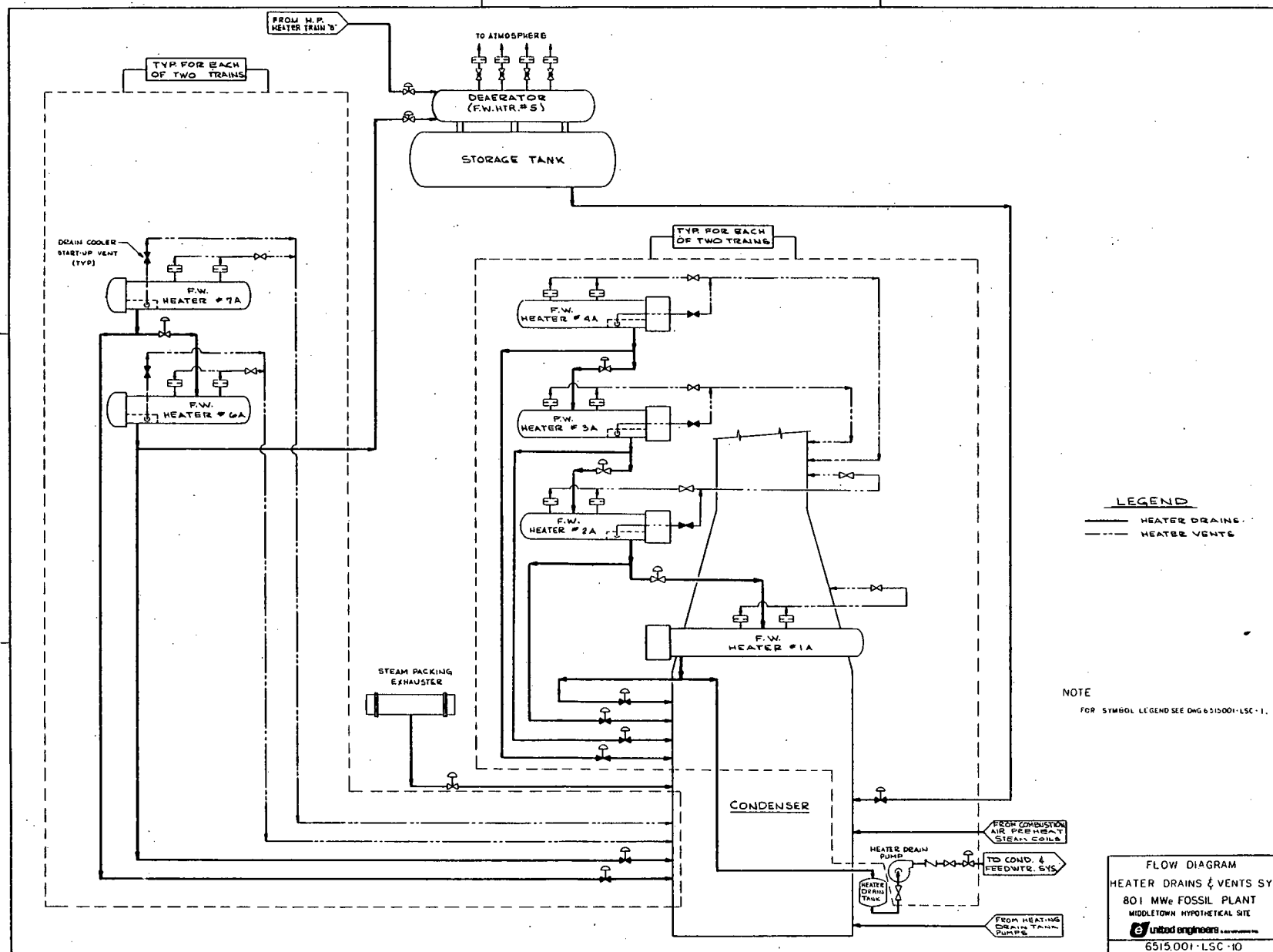


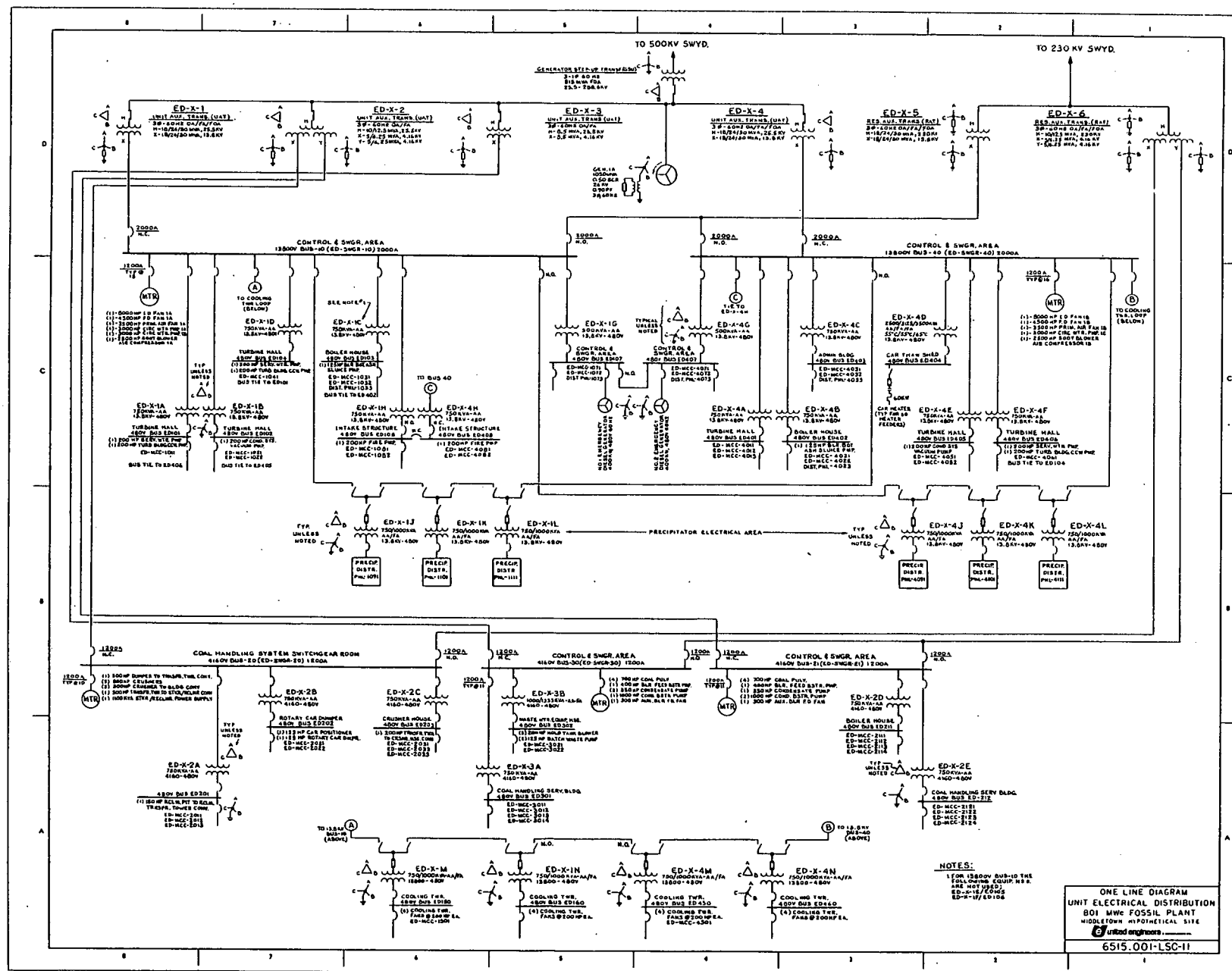
NOTE:
FOR SYMBOL LEGEND SEE
DWG. 6515-LSC-1

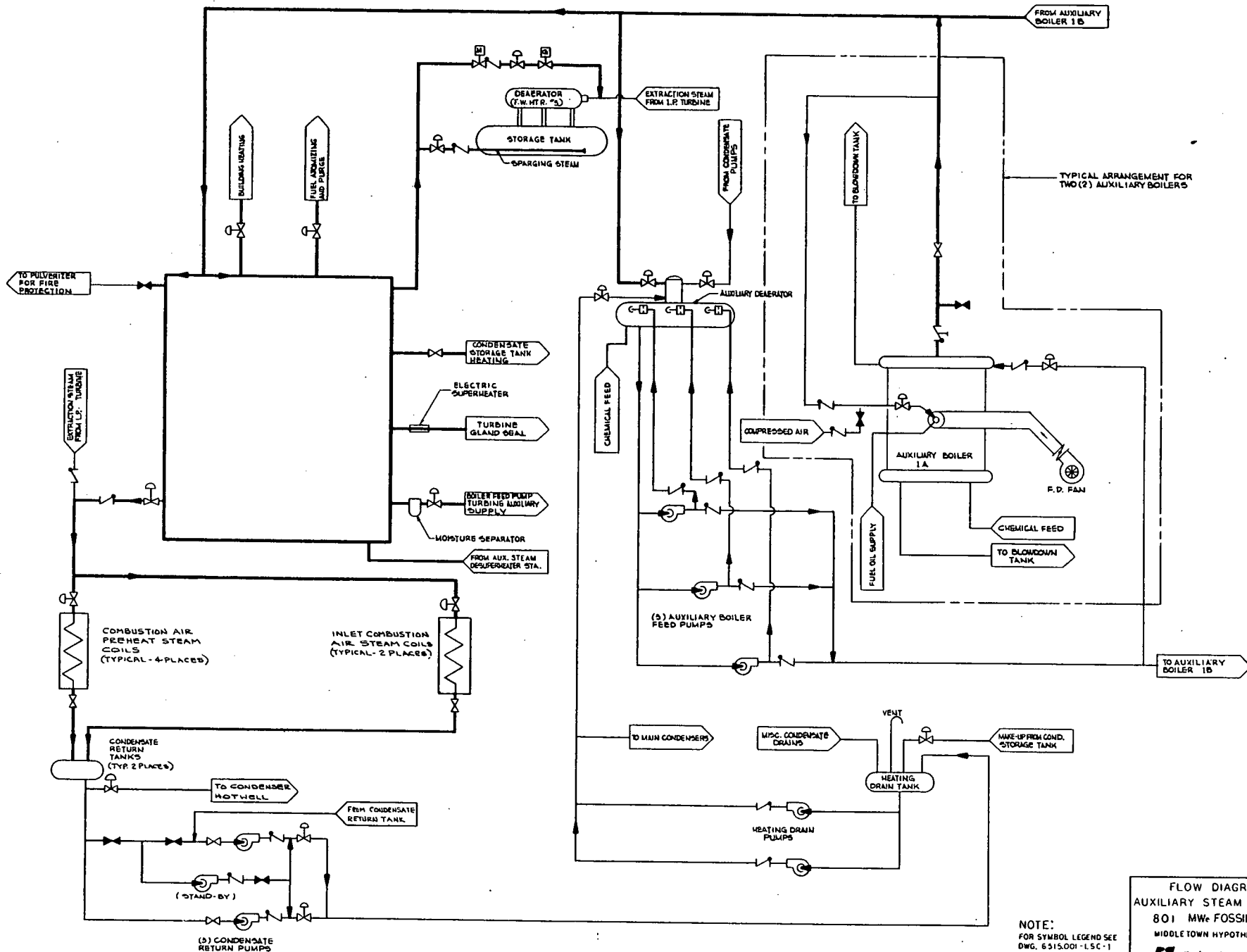
FLOW DIAGRAM
MAIN STEAM, HOT REHEAT
& COLD REHEAT SYSTEM
801 MW FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
united engineers
6515 001-LSC-7



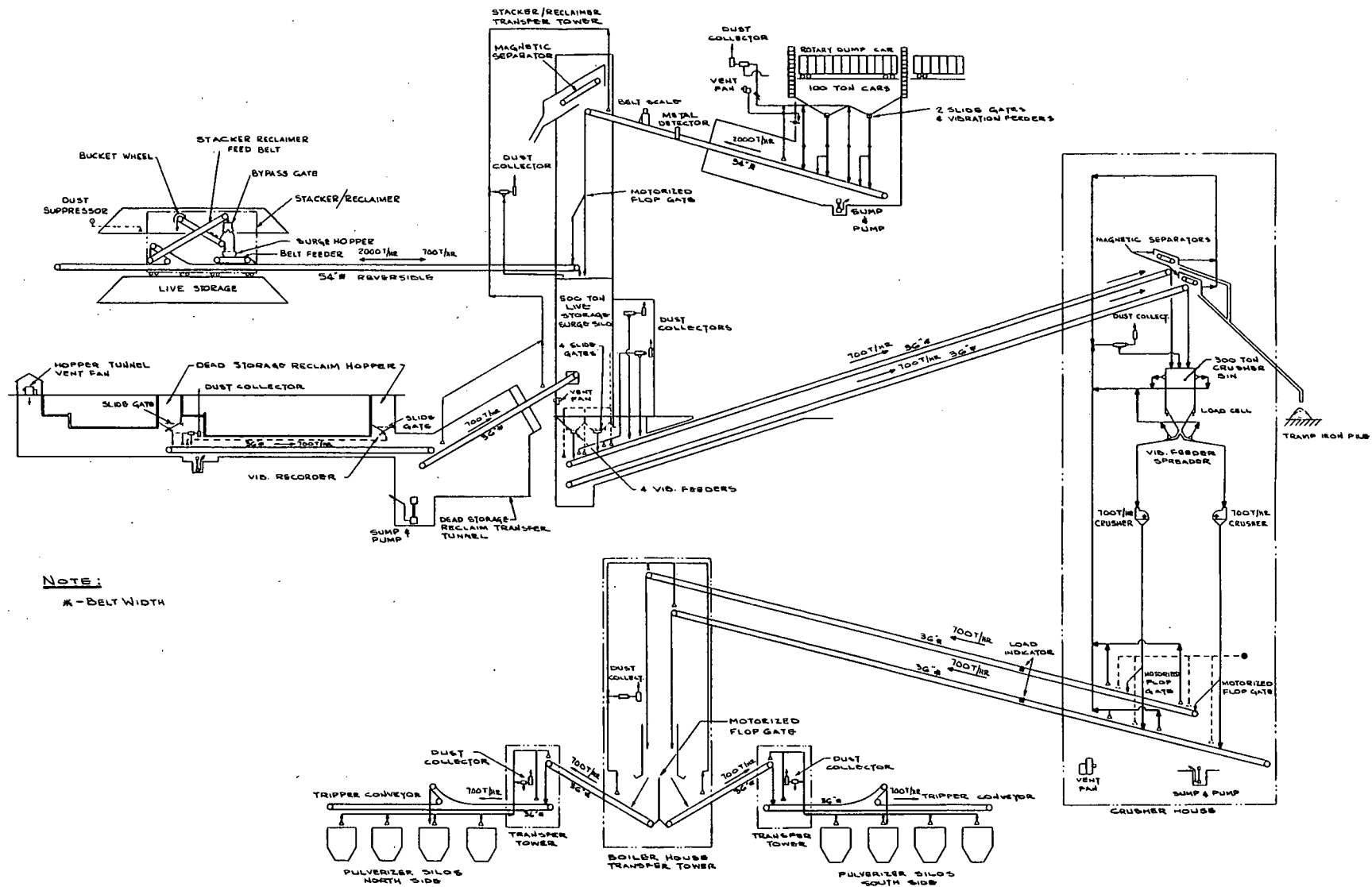
FLOW DIAGRAM
EXTRACTION STEAM SYS.
801 MW, FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE

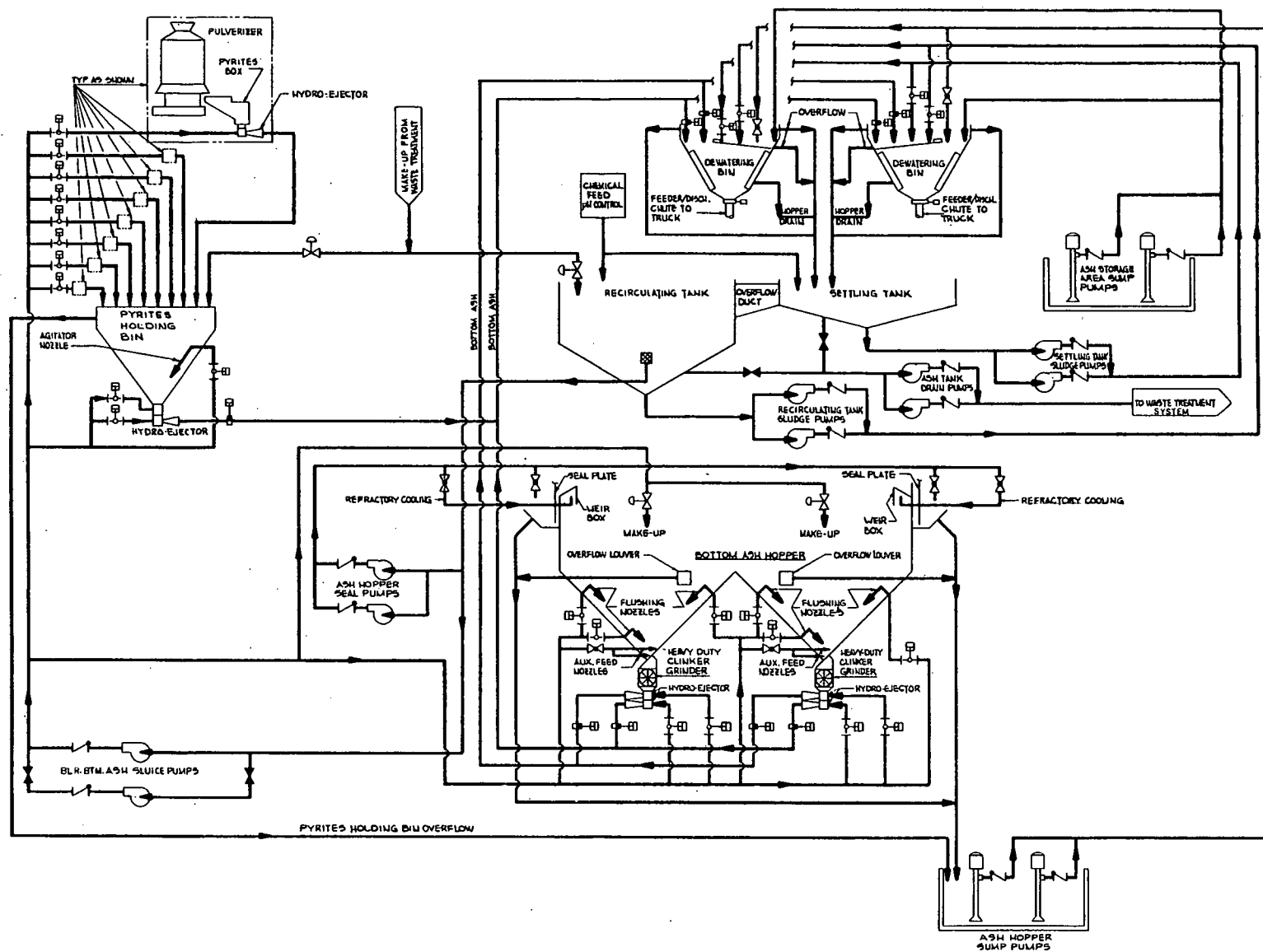






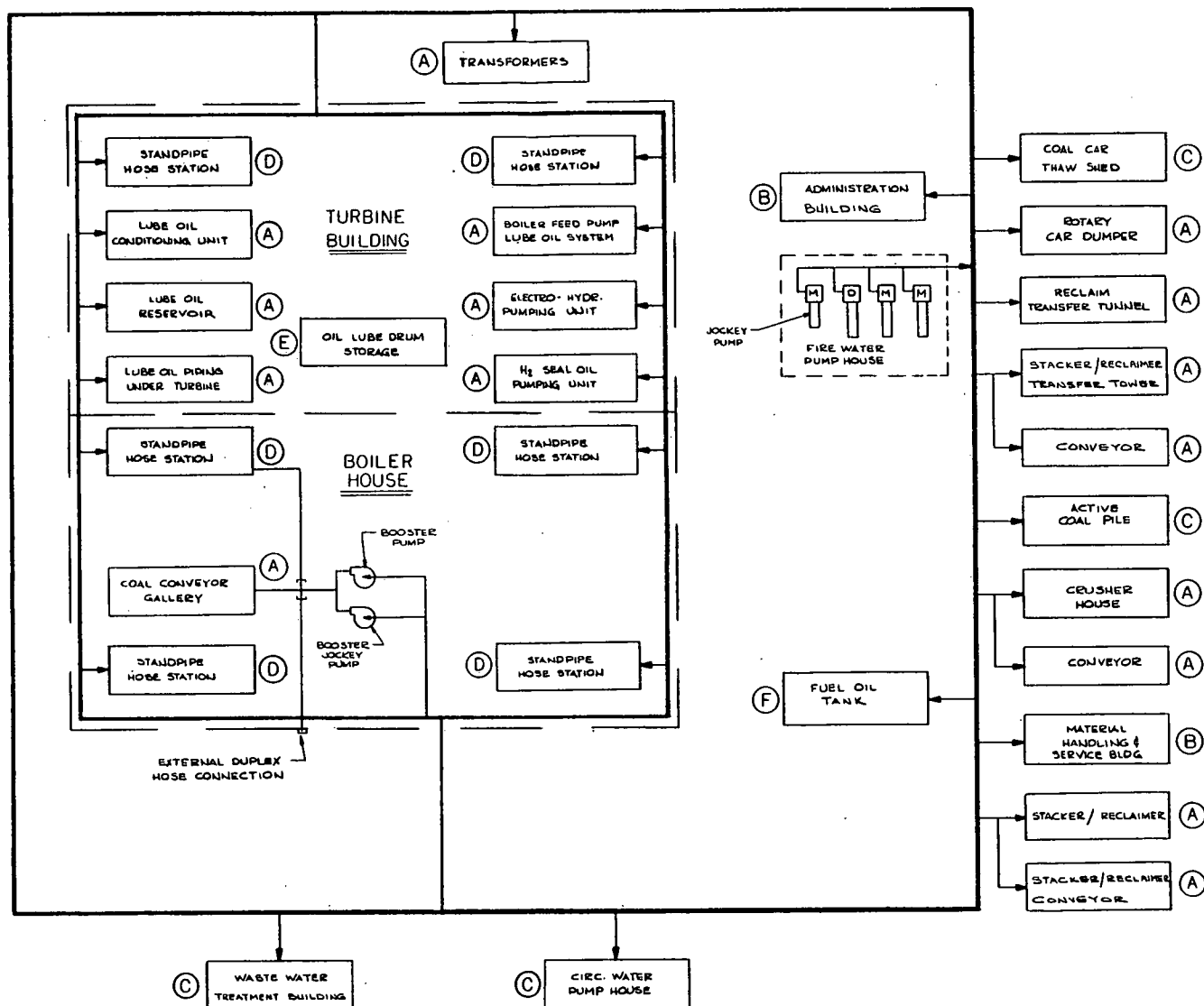
NOTE:
FOR SYMBOL LEGEND SEE
DWG. 6515.001 - LSC - 1





NOTE:
FOR SYMBOL LEGEND SEE
DWG 6515.001-L-SC-1

FLOW DIAGRAM
BOTTOM ASH HANDLING SYS.
801 MW_e FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
United engineers
6515.001-L-SC-15

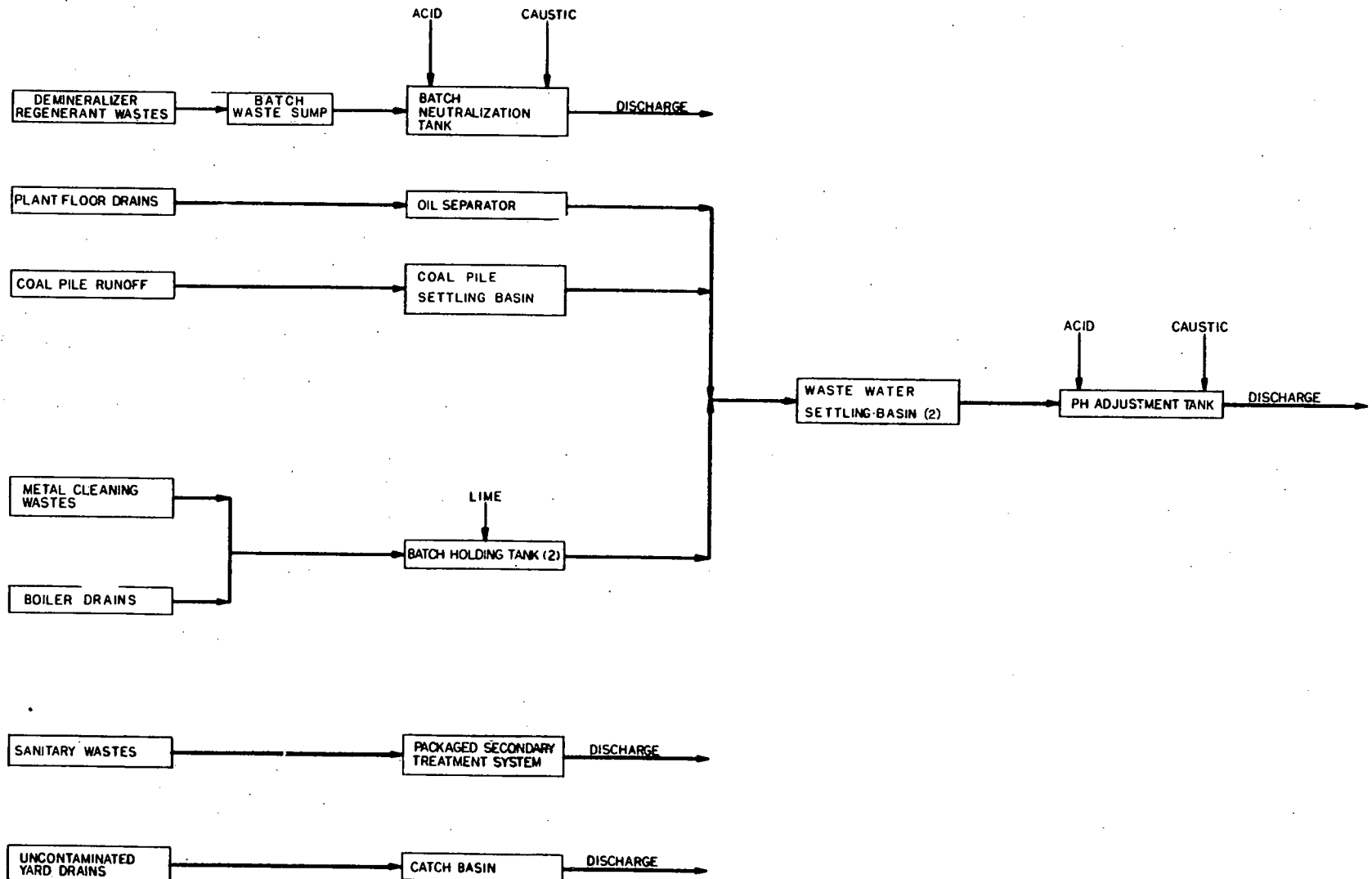


KEY

- (A) DELUGE SYSTEM
- (B) SPRINKLER SYSTEM
- (C) YARD HYDRANT SYSTEM
- (D) STANDPIPE HOSE STATION
- (E) INERT GAS SYSTEM
- (F) PORTABLE FOAM STATION

NOTE
FOR SYMBOL LEGEND SEE
DWG 6515.001-LSC-1

BLOCK DIAGRAM
PLANT FIRE
PROTECTION SYSTEM
801 MW_g FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
 United Engineers & ASSOCIATES, INC.
6515.001-LSC-16



BLOCK DIAGRAM
WASTE WATER
TREATMENT SYSTEM
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
 **United Engineers**
6515.001-LSC-17

VALVE BODIES

OPEN	CLOSED	
		SLIDING GATE
		GATE
		GLOBE
		BUTTERFLY
		THREE WAY
		ANGLE
		SAFETY OR RELIEF
		SWING CHECK
		STOP CHECK
		SAUNDERS (WEIR)
		POWER ASSISTED NON-RETURN
		POWER ACTUATE PRESSURE RELIEF

PIPING SYMBOLS

	EXPANSION JOINT
	ORIFICE
	REDUCER

VALVE ACTUATOR

T	HANDWHEEL - MANUAL
G	GEAR - MANUAL
M	ELECTRIC MOTOR
S	SOLENOID (SPRING OPPOSED)
	PISTON OR CYLINDER
	ELECTRO - HYDRAULIC
	DIAPHRAGM (SPRING OPPOSED)

INSTRUMENT SYMBOL

	FLOW NOZZLE
--	-------------

LINE DESIGNATIONS

	LINE CONTINUES TO
	LINE CONTINUES FROM
	PRIMARY PROCESS FLOW
	SECONDARY PROCESS FLOW

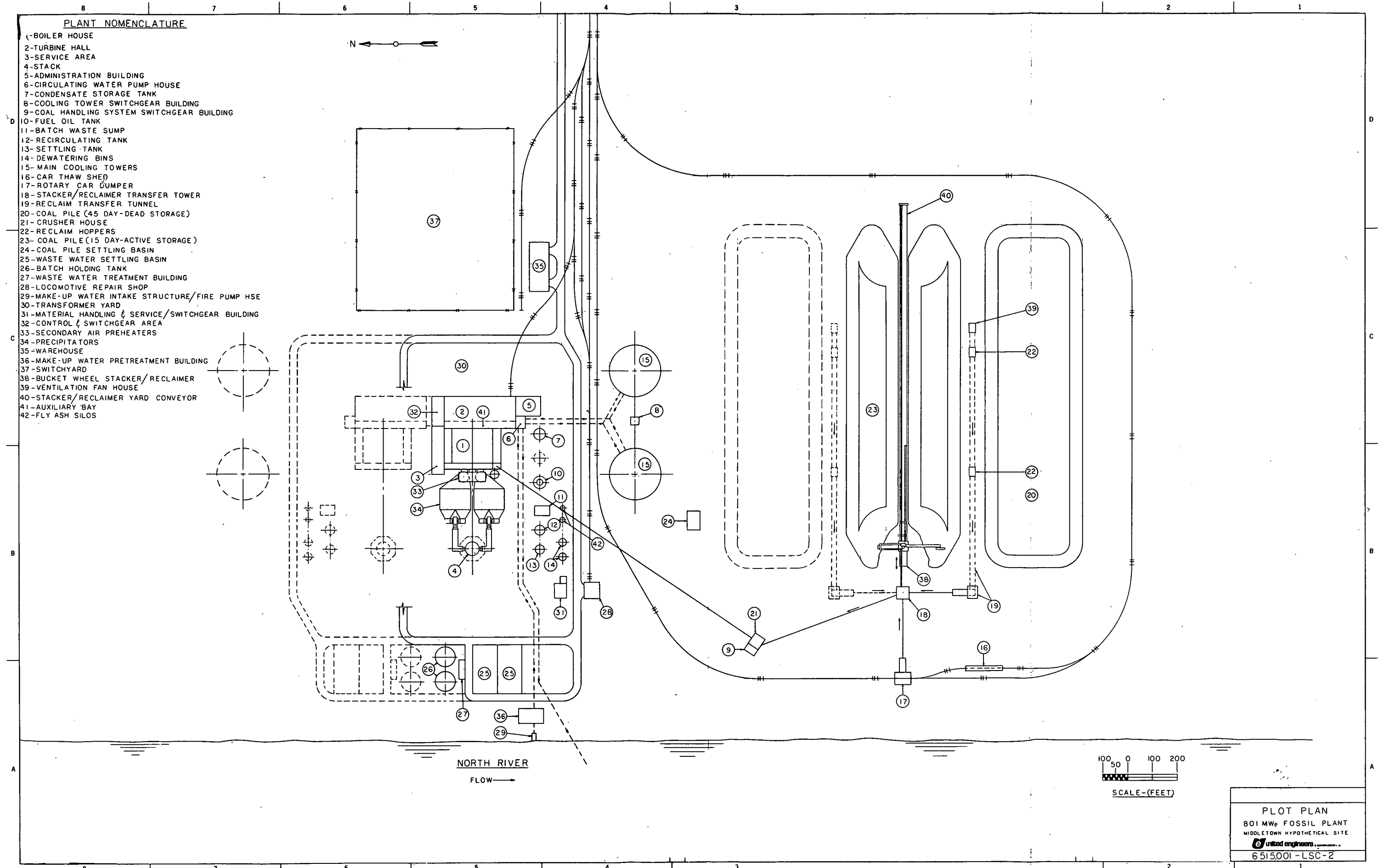
EQUIPMENT SYMBOLS

	FILTER		STRAINER
	HEAT EXCHANGER TUBE END		HEAT EXCHANGER SHELL SIDE
	TANK		FEEDWATER(FW) HEATER VENTS & DRAINS
	HORIZONTAL PUMP		VERTICAL PUMP
	POSITIVE DISPLACEMENT PUMP		FAN OR BLOWER

SYMBOL LEGEND
FOR
FLOW & BLOCK DIAGRAMS
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE

united engineers & constructors inc.

6515.001 - LSC - 1



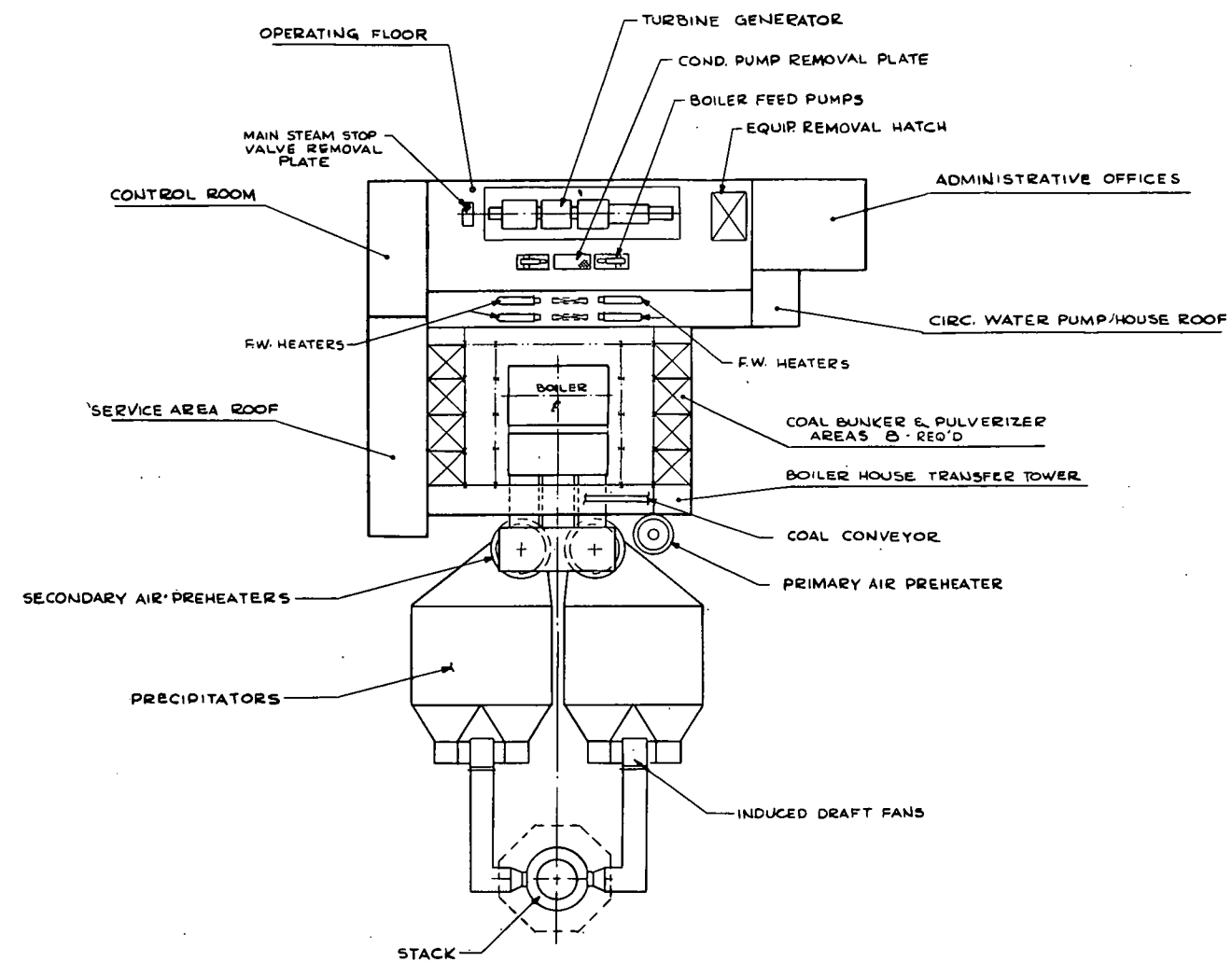
PLANT NOMENCLATURE

- 1-BOILER HOUSE
- 2-TURBINE HALL
- 3-SERVICE AREA
- 4-STACK
- 5-ADMINISTRATION BUILDING
- 6-CIRCULATING WATER PUMP HOUSE
- 7-CONDENSATE STORAGE TANK
- 8-COOLING TOWER SWITCHGEAR BUILDING
- 9-COAL HANDLING SYSTEM SWITCHGEAR BUILDING
- 10-FUEL OIL TANK
- 11-BATCH WASTE SUMP
- 12-RECIRCULATING TANK
- 13-SETTLING TANK
- 14-DEWATERING BINS
- 15-MAIN COOLING TOWERS
- 16-CAR THAW SHED
- 17-ROTARY CAR DUMPER
- 18-STACKER/RECLAIMER TRANSFER TOWER
- 19-RECLAIM TRANSFER TUNNEL
- 20-COAL PILE (45 DAY-DEAD STORAGE)
- 21-CRUSHER HOUSE
- 22-RECLAIM HOPPERS
- 23-COAL PILE (15 DAY-ACTIVE STORAGE)
- 24-COAL PILE SETTLING BASIN
- 25-WASTE WATER SETTLING BASIN
- 26-BATCH HOLDING TANK
- 27-WASTE WATER TREATMENT BUILDING
- 28-LOCOMOTIVE REPAIR SHOP
- 29-MAKE-UP WATER INTAKE STRUCTURE/FIRE PUMP HSE
- 30-TRANSFORMER YARD
- 31-MATERIAL HANDLING & SERVICE/SWITCHGEAR BUILDING
- 32-CONTROL & SWITCHGEAR AREA
- 33-SECONDARY AIR PREHEATERS
- 34-PRECIPITATORS
- 35-WAREHOUSE
- 36-MAKE-UP WATER PRETREATMENT BUILDING
- 37-SWITCHYARD
- 38-BUCKET WHEEL STACKER/RECLAIMER
- 39-VENTILATION FAN HOUSE
- 40-STACKER/RECLAIMER YARD CONVEYOR
- 41-AUXILIARY BAY
- 42-FLY ASH SILOS

NORTH RIVER
FLOW →

100 50 0 100 200
SCALE-(FEET)

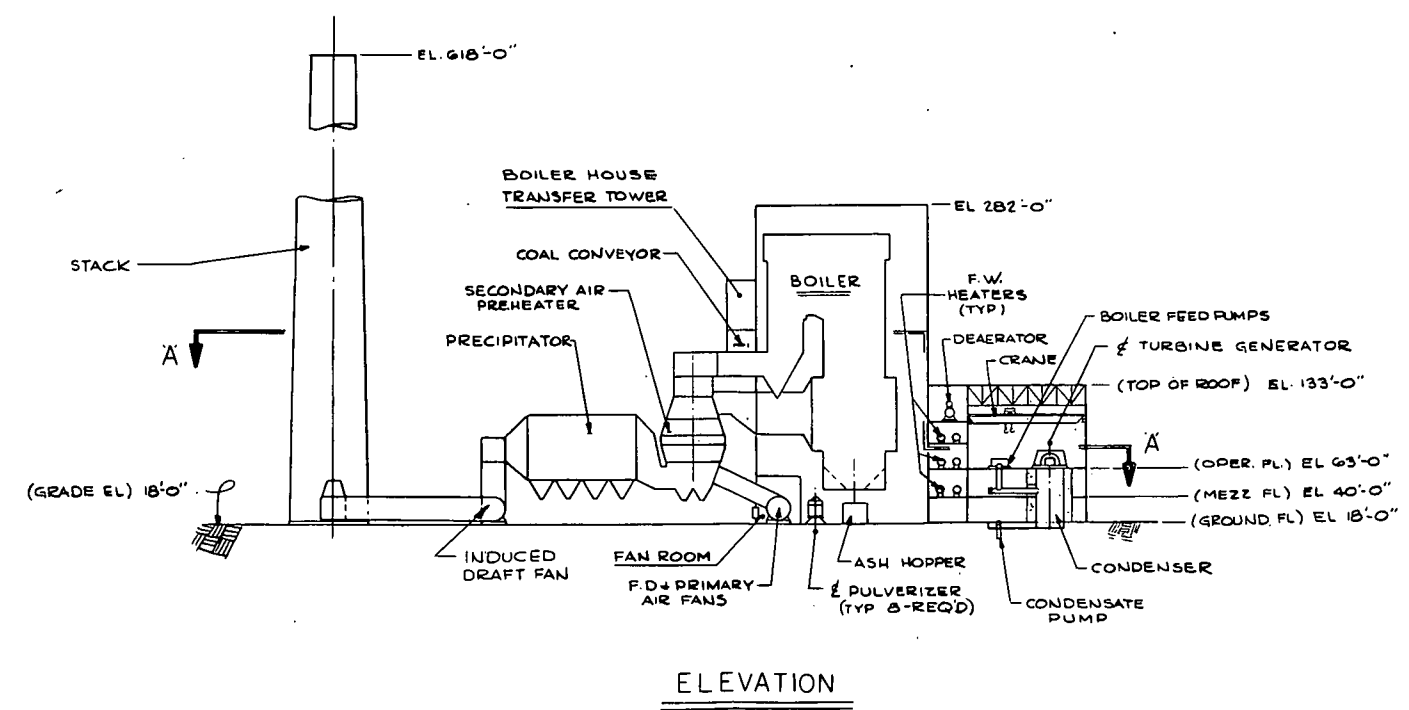
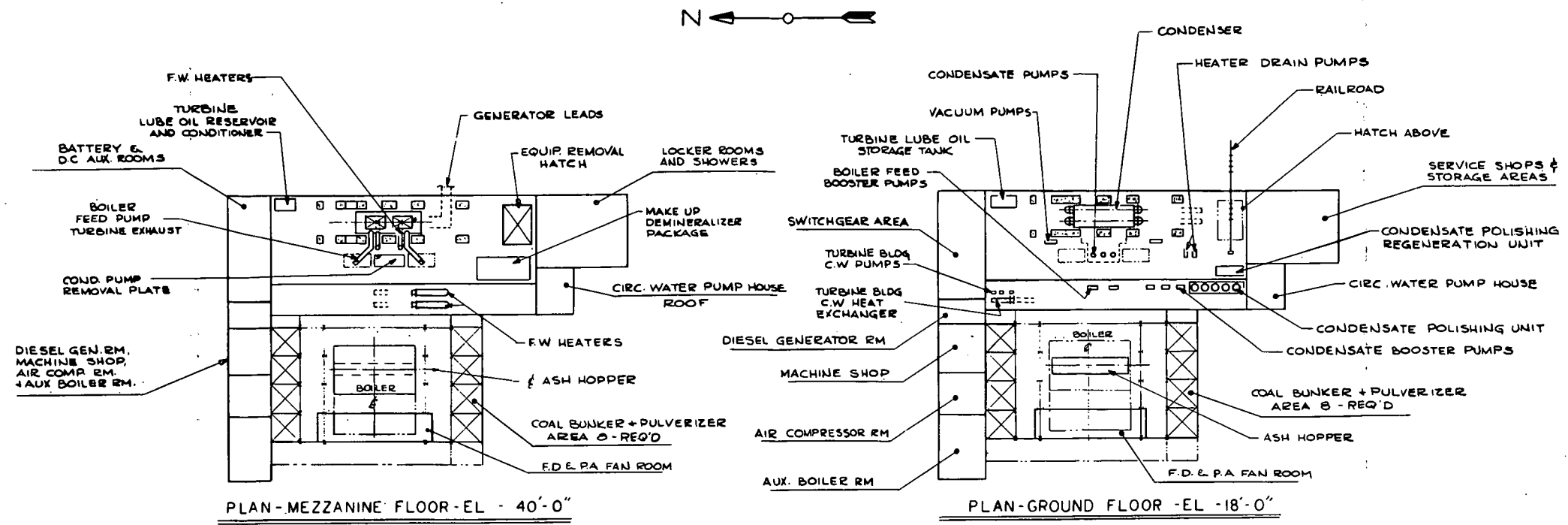
Plot Plan
801 MW_e FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
e united engineers & architects, p.c.
6515001-LSC-2



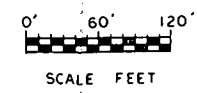
NOTE
FOR PLANE OF SECTION 'A-A'
SEE 6515.001-LSC-4.

0' 60' 120'
SCALE - FEET

GENERAL ARRANGEMENT
PLAN 'A-A' (EL 63'-0" & 180'-0")
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
 United engineers & constructors inc.
6515.001-LSC-3



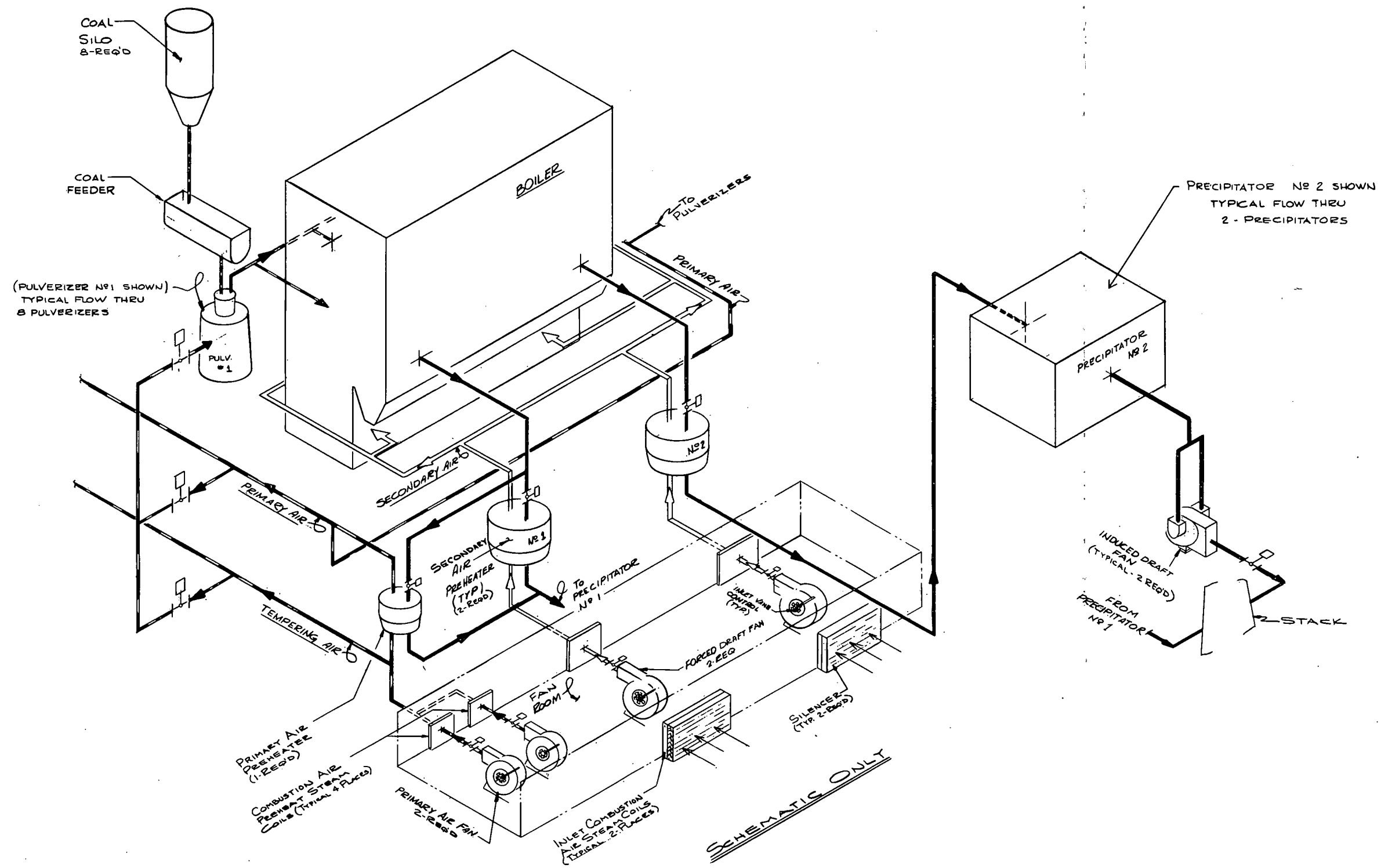
NOTE
FOR PLAN "A-A" SEE 6515.001-LSC-3.



GENERAL ARRANGEMENT
PLANS (EL. 18'-0" & 40'-0")
AND ELEVATION
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE

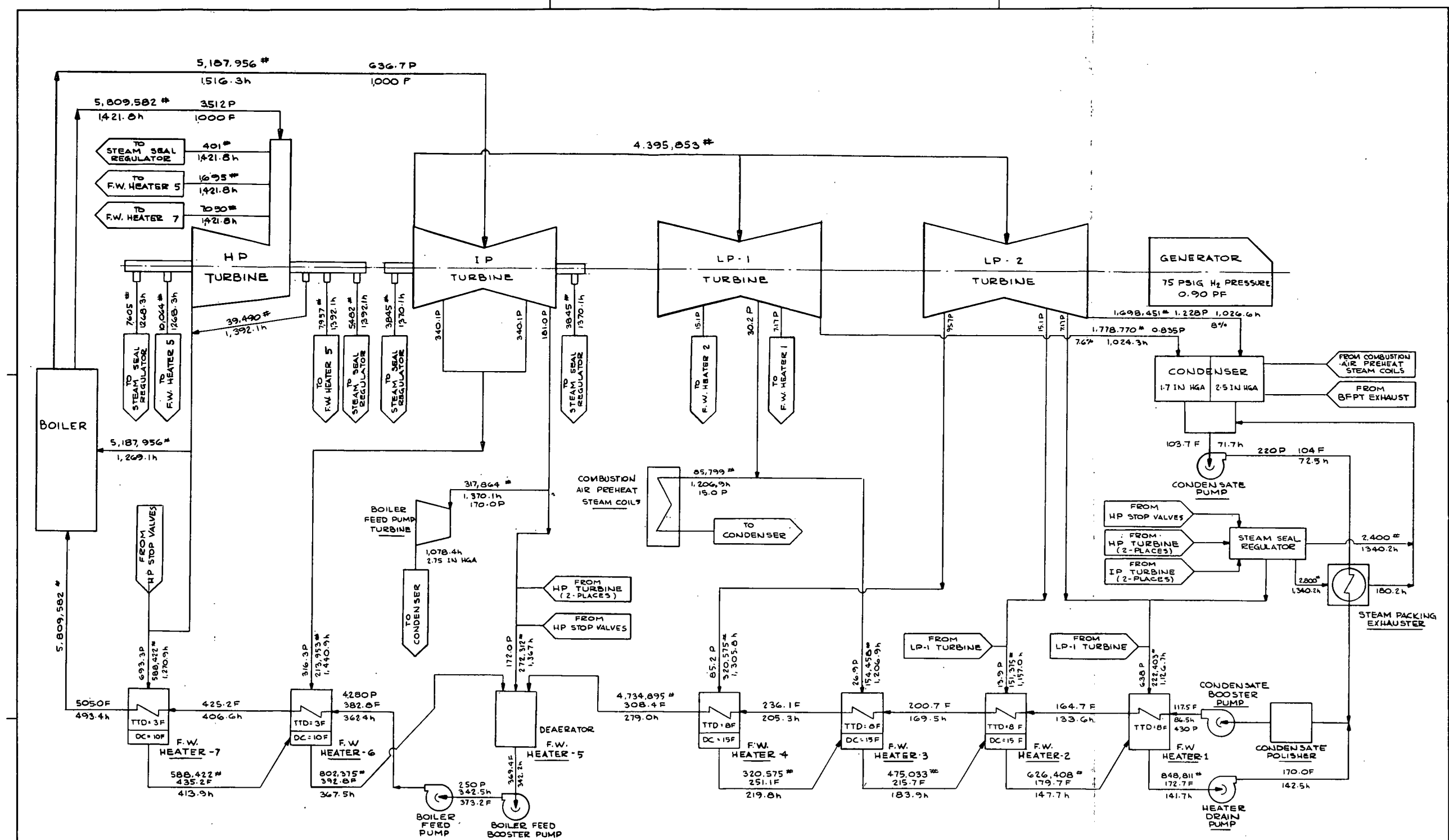
united engineers a construction inc.

6515.001-LSC-4



NOTE
FOR SYMBOL LEGEND SEE
6515.001-LSC-1.

FLOW DIAGRAM
BALANCED DRAFT SYSTEM
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
 united engineers & constructors inc.
6515.001-LSC-5



LEGEND

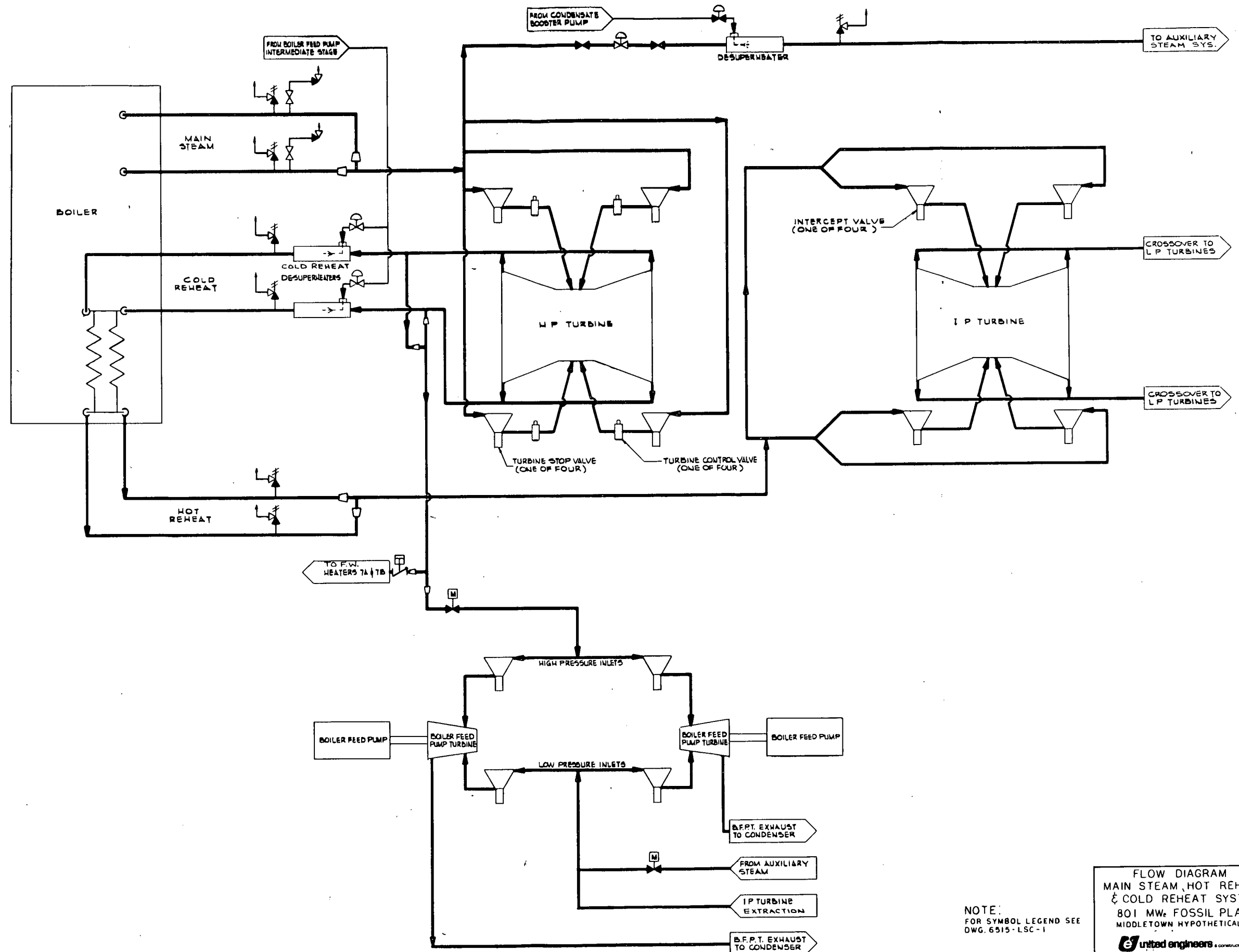
P - PRESSURE - PSIA
 F - TEMPERATURE - DEGREES FAHRENHEIT
 h - ENTHALPY - BTU/LB
 # - FLOW - LB / HR
 % - PERCENT MOISTURE

PERFORMANCE DATA:

• TOTAL TURBINE OUTPUT	860,867 KW
• FIXED LOSSES	2,779 KW
• GENERATOR LOSSES	11,373 KW
• GENERATOR OUTPUT	854,715 KW
• AUXILIARY POWER	53,300 KW
• NET POWER TO TRANSFORMER	801,415 KW
• NET STATION STEAM RATE	7.25 #/KW
• NET STATION HEAT RATE	9,405 BTU/KW-HR
• THERMAL EFFICIENCY	36.29 %

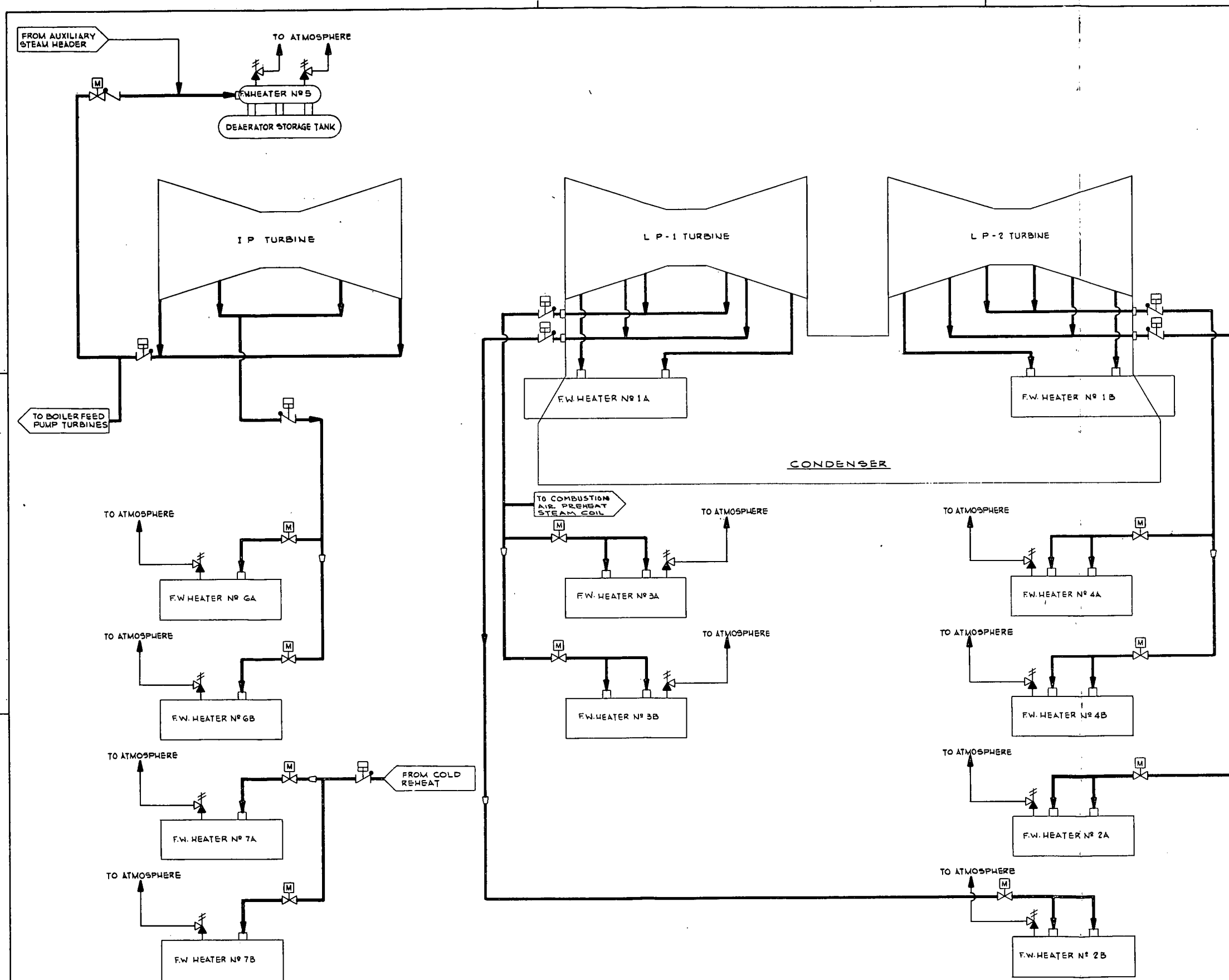
STEAM HEAT BALANCE
 DIAGRAM (MAX GUARANTEE)
 801 MWe FOSSIL PLANT
 MIDDLETOWN HYPOTHECIAL SITE

 6515.001-LSC-6

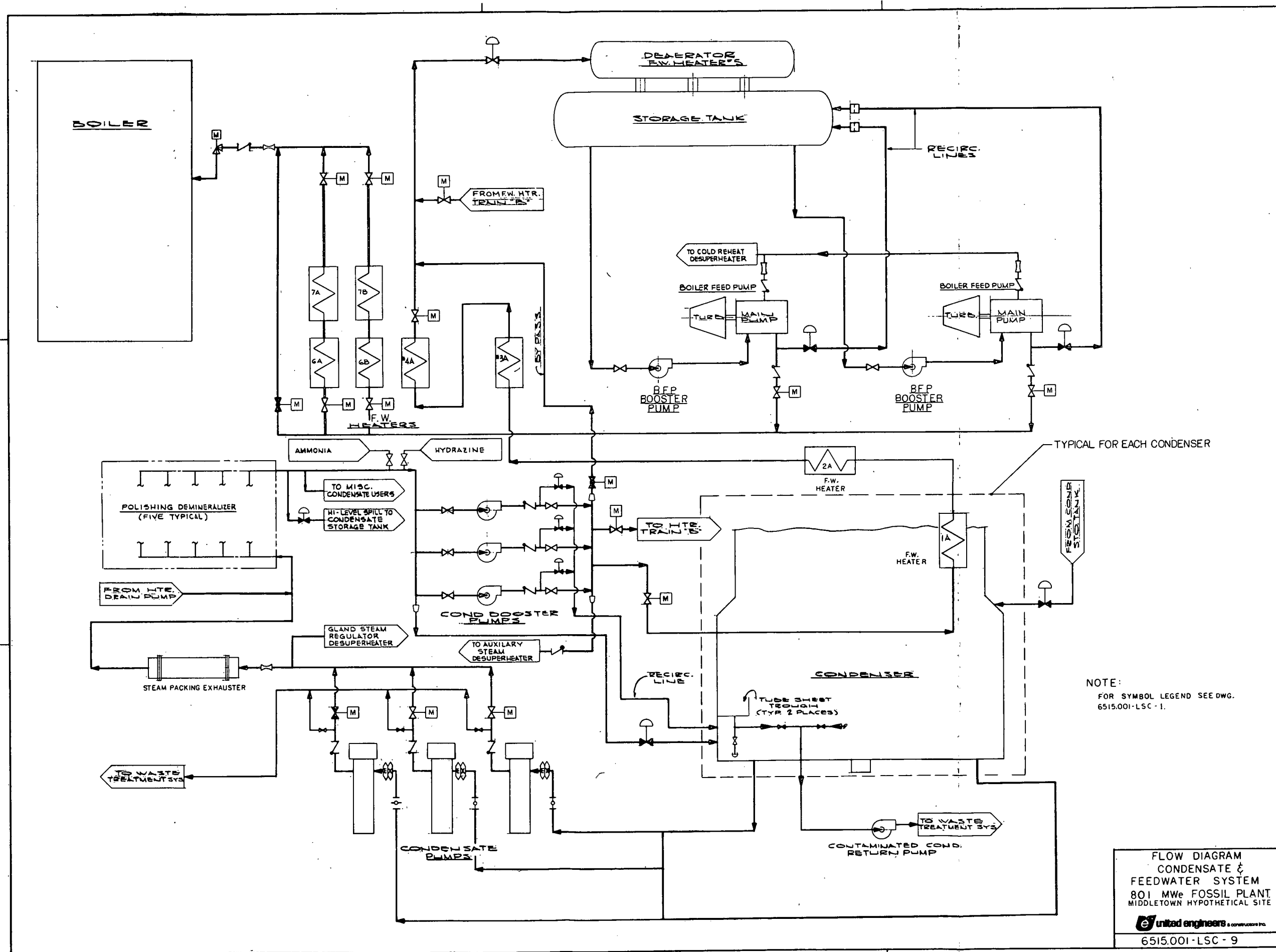


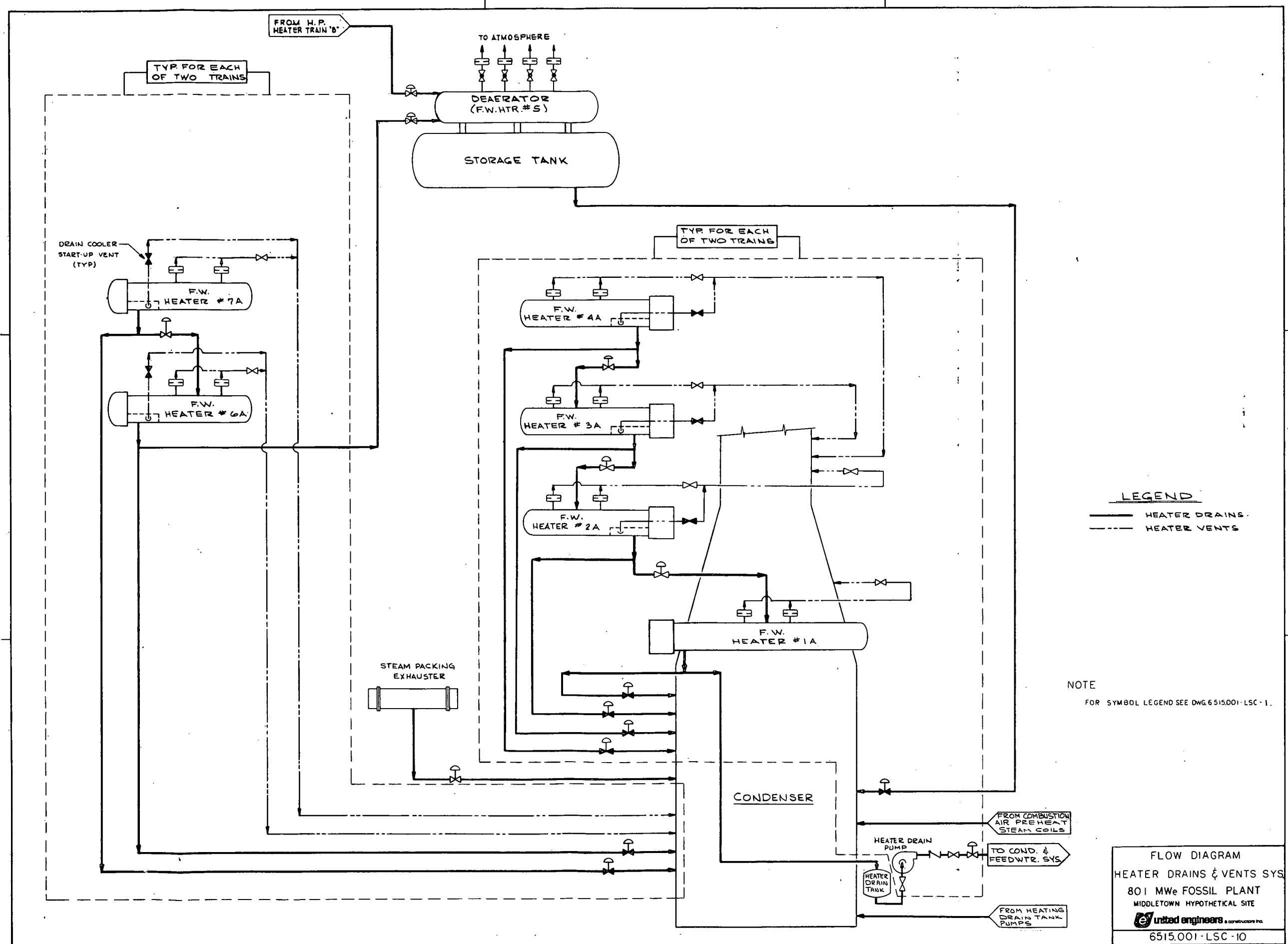
NOTE:
FOR SYMBOL LEGEND SEE
DWG. 6515-LSC-1

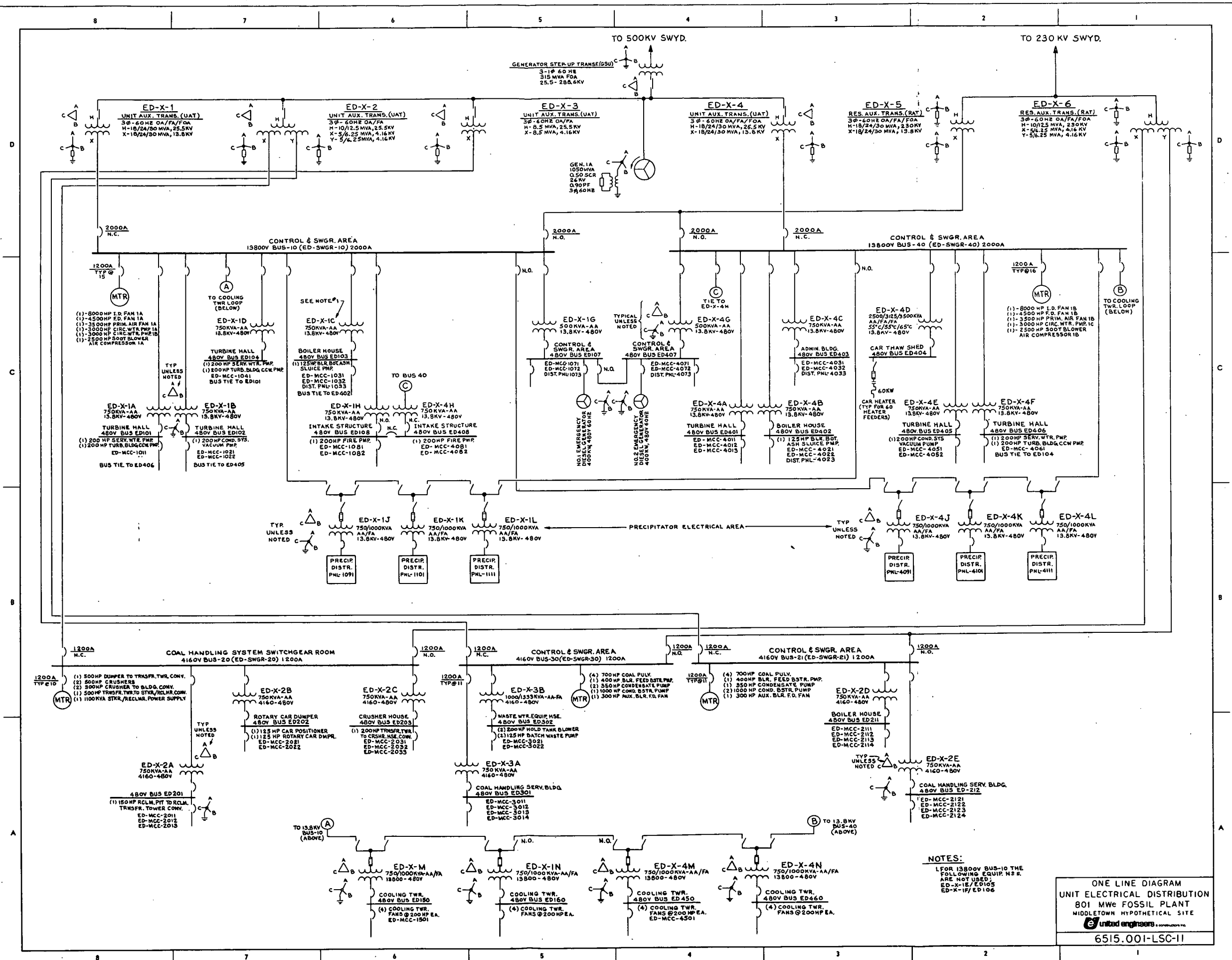
FLOW DIAGRAM
MAIN STEAM, HOT REHEAT
& COLD REHEAT SYSTEM
801 MW FOSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
United engineers & CONSULTANTS INC.
6515.001-LSC-7

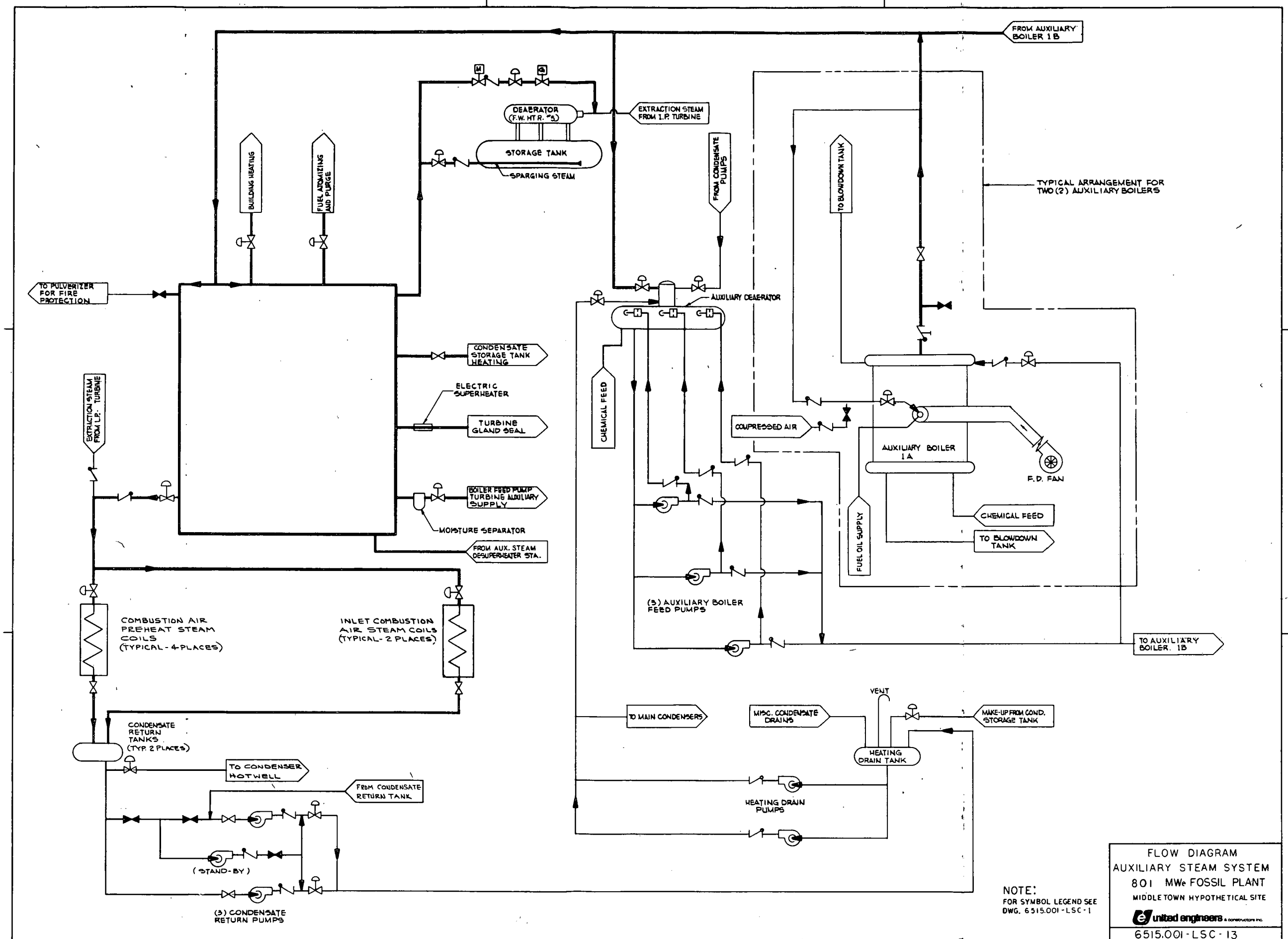


FLOW DIAGRAM
EXTRACTION STEAM SYS.
801 MW_e FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE

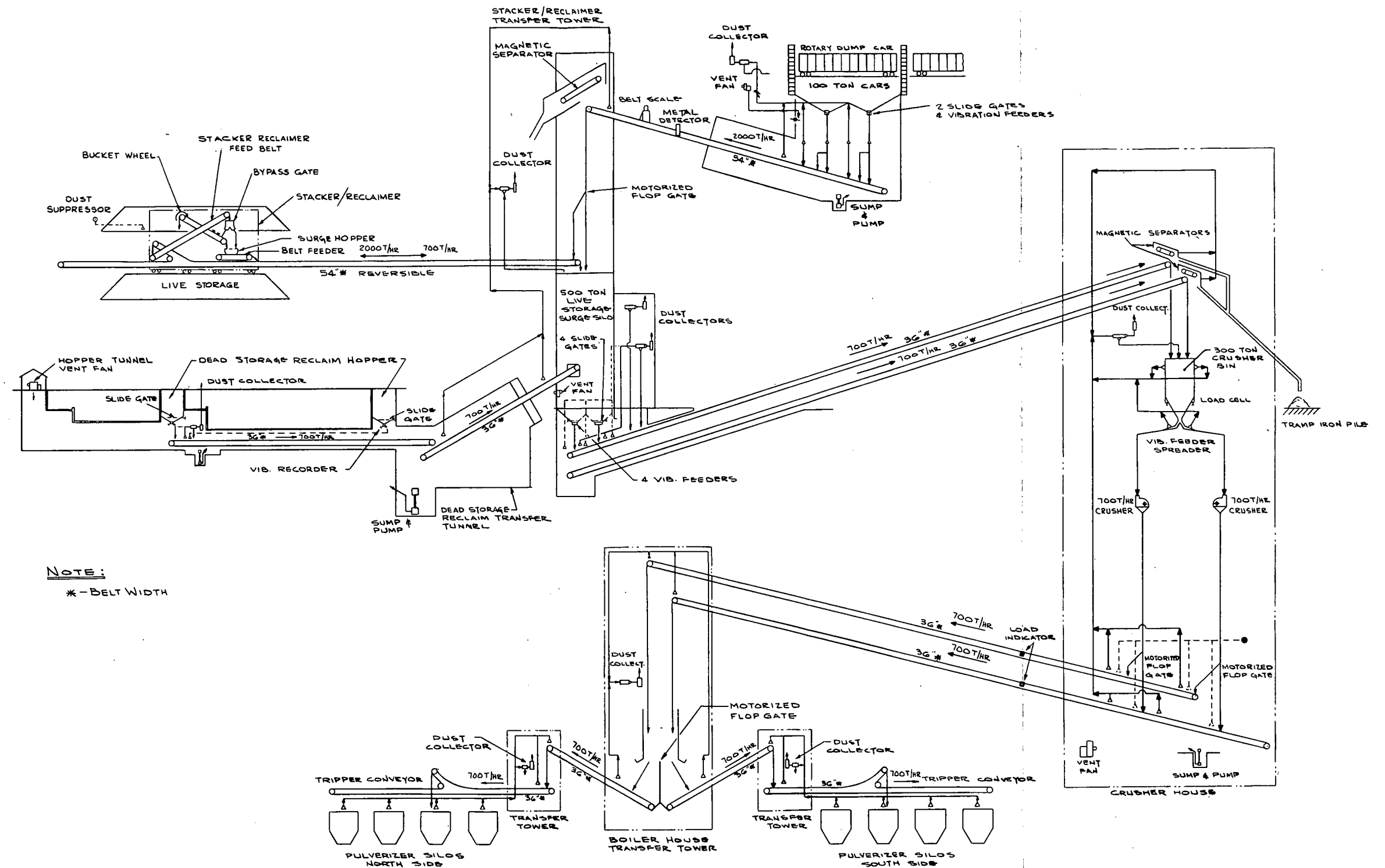








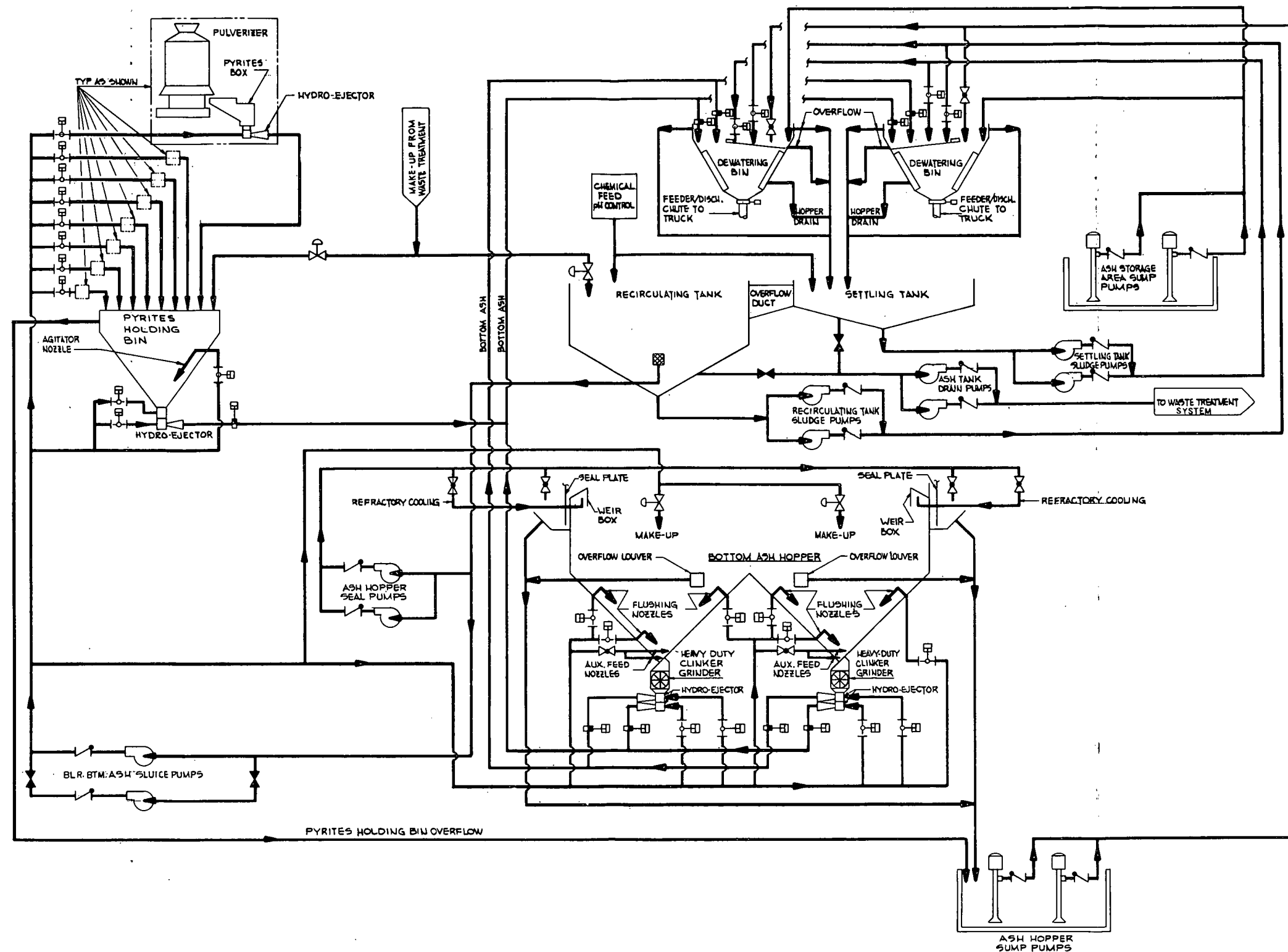
FLOW DIAGRAM
AUXILIARY STEAM SYSTEM
801 MW FOSIL PLANT
MIDDLE TOWN HYPOTHETICAL SITE
united engineers & constructors inc.
6515.001-LSC-13



FLOW DIAGRAM
COAL HANDLING SYSTEM
801 MWe FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE

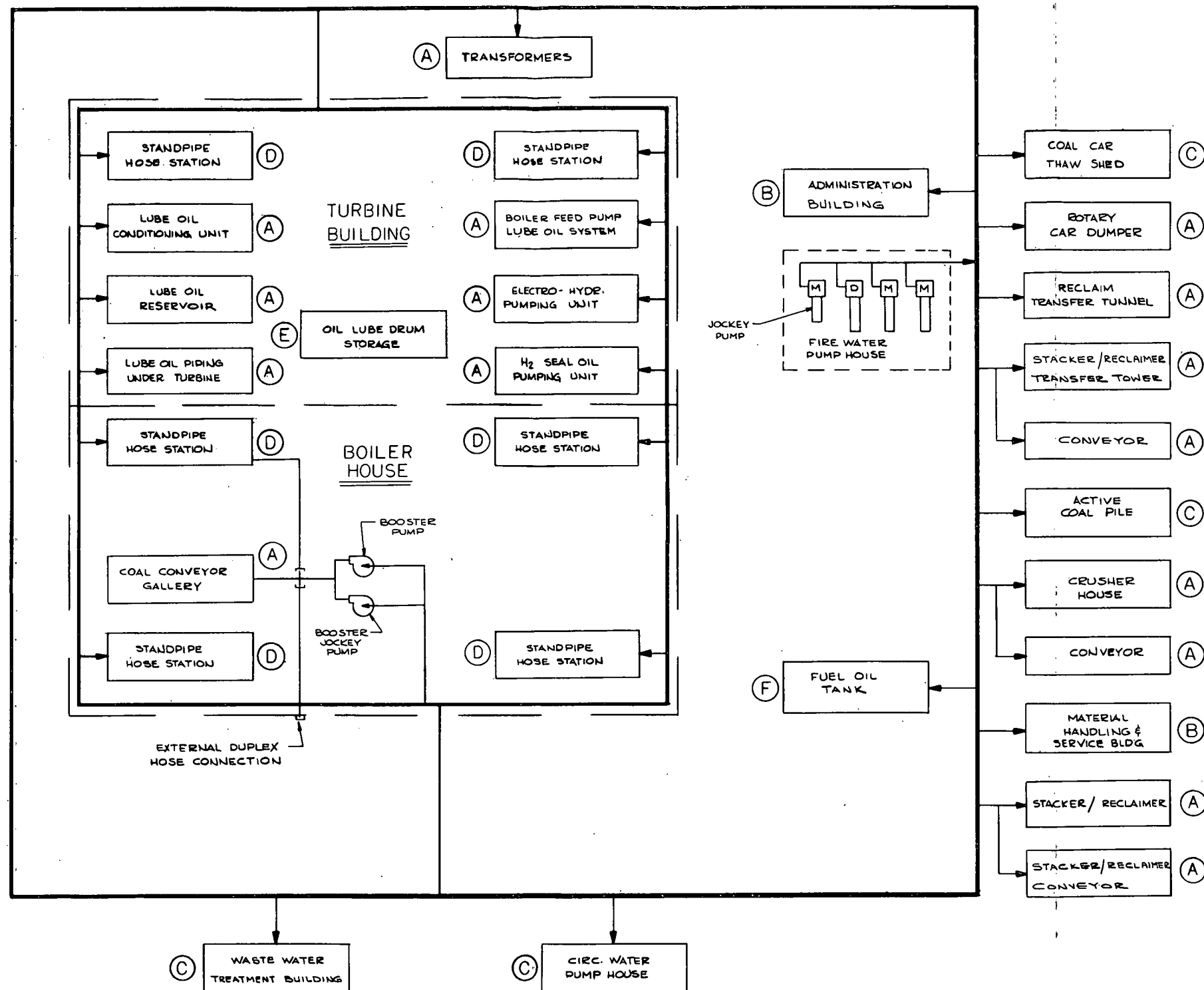
United engineers & constructors inc.

6515.001-LSC-14



NOTE:
FOR SYMBOL LEGEND SEE
DWG 6515.001-LSC-1

FLOW DIAGRAM
BOTTOM ASH HANDLING SYS.
801 MW_e FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
United engineers & constructors inc.
6515.001-LSC-15



KEY

- (A) DELUGE SYSTEM
- (B) SPRINKLER SYSTEM
- (C) YARD HYDRANT SYSTEM
- (D) STANDPIPE HOSE STATION
- (E) INERT GAS SYSTEM
- (F) PORTABLE FOAM STATION

NOTE
FOR SYMBOL LEGEND SEE
DWG 6515.001-LSC-1

BLOCK DIAGRAM
PLANT FIRE
PROTECTION SYSTEM
801 MWs FOSSIL PLANT
MIDDLETOWN HYPOTHETICAL SITE
 United Engineers & Constructors Inc.
6515.001-LSC-16

