PLAINTIFF'S EXHIBIT

WH-1062

1966 ENERGY SYSTEMS DESIGN SURVEY

Power

This survey of over 1100 projects is by far the largest sampling of industrial plant and central station design data ever published in POWER. The following 47 pages outline trends and spell out design features selected from newly completed or modernized plants — some still under construction, others not yet off the drawing boards. Also, you will find a special tabulation on page S·10 of computer installations covering a range of operating responsibilities in large central stations. Some elements of each survey are summarized graphically, either before or after the tabulations.

OCTOBER • 1966

Table 1: 1550 to 350 psig

Use of natural gas is increasing; drawba[illegible]

PROJECT	COMPANY	LOCATION	CONSULTING ENGINEER	Date of initial operation	New or existing plant	Principal steam use	BOILERS: No. new units, type	BOILERS: Manufacturer	BOILERS: Capacity each, 1000 lb per hr	BOILERS: Operating pressure, psig	BOILERS: Operating temp, F	BOILERS: Heating surface, 1000 sq ft, incl boiler, waterwall and superheater	FUEL: Type	FUEL: Max. sulfur content, %	FURNACE: Furnace type	FURNACE: Furnace safeguard, type
	INDUSTRIAL STEAM SYSTEMS															
1	Tennessee Eastman Co, Div Eastman Kodak Co	Kingsport, Tenn	Sargent & Lundy	1966	Ne	Po,Pr[19]	2 Fr[1]	CE	430	1550	950	21	C	1.5	Prd	Me
2	Thilmany Pulp & Paper Co	Kaukauna, Wis	Pfeifer & Shultz Inc	1966	Ex	Po,Pr,SH	1 Fr	BW	350	1500	905	38	C	2.5	Prd	....
3	Hoerner Boxes, Inc	Ontonagon, Mich	Heimick & Lutz	1966	Ex	Po,Pr	1 Fr	RS	250	1500	900	....	C,O	....	BD	....
4	Dow Chemical Co	Freeport, Texas	Bechtel Corp	1966	Ex	Po,Pr	2 Fr	RS	1500	1450	1000	....	G	[illegible]	Prd	Uv
5	Eastman Kodak Co	Rochester, NY	C T Main	1966	Ex	Po,Pr	1 Fr	BW	400	1425	900	43	C,O	2.5	Prd	Uv
6	Dow Chemical Co	Plaquemine, La	Sargent & Lundy	1966	Ex	Pr	1 Fr	RS	1100	1300	950	11.4	G	N	Prd	Uv
7	Masonite Corp	Laurel, Miss		1967	Ex	Pr	1 Fr	RS	200	1300	825	17	Wd,G	....	BD	....
8	Ford Motor Co	Dearborn, Mich	Benjamin, Woodhouse & Guenther, Inc	1966	Ex	Po	1 Fr	BW	500	1250	900	68	Bf,C	0.7	BD	Uv
9	Mobil Oil Corp	Torrance, Calif	Procon, Inc	1966	Ex	Po	1 Fr	FW	203	1250	850	39	G,O[4]	..	Prd	Me,Uv
10	Wyandotte Chemical Co[5]	Detroit, Mich	Sanderson & Porter, Inc	1967	Ex	Pr,Po	2 Fr	FW	275	925	875	....	C	4.7	BD	Uv
11	Arkla Chemical Corp	Helena, Ark	Chemical Construction Corp	1966	Ne	Pr	2 Pk	CE	180	915	845	6.2	G	N	Prd	....
12	Calcasieu Paper Co	Elizabeth, La	Nelson Miner	1965	Ex	Po	1 Pk	CE	150	900	825	....	G	N	Prd	Uv
13	Pioneer Mill Co	Lahaina, Maui, Hawaii		1966	Ne	Po,Pr	2 Fr	CE	145	875	750	....	Bg,O	...	BD	....
14	Pioneer Mill Co	Lahaina, Maui, Hawaii		1966	Ne	Po,Pr	2 Fr	CE	100	875	750	14	Bg,O	...	BD	....
15	International Paper Co	Vicksburg, Miss		1967	Ne	Pr	1 Fr	BW	600	850[6]	825[7]	....	BL,G,Bk	....	BD	Uv
				1967	Ne	Po	1	BW	493	850	825	....	Bg,G,Bk	....	BD	Uv
16	Great Northern Paper Co	Cedar Springs, Ga	J E Sirrine Co	1967	Ex	Po	1 Fr	BW	500	850	900	72	C,BL	2.3	BD	TY
				1967	Ex	Pr	1 Fr	BW	350	850	900	86	BL,C	2.3	BD	TY
17	Albemarle Paper Co	Roanoke Rapids, NC		1966	Ex	Po,Pr	1 Fr	CE	250	850	850	15.3	C,O	3.55	BD	Uv,TY
18	American Can Co	Rothschild, Wis		1966	Ex	Po,Pr	1 Fr	EC	150	700	750	21	C	....	BD	....
19	Hammermill Paper Co	Selma, Ala	The Rust Engineering Co	1966	Ne	Po	1 Fr	EC	220	650	760	....	O,G	....	BD	[illegible]
				1966	Ne	Pr	1	BW	220	650	760	....	BL,G,O	....	BD	[illegible]
20	Purdue University	West Lafayette, Ind	A M Kinney, Inc	1967	Ex	Po,SH	1 Fr	WIB	215	650	825	23.6	C	3.5	BD	....
21	Monsanto Co-Chemstrand Div	Decatur, Ala	Lockwood-Greene	1965	Ex	Pr	1	BW	200	650	750	23	C	3	BD	....
22	Shell Oil Co	Norco, La	Ford, Bacon & Davis, Inc	1965	Ex	Pr	1 Fr	BW	175	650	740	13	G	....	Prd	....
23	Park Shore Housing	Brooklyn, NY	Dix & Zimmermann	1966-67	Ne	Po,SH	3 Pk	UR	100	650	650	....	O,G	1	Prd	Uv
24	Continental Can Co	Haverhill, Mass	Weiger Engineering Co	1966	Ex	Pr	1 Pk	CE	100	550	550	....	O	....	Prd	....
25	Penobscot Paper Div, The Hearst Corp	Brunswick, Me		1966	Ex	Pr	1 Pk	CE	80	650	750	....	O	....	....	Uv
26	Union Carbide Corp	Taft, La	Sanderson & Porter Inc	1966	Ne	Pr	2 Fr	EC	300	645	750	....	O,G	....	Prd	Me,Uv
27	FMC Corp	Green River, Wyo		1966	Ex	Pr	1 Fr	BW	250	625	750	....	O,G	....	Prd	....
28	National Lead Co	New York, NY	J G White Engineering Corp	1965	Ex	Pr	1	BW	250	615	725	18	O	2.5	Prd	....
29	Essex, Inc	Silsbee, Texas	L A Simons (Int'l) Ltd	1966	Ex	Po,Pr	1 Fr	CE	500	600	750	....	Bk,G	....	BD	....
30	Crown Simpson Pulp Co	Eureka, Calif	Crown-Zellerbach & H A Simons	1966	Ne	Pr	1 Fr	BW	370	600	750	58.5	BL,G	....	BD	....
31	Crown Simpson Pulp Co	Eureka, Calif		1966	Ne	Po	1 Fr	BW	300	600	750	35	Bk,O,G	1	BD	Uv
32	Texas Eastman Co	Longview, Texas		1966	Ex	Pr	1 Fr	VO	300	600	750	23.5	G[8]	....	Prd	Me
33	Celanese Fibers Co	Narrows, Va	Jackson & Moreland	1966	Ex	Po,Pr	1 Fr	FW	256	600	750	22	C	2	Prd	....
34	Waldorf Paper Products Co	St Paul, Minn		1966	Ex	Po,Pr	1 Pk	BW	200	600	825	13.2	O,G	3.5	Prd	Uv
35	Spreckels Sugar Co	Chandler, Ariz	H K Ferguson	1967	Ne	Po,Pr	2 Pk	UR	120	600	720	3.3	G	....	Prd	Uv
36	Escambia Chemical Corp	Pensacola, Fla	Metcalf & Assoc	....	Ex	Pr	1	UR	100	600	750	....	O	....	BD	Uv
37	Campbell Soup Co	Paris, Texas	Lockwood-Greene	1967	Ex	Pr	1 Pk	RS	100	600	589	3	O,G	....	Prd	Me
38	Terra Chemical Co	Sioux City, Iowa	The M W Kellogg Co	1966	Ne	Pr	1 Pk	MIW	60	600	600	5.4	G	N	Prd	[illegible]
39	Procter & Gamble	Kansas City, Kan		1966	Ex	Pr	1 Pk	CE	60	600	Sat	5	O,G	1.5	Prd	Uv
40	Continental Oil Co	Lake Charles, La	Weatherby Engineering Co	1966	Ex	Po	2 Pk	MIW	40	600	750	4.5	G	....	Prd	Uv
41	First Nitrogen Corp	Donaldsonville, La	The M W Kellogg Co	1966	Ne	Pr	1 Pk	MIW	35	570	Sat	2.9	G	N	Prd	[illegible]
42	Campbell Soup Co	Camden, NJ	Gilbert Assoc Inc	1966	Ex	Po,Pr,SH	1	RS	190	550	630	3.5	O,G	....	BD	Uv
43	Fiber Industries, Inc	Shelby, NC	Lockwood-Greene	1966	Ex	Pr	1 Pk	CE	45	550	Sat	3	O,G	....	Prd	[illegible]
44	Koppers Co, Inc	Port Arthur, Texas		1966	Ex	Pr	1 Pk	CE	120	500	570	...	G	N	Prd	Uv
45	Koppers Co, Inc	Port Arthur, Texas		1965	Ex	Pr	1 Pk	CE	60	500	555	4.7	G	....	Prd	[illegible]
46	Anheuser-Busch, Inc	St Louis, Mo	Rogers Schmidt Engineering Co	1967	Ex	Po,Pr,SH	1 Pk	BW	200	465	600	....	G	N	Prd	[illegible]
47	University of Iowa	Iowa City, Iowa	Stanley Engineering Co	1966	Ex	SH	1 Pk	WIB	150	475	750	9.8	O,G	....	Prd	Uv
48	[illegible]	Trenton, NJ		1966	Ex	Pr	1 Pk	CE	60	462	535	...	O	2	Prd	[illegible]
49	[illegible]	Peoria, Ill	Sargent & Lundy	1967	[illegible]	Po	1 Fr	EC	270	450	750	20.5	C	....	BD	[illegible]
50	Erving Paper Mills	Erving, Mass		1966	Ex	[illegible]	1 Fr	RC	60	450	550	[illegible]	O	3.5	BD	Uv
51	[illegible] River Chemical Co	East Dubuque, Ill	Lummus Co	1965	Ne	Po,Pr	1 Pk	FW	[illegible]	450	700	[illegible]	[illegible]	N	Prd	[illegible]
52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Pr	[illegible]	BW	[illegible]	[illegible]	725	14	[illegible]	1.5	BD	Me
53	[illegible] Refining Co	Billings, Mont	Esso Research & Engineering Co	[illegible]	[illegible]	[illegible]	[illegible]	CE	150	[illegible]	625	23.3	[illegible]	1.5	Prd	Uv
54	[illegible] Powder Co	[illegible], Mo		1965	[illegible]	[illegible]	1 Pk	WIB	130	[illegible]	750	[illegible]	[illegible]	[illegible]	Prd	
55	Southwestern Oil & Refining Co	Corpus Christi, Texas		[illegible]	Ex	[illegible]	2 Pk	RC	125	425	600	3	O	N	Prd	Me
56	The University of Texas	Austin, Texas		1966	Ex	Po,[illegible]	1 Fr	[illegible]	[illegible]	425	720	34	[illegible]	....	Prd	[illegible]
57	NASA Manned Space Center	Houston, Texas	Bernard Johnson Engineers, Inc	[illegible]	Ex	Po,SH	1 Pk	[illegible]	56	420	600	....	[illegible]	....	Prd	[illegible]
58	[illegible] Carbide Corp	[illegible]		1966	Ex	[illegible]	1 Fr	EC	225	415	Sat	[illegible]	[illegible]	....	BD	....
59	Union Lumber Co	Fort Bragg, Calif		[illegible]	Ex	[illegible]	1 Fr	RS	125	[illegible]	725	15.3	Bk,O,G	....	BD	Uv
60	The Boeing Co	Auburn, Wash	Leo A Daly & Assoc	[illegible]	Ne	Pr,SH	1 Pk	RS	125	400	Sat	3.4	O,G	....	Prd	Uv
61	[illegible]	[illegible]		[illegible]	Ex	Pr	1 Pk	CE	100	400	Sat	[illegible]	[illegible]	....	Prd	Uv
62	[illegible]	[illegible]		[illegible]	Ex	Pr	1 Pk	CE	100	400	Sat	[illegible]	[illegible]	....	Prd	Uv
63	[illegible]	[illegible]		[illegible]	Ex	Pr	[illegible]	MIW	60	[illegible]	Sat	[illegible]	[illegible]	N	Prd	Uv
64	[illegible]	[illegible]		[illegible]	Ex	Pr	[illegible]	CE	100	350	725	[illegible]	[illegible]	N	Prd	Uv
65	Monsanto [illegible]	[illegible]		1966	Ex	Pr,SH	[illegible]	BW	[illegible]	350	Sat	..	O,G	....	Prd	

MANUFACTURERS

AC — Allis-Chalmers Mfg Co
AE — Aerofin Corp
AL — [illegible]
AMB — American Blower Corp, American Standard Industrial Div
AMP — American Marsh Pumps Inc
AP — The Air Preheater Co
APF — [illegible] Pump Div, The New York Air Brake Co
AS — [illegible]
AT — [illegible] Industries [illegible] Universal Oil Products Co
BF — [illegible]
BJ — [illegible] Pumps Inc [illegible] Borg-Warner Corp
BM — Bailey Meter Co
BPC — [illegible] Co [illegible]
BRT — [illegible] Inc
BSL — [illegible] Corp
BU — [illegible] Engineering Co Inc
BW — Babcock & Wilcox Co
BY — The Bayer Co
CC — [illegible] Controls Inc
CE — Combustion Engineering Inc
CF — [illegible]
CHB — [illegible] Heater Co
CLE — [illegible] Co
COW — Frederick Cowan & Co, Inc
CV — Coles-Vulcan Div, Blaw-Knox Co
DBP — Dean Brothers Pumps Inc
DL — De Laval Turbine Inc
DP — [illegible] Power Specialty Corp
DSC — Detroit Stoker Co
EC — [illegible] Iron Works
ECA — Electronics Corp of America
ENC — Engineer Co
F — The Foxboro Co
FAA — The Flyash Arrestor Corp
FAB — Fuller Engineering Co, Inc
FO — Forney Engineering Co, Sub of Douglas Engineering
FW — Foster Wheeler Corp
GE — General Electric Co
GF — Green Fuel Economizer Co, Sub of Baldwin-Lima-Hamilton
GP — Goulds Pumps, Inc
GRE — General Regulator Corp, Sub of Foster Wheeler Corp
H — Honeywell Inc
HAP — Howden-Aco[illegible]
HAY — Hays Corp

...and oil is the large amount of sulphur they usually contain

EQUIPMENT		SOOT AND DUST			AIR HEATER		F-D FANS			I-D FANS			BOILER FEED SYSTEM				COMBUSTION CONTROL		PROJECT
Burner																			
No per boiler	Manufacturer	Sootblowers mfr & No	Dust collector type	Dust collector mfr	Type	Manufacturer	No per boiler	Manufacturer	Type drive	No per boiler	Manufacturer	Type drive	No of pumps	Manufacturer	Type drive	Feedwater treatment	Type	Control manufacturer	
	[illegible]	[illegible]	M	[illegible]	Re	APC	[illegible]	BF	T	N			2.5	PP	T	Ex	E	LN	[illegible]
			M	[illegible]	[illegible]	BW	[illegible]	[illegible]	M	N				PP	M T	Ca Ft Sc,MuD In	Pr	BM	2
	[illegible]	[illegible]	M	[illegible]	[illegible]	[illegible]		WE	M	[illegible]	WE	M	[illegible]	PF	M	Ft MuD	Fr	HCC	3
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			SW	M	N			[illegible]	IR	M	MuD In	[illegible]	RF	4
	BW	[illegible]	[illegible]	[illegible]	[illegible]	BW	[illegible]	SW	M	N			[illegible]	PP	M	Z MuD In	[illegible]	[illegible]	5
[illegible]	[illegible]	[illegible]			Re	APC	[illegible]	SW	M	N			[illegible]	PP	M	Ca Ft MuD	E	PF	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	Re	APC	[illegible]	GF	M	[illegible]	GF	M	[illegible]		M T	MuD	[illegible]		
	[illegible]	[illegible]	[illegible]	WE [illegible]	[illegible]	BW	2	SW	M	[illegible]	SW	M		Ex	T	Ex	Pn	BM	[illegible]
	[illegible]	[illegible]	M	S	N		[illegible]	WE	[illegible]	N									[illegible]
	[illegible]	[illegible] CV	E	[illegible]	Re	APC	1	WE	M		WE	M	[illegible]	DL	M	Ex	Pr	F	[illegible]
	[illegible]	N	N	N	Re	APC		CF	T	N		...	[illegible]	WS	M	Z	Pn	CE	[illegible]
	[illegible]	N		N	Re	APC		CF	M	N				IR	M	Z	[illegible]	BM	[illegible]
		[illegible]	M	WP	[illegible] Re	AF APC	[illegible]	HAP	Dc		HAP	Dc	[illegible]	WC	M	Ev	E	CE	[illegible]
[illegible]	[illegible]	[illegible]	M	WP	[illegible]	AF	[illegible]	APC	M	2	APC	M	[illegible]	WO	M	In	E	MSE	[illegible]
	BW	[illegible]	E	[illegible]	S	AS	2	SW	T		SW	T	1.5	BJ	T	Ft M S, In	E	HCC	[illegible]
	BW	[illegible]	M	EL	P S	APC		SW	T		SW	T	1.5	BJ	T	Ft MiE In	E	HCC	
		[illegible]	M	BW	Tu	BW		WE	M	[illegible]	WE	M	29	IR	2M T	Ft MuD In	E	F	[illegible]
	BW	[illegible]	E	[illegible]	Tu	AME		WE	M		WE	M	27	IR	2M T	Ft MuD In	E	F	
	[illegible]	[illegible]	M	WP	Tu	CE		SW	M	[illegible]	SW	M	[illegible]	IR	M T	Ca Ft MuD In	Pn	BM	[illegible]
		N	M	FAA	N		[illegible]	WE	M		WE	M	[illegible]	IR	M	[illegible] Sc,Z,In	Pr		[illegible]
					S	...	[illegible]	...	M	N		...		IR	M	MuD,In	Co	F BM	19
	BW	[illegible] DF			Tu	BW	[illegible]	...	M		...	M		IR	T	MuD,In	Co	F,BM	
		[illegible] DF	Me El	PD	Re	APC	[illegible]	WE	Dc		WE	Dc		IR	T	MuD,In	Pn	BM	[illegible]
		[illegible] CV	Me	PD	N		[illegible]	WE	T	[illegible]	WE	T		PP	T	Sc Z	Pn	BM	[illegible]
	BW	N	N		Re	APC		SW	T	N	...		[illegible]	WC	T	Ca Ft,Sc,Z In	Pn	BM	[illegible]
	[illegible]	[illegible]						WE	M	N	...			CP	M	Z In	Co	HCC	[illegible]
	[illegible]	[illegible]	N		St Re	APC	[illegible]	CF	M	N		...	Ex	GF	T	Sc Z,In	Pn	RF	[illegible]
	[illegible]	[illegible]	N		Re	APC	[illegible]	FAA	M	N	...	...	[illegible]	WO	M T	MuD	Pn	BM	25
	[illegible]	[illegible]			P	APC		BF	M	N				BPC	M	Ca,Ft,Z	E	GE	25
	BW	[illegible] DF	N		St Re	AF BW		BF	M	N	...			BJ	Dc	Ca Ft Sc Z	Pn	BM	[illegible]
	SW	[illegible] DF	N		Re	APC	[illegible]	WE	M	N			[illegible]	IF	M T	F Z	Pn	HCC	[illegible]
[illegible]	CE	[illegible]	M	WP	St	CE		WE	M		WE	T		BJ	M	MuD	Pn	BM	[illegible]
	BW COE	[illegible] DF	E	WP	P	BW	2	CF	M		CF	M		BJ	M	MuD In	Pn	BM	[illegible]
[illegible]	COE BW	[illegible]	M	WP	Tu	BW		CF	M	[illegible]	CF	M		BJ	M	MuD In	Pn	BM	[illegible]
	[illegible]				Re	APC		WE	T	N	...	...	Ex	IF	T	MuD	Pn	BM	[illegible]
[illegible]	FW	[illegible] DF	Me E	PD	P	APC		BF	M	N	...	...		PP	M	Ft Z	Pn	MP	[illegible]
	BW	[illegible]	N		N			CF	M	N			[illegible]	WG	M T	Z MuD Ev In	Pn	...	34
	PEC	N	N		Re	APC	[illegible]	SW	T	N	...	...		UP	T	MuD In	Pn	BM	[illegible]
[illegible]	[illegible]								T	N	...	...	[illegible]		Dc	Sc MuD	E	F	[illegible]
[illegible]	[illegible]	[illegible]							Dc	N			[illegible]		M T	Ca Z	Pr	BM	[illegible]
	PEC					...		CF	Dc	N			[illegible]	PP	M T	Ca Ft Z MuD M E	Pn	BM	[illegible]
[illegible]	[illegible]	[illegible] DF		N	N		[illegible]	COE	M	N	...	...		IF	M	Z	Pr	COE	[illegible]
	[illegible]				...	...		COE	M	...	...	...	29	IR	T	Sc Z MiE	Pn	FF	[illegible]
	[illegible]	N	N		N			COE	M			M			M	Ca,Ft MuD,MiE	E	PT	[illegible]
[illegible]	[illegible]	[illegible] DF	M	DF	N			AC	M	N			[illegible]	WO	M T	Sc Z	Pn	HCC	[illegible]
	[illegible]	[illegible]						COE	M	N				PP	M	Ca Ft,Sc,Z,In	E	COE	[illegible]
	PEC	N	...					CF	M	N	...	...	[illegible]	PP	M T	Ft,Z	...	....	[illegible]
	[illegible]	N	N		N			CF	M	N				IR	M	Ca Ft,Sc Z	Pn	BM	[illegible]
		N	N		N			BF	M	N				IF	Dc	Z	Pr	BM	[illegible]
[illegible]	[illegible]	[illegible]	N		N			SW	N	N			[illegible]	PP	M T	Z	Pn	HCC	[illegible]
	[illegible]	[illegible]	N		Fe	APC		CF	M	N			[illegible]	DL	T	Sc	Pn	...	[illegible]
		[illegible] DF	Me	PT	N			WE	M		WE	Dc	[illegible]	IF	M T	[illegible]	Pn		[illegible]
[illegible]	[illegible]	[illegible]	N		N			AC	M		FAA	M	[illegible]	WC	M T	Ft Sc,Z In	Pn	CV	[illegible]
	COE	N	N		N			COE	M	N	...	...	[illegible]		M T	Ca,Ft,Z,In	Pn	GPE	[illegible]
		[illegible] DF	M	WP	N		[illegible]	[illegible]	M		DF	M		IF	M	Ft Sc Z	Pr	BM	[illegible]
[illegible]	[illegible]	[illegible]	N		N		[illegible]	[illegible]	T	N	...		Ex	...		Ft,Sc Z	Pn	F	[illegible]
[illegible]	WE	[illegible] DF	N		N			AC	M	N		...		IF	M	Z	Pr	BM	[illegible]
[illegible]	FLC	N	N		N			...	M	N		...	[illegible]		M	Sc Z	Pr	F	[illegible]
		N	N		N		N			N			Ex		...	Z In	N	...	[illegible]
[illegible]	COE	N	N		N			AL	M	N			Ex			Z	Pr		[illegible]
[illegible]		[illegible]	Me E	WP	N			AC	T		AC	T	[illegible]	WC	M T	[illegible] Z In	Pn	BM	[illegible]
	Pr	N	Me	EL	[illegible]	DF		DA	Dc		DA	Dc	[illegible]	WC	M T	Z	E	HAY	[illegible]
[illegible]	[illegible]	N	N		N			WE	M	N				WC	M	Sc Z In	Co	BM	[illegible]
[illegible]	[illegible]	[illegible]	N		[illegible]			CF	M		...			WC	M	Ca Ft Sc	E	PEC	[illegible]
	PEC	N	N		Tu	APC		CF	Dc	N			[illegible]	EL	M	[illegible]	Co	[illegible]	[illegible]
	COE	N	N		N			COE	M	N		...		BE	M	Ca Ft Sc,Z In	E	COE	[illegible]
[illegible]	PEC	N	N		Fe	APC		DHB	M	N			Ex			Z	E		[illegible]
[illegible] SA	BW	[illegible] DF	N		N			CF	M	N			[illegible]	PP	M	MuD	Pn	RF	[illegible]

[illegible] Electric Corp
[illegible] ...ustion Engineering Co
[illegible] ...uck Ventilating Co
[illegible] Rauo Co
[illegible] ...facturing Co
[illegible] Co, Inc
[illegible] Co
[illegible] Boiler & Engineering Corp
[illegible] Stoker Co
[illegible] Northrop, Inc
[illegible] Inc

MGE - McGraw-Edison Co
MIW - Murray Iron Works Co
MP - Moore Products Co. Sub of Moore Inst Co Ltd
OS - Orr & Sembower, Inc
PD - Prat-Daniel Corp
PE - Peerless Pump, FMC Corp
PEC - Peabody Engineering Corp
PP - Pacific Pumps Inc, Div of Dresser Industries, Inc
PPC - Pennsylvania Pump & Compressor Co
PT - Pennsylvania Transformer Div, McGraw-Edison Co

PYR - Pyronics, Inc
RAY - Ray Burner Co
RC - Research-Cottrell, Inc
REC - Recold Corp
RER - Roy E. Roth Co
RF - Republic Div, Rockwell Mfg Co
RS - Riley Stoker Corp
RV - Robinson Ventilating Co
SHA - Schaub Engineering Co
SW - Sturtevant Div, Westinghouse Electric Corp
TS - Todd Shipyards Corp, Products Div
UP - Union Pump Co

UP - Union Iron Works, Sub of Riley Stoker Corp
VO - Henry Vogt Machine Co, Inc
WE - Westinghouse Electric Corp
WIB - Wickes Boiler Co, Sub of Wickes Corp
WNB - W N Best Combustion Equipment Co
WO - Worthington Corp
WP - Western Precipitation Div of Joy Mfg Co
WPI - Warren Pumps, Inc
WPM - The Weinman Pump Mfg Co
WS - Wilson Snyder Works, United States Steel Corp

CONTINUED ON NEXT PAGE

Table 2: 330 to 135 psig

More small boilers have particulate-remo

PROJECT	COMPANY	LOCATION	CONSULTING ENGINEER	Date of initial operation	New or existing plant	Principal steam use	BOILERS: No. new units, type	Manufacturer	Capacity each, 1000 lb per hr	Operating pressure, psig	Operating temp, F	Heating surface, 1000 sq ft, incl boiler, waterwall and superheater	FUEL: Type	Max sulfur content, %	FURNACE: Furnace type	Furnace safeguard, type
66	US Steel Corp	Fairless Hills, Pa		1966	Ne	Pr	1 Pk	CE	126	330	550	5.3	O,G	4	Prd	[illegible]
67	Maine Sugar Industries, Inc	Easton, Me	Vanising, Inc	1966	Ne	Po,Pr	2 Pk	CB	20	330	430	10	O	3	Prd	[illegible]
68	Wycon Chemical Co	Wycon, Wyo	Chemical Construction Corp	1966	Ne	Pr	1 Pk	MIW	23	330	Sat	2.3	G	N	Prd	[illegible]
69	Pan American Petroleum Corp	Riverton, Wyo	Dresser Engineering Co	1965	Ne	Po,Pr	2	WIB	30	300	425	3	G	N	Prd	[illegible]
70	Central Plants, Inc	Los Angeles, Calif	Holladay & Westcott	1965	Ne	Pr,SH	2 Pk	BW	160	285	417	7.3	O,G	....	Prd	[illegible]
71	The Upjohn Co	Laporte, Texas	Fish Engrg & Construction, Inc	1966	Ne	Pr	2 Pk	WIB	100	230	525	13	G	N	Prd	[illegible]
72	Uni-Plant Corp	Huntington Beach, Calif	M A Nishkian Co	1966	Ex	SH	2 Pk	MIW	40	275	Sat	3.3	O,G	....	Prd	[illegible]
73	Central Plants, Inc	Santa Fe Springs, Calif	M A Nishkian Co	1966	Ne	SH	2 Pk	MIW	25	275	Sat	2.3	O,G	....	Prd	[illegible]
74	Polaroid Corp	Waltham, Mass	Jackson & Moreland	1965	Ne	Pr,SH	1 Pk	FW	50	250	Sat	...	O	2	Prd	[illegible]
75	General Services Administration	Georgetown, DC	Zeil-Blossom & Assoc	1967	Ex	SH	2 Fi	WIB	220	250	406	13.3	O	0.7	BO	[illegible]
76	Crucible Steel Co of America	Midland, Pa		1966	Ex	Po,Pr	1 Fi	RS	150	250	475	14.9	O,BF	2.43	BO	[illegible]
77	Boston Edison Co	Boston, Mass		1966	Ex	SH	1 Fi	KEE	150	250	Sat	13	O	3	Prd	[illegible]
78	Armco Steel Corp	Houston, Texas		1967	Ex	Po	1 Fi	CE	130	250	[illegible]	...	BF	....	Prd	[illegible]
79	Frontier Chemical Co	Wichita, Kan		1965	Ex	Pr	1 Pk	BRO	60	250	Sat	....	G	....	Prd	[illegible]
80	Manistee Salt Works	Manistee, Mich		1966	Ex	Po,Pr	1 Pk	WIB	50	250	460	5.3	G	2.5	BO	[illegible]
81	Boise Cascade Corp	Vancouver, Wash	Bumstead-Woolford, Inc	1966	Ex	Pr	1 Pk	RS	125	240	402	3.4	O,G	2.5	Prd	[illegible]
82	Dow-Badische	Williamsburg, Va	Wiley and Wilson	1966	Ex	Pr,SH	1 Pk	CE	120	225	Sat	....	O	....	Prd	[illegible]
83	Tee Pak Inc	Danville, Ill		1965	Ex	Pr,SH	1 Pk	BRO	75	225	Sat	....	O,G	....	Prd	[illegible]
84	American Metals Climax Inc	Climax, Colo	Stearns Roger	1965	Ex	Pr	1 Pk	BW	50	225	Sat	4.4	O,G	....	Prd	[illegible]
85	Hammer Div, American Tobacco Co	Chester, Va		1966	Ex	Pr	1 Pk	RS	100	225	Sat	3.7	O,G	0.6	BO	[illegible]
86	Chevrolet Co	Buffalo, NY	Benjamin, Woodhouse & Guenther	1965	Ne	Pr,SH	3 Pk	EC	50	225	Sat	....	O,G	....	Prd	[illegible]
87	Monsanto Co	Anniston, Ala		1966	Ex	Pr	1 Pk	RS	50	225	Sat	5.7	O,G	....	BO	[illegible]
88	Chevrolet Saginaw Foundries	Saginaw, Mich	Giffels & Rossetti	1965	Ne	SH	4 Pk	WIB	120	212	380	10	G	N	Prd	[illegible]
89	Chevrolet Saginaw Foundries	Saginaw, Mich	Giffels & Rossetti	1965	Ne	SH	1 Pk	CE	30	212	380	3.3	G	N	Prd	[illegible]
90	Holly Sugar Corp	Colorado Springs, Colo		1966	Ex	Pr	1 Pk	RS	100	212	Sat	...	G	N	Prd	[illegible]
91	Cornell University	Ithaca, NY	Gilbert Assoc	1966	Ex	Po,Pr,SH	1 Pk	BW	100	205	500	5.7	G	N	....	[illegible]
92	Kalamazoo State Hosp	Kalamazoo, Mich	Cummins & Barnard, Inc	1966	Ex	Po,SH	1 Fi	WIB	125	200	480	21	G	2	BO	[illegible]
93	Oregon State University	Corvallis, Ore		1966	Ex	SH	1 Pk	KEE	50	200	Sat	4.4	O,G	....	Prd	[illegible]
94	The Davey Co	Downingtown, Pa		1965	....	...	1 Pk	KEE	45	200	Sat	4.3	O	....	Prd	[illegible]
95	Denver Federal Center	Denver, Colo		1966	Ex	SH	1 Pk	KEE	75	190	Sat	3.6	O,G	....	Prd	[illegible]
96	General Electric Co	Bethlehem, NY	Blaw-Knox Co	1965	Ne	Pr	2 Pk	MIW	50	185	Sat	5	O	....	Prd	[illegible]
97	Western Electric Co	Indianapolis, Ind		1966	Ex	Pr,SH	1 Fi	EC	50	180	Sat	...	O	0.75	BO	[illegible]
98	Chrysler Corp	Highland Park, Mich	Albert Kahn Assoc, Arch & Eng's, Inc	1966	Ex	Pr,SH	3 Fi	WIB	125	175	Sat	10.4	O,G	1	BO	[illegible]
99	Campbell Soup Co	Camden, NJ	Gilbert Assoc, Inc	1966	Ex	Po,Pr,SH	1	RS	50	175	275	5.3	O,G	....	BO	[illegible]
100	Rexall Chemical Co	Joliet, Ill		1965	Ne	Pr,SH	1 Pk	EC	30	175	Sat	[illegible]	G	N	Prd	[illegible]
101	Rock Island Corp, Resinwood Div	Marinette, Wis	Walter G Kimmel	1965	Ne	Pr,SH	1 Fi	BW	17.25	175	375	2.9	O,[illegible]	....	BO	[illegible]
102	Atlantic Refining Co	Philadelphia, Pa	Rust Engineering Co	1967	Ne	Pr	1 Fi	RS	300	170	435	37	O,EG	....	Prd	[illegible]
103	[illegible] Processing Corp	Muscatine, Iowa		1965	Ex	Pr	1 Fi	BW	[illegible]	165	Sat	....	O,G	....	BO	[illegible]
104	[illegible] Boiler & Engineering Corp	Chicago, Ill	Laramore, Douglass & Popham	1966	Ne	Pr,SH	2 Fi	LAS	70	165	Sat	5.3	O,G	2	BO	[illegible]
105	[illegible] Chemical	Louisville, Ky		1965	Ex	Pr	1 Fi	EC	40	165	375	5	G	3	BO	[illegible]
106	Mosinee Paper Mills	Mosinee, Wis	Helmick & Lutz Co	1966	Ne	Pr	1 Fi	WIB	100	160	440	[illegible]	G	2.5	BO	[illegible]
107	General Electric Co	Waterford, NY	United Engineers & Constructors	1965	Ex	Pr	1 Pk	CE	100	160	Sat	3.5	O	....	Prd	[illegible]
108	Indiana University Medical Center	Indianapolis, Ind		1966	Ex	SH	1 Pk	RS	100	160	Sat	3.3	G	....	Prd	[illegible]
109	Berea College	Berea, Ky	Watkins, Burrows and Assoc	1966	Ex	Pr,SH	1 F	[illegible]	30	160	Sat	[illegible]	G	2.5	BO	[illegible]
110	[illegible] Co	Fort Dodge, Iowa		1966	Ex	Pr	1 Pk	KEE	70	155	Sat	[illegible]	O,G	....	Prd	[illegible]
111	Chrysler Corp, Detroit Forge Plant	Detroit, Mich	John G Hoad & Assoc, Inc	1966	Ex	Pr,SH	1 Fi	RS	150	150	366	10	G	1	BO	[illegible]
112	[illegible]	[illegible], Ga		1966	Ne	Pr	1 Fi	BW	150	150	Sat	...	O,G	....	BO	[illegible]
113	University of Colorado	Boulder, Colo		1966	Ex	SH	1 Fi	EC	130	150	Sat	11.2	O,G	....	Prd	[illegible]
114	Bristol Laboratories, Div of Bristol-Myers Co	East Syracuse, NY		1966	Ex	Pr	1 Pk	BW	112	150	366	....	O	2	Prd	[illegible]
115	Farmers Union Central Exchange, Inc	Laurel, Mont	Industrial Service and Engrg Co	1966	Ex	Po,Pr	1 Fi	CE	100	150	Sat	11.2	O,G,EC*	3.3	Prd	[illegible]
116	Western [illegible] University	Macomb, Ill	Brown, [illegible], Davis & Mullins	1966	Ex	SH	1 Pk	KEE	100	150	Sat	3	O,G	...	Prd	[illegible]
117	[illegible] Print Works	Sumter, SC		1966	Ex	Pr	1 Fi	RS	[illegible]	150	365	3.5	O,G	....	BO	[illegible]
118	Hilton-Davis Chemical Co	Cincinnati, Ohio		1966	Ex	Pr,SH	1 Fi	RS	[illegible]	150	Sat	9	G	1	BO	[illegible]
119	[illegible]	[illegible], Minn	[illegible] & Morrow	1965	Ex	SH	1 F	BRO	40	150	Sat	...	O,G	....	BO	[illegible]
120	[illegible]	LaCrosse, Wis	[illegible]-Maverton & Assoc	1966	Ne	SH	2 F	BRO	40	150	Sat	[illegible]	O,G	....	BO	[illegible]
121	[illegible]	[illegible]		1966	Ex	Pr	1 Pk	KEE	50	150	Sat	5.0	G	N	Prd	[illegible]
122	[illegible]	Maryville, Mo	Herschman & Douglas	1966	Ex	SH	[illegible]	BRO	50	150	Sat	5	O,G	....	Prd	[illegible]
123	[illegible]	[illegible]		1966	Ex	Pr	1 Pk	WIB	35	150	Sat	4.4	G	1.1	BO	[illegible]
124	[illegible]	Moss Point, Miss	H K Ferguson Co	[illegible]	[illegible]	Pr	1 Pk	KEE	40	150	Sat	2.3	G	N	Prd	[illegible]
125	[illegible]	Fresno, Calif	W L [illegible] & Assoc	1966	Ex	Pr,SH	1 Pk	BW	30	150	Sat	3.3	O,G	5	Prd	[illegible]
126	[illegible]	[illegible], Miss	Anderson, Clayton & Co	1966	Ne	Pr	1 Pk	MIW	30	150	Sat	2.3	G	....	Prd	[illegible]
127	[illegible]	[illegible]		1965	Ex	SH	1 Pk	CE	[illegible]	150	350	2.5	G	N	Prd	[illegible]
128	[illegible]	Athens, [illegible]	[illegible] & [illegible]	[illegible]	Ne	SH	2 F	KEE	[illegible]	145	Sat	3.5	G	....	BO	[illegible]
129	[illegible]	[illegible]		1965	Ex	Pr	1 Pk	BRO	15	140	Sat	...	O,G	....	Prd	[illegible]
130	[illegible]	[illegible]	[illegible], Townsend & Assoc	[illegible]	Ex	Pr,SH	1 Fi	KEE	40	135	Sat	3.4	G	5.5	BO	[illegible]
131	[illegible]	[illegible]	[illegible], Townsend & Assoc	[illegible]	Ne	Pr,SH	1 Fi	EC	40	135	Sat	3.2	G	1.3	BO	[illegible]

SYMBOLS

[illegible]	[illegible]	C	Coal, Bituminous	EG	Exhaust gas	HM	Hammer [illegible]
BC	[illegible]	[illegible]	[illegible]	E	Electrostatic	HoB	Horizontal [illegible]
BF	Blast furnace gas	CF	[illegible] Fuels	Ev	Evaporation	Hy	Hydraulic [illegible]
Ba	[illegible]	[illegible]	Combined pneumatic and electronic	Ex	Existing	In	Internal [illegible]
B	[illegible]	[illegible]	[illegible] furnace	FB	Firetube boiler	Ir	Infrared [illegible]
BL	[illegible]	[illegible]	[illegible]	F	Field-erected	M	Motor [illegible]
BW	[illegible]	CFL	[illegible] flame	Fi	Filtered, filtration	Me	Mechanical [illegible]
		E	Electrical [illegible]	G	Gas	MiB	Mixed [illegible]

...ces in an increased effort to fight atmospheric pollution

Manufacturer	EQUIPMENT – Burner: Burner type, No. per boiler	EQUIPMENT – Burner: Manufacturer	SOOT AND DUST: Sootblowers, air, & No.	SOOT AND DUST: Dust collector type	SOOT AND DUST: Dust collector mfr.	AIR HEATER: Type	AIR HEATER: Manufacturer	F.D FANS: No. per boiler	F.D FANS: Manufacturer	F.D FANS: Type drive	I.D FANS: No. per boiler	I.D FANS: Manufacturer	I.D FANS: Type drive	BOILER FEED SYSTEM: No. of pumps	BOILER FEED SYSTEM: Manufacturer	BOILER FEED SYSTEM: Type drive	BOILER FEED SYSTEM: Feedwater treatment	COMBUSTION CONTROL: Type	COMBUSTION CONTROL: Control manufacturer	PROJECT
....	[illegible]	[illegible]	[illegible]	N		TL	CE		CF	M	N				WC	M	Ca Fl Sc Z	E	CV	[illegible]
....	1 SA	[illegible]		N		N			BM	M	N				WPM	M	Ca Z	Pn	BM	[illegible]
....		[illegible]	N	N		N			COE	M	N					M	Z	E	PF	[illegible]
....		[illegible]	N	N		N			CF	MT	N				IR	MT	In	Pn	PF	[illegible]
...	1 SA	[illegible]	[illegible]	N		[illegible]	REC		BF	[illegible]	N		...		WF	T	Sa MB	[illegible]	BM	
....		[illegible]	N	N		N			CF	T	N					MT	Z	E		[illegible]
....	1 SA	[illegible]	[illegible]	N		N			[illegible]	M	N		...	Ex	WC	M	Sc Z In	...	HAY	[illegible]
....	1 SA	[illegible]	[illegible]	N		N			COE	M	N				WPM	MT	Z			[illegible]
....	1 SA	[illegible]		N		N				M	N		...		GF	MT	In	E	COE	74
DSC	...		4 DF	E	RC	N			CHB	T	1	CHB	M	4 Ex	IR	T	Ca Ex	Pr	HCC	75
RS	2 SA	REC	[illegible]	We	FAA	Ts	FAA		FAA	T	1	FAA	T		IR	T	Ca Fl Sc,In	Pn	BM	76
....	2 SA	REC	N	N		N			CF	M	N				IR	M	Sc	Pr	...	77
....	4 Ta	CE	[illegible]	N		N			SW	T		HAF	T	2	IR	T	Fl,Sc,In	Pn	HCC	78
....	Ta	COE	N	N		N			COE	M	N				...	MT	Z In	E	...	79
HCE	N		[illegible] CV	We	AS	N	...		AS	M		AS	M		...		Sc	Pr	BM	80
....	1 SA	[illegible]	[illegible] CV	N	...	N			SW	M	N		...	Ex		...	Z	Pn	BM	81
....	1 SA	[illegible]	4 CV	N		N				Dc	N				IR	MT	In	Pn	BM	82
....	1 SA	[illegible]	[illegible] CV	N	...	St	Mc			M	N				Dc	M	Fl Sc Z Ex In		CCE	83
....	1 SA	BW	N	N		N			CF	M	N				WC	M	Sc In	Fn	BM	84
HCE	2 SA	[illegible]	[illegible]	We	AME	N			CF	M	1	CF	M		PE	MT	Ca Fl Z	Pr	BM	85
....	2 CF	EC	N	N		N			BF	MT	N	...	...		...	MT	Z	Pn	HAY	86
....	1 SA	COE	N	N		N				T	N	...			IR	M	Z	Pn	...	87
....	2 SA	WIE	4 DF	N		Re	APC		WE	Dc	N	...	...		GP	Dc	Z	E	HAY	88
....	1 SA	COE	[illegible] DF	N		Re	APC		WE	M	N		...		GP	MT	Z	E	HAY	89
....	1	COE	[illegible] CV	N	...	N			CF	M	N	...	....		WO	T	In	Cc	COE	90
....	1	BW	N	N		N			CF	M	N	...	...	1	WO	M	Sa	E	BM	91
HCE	N		[illegible] DF	Me	WF	N			CF	M		CF	M	2	GP	MT	MuD	Pn	BM	92
....	1 SA	COE	[illegible] DP	N	...	N	...		CFV	M	N	...		Ex	PE	MT	In	Pr	BM	93
....	1 SA	REC	DP	N		N			CF	M	N	...	...		IR	M	In	Cc	ECA	94
....	1 SA	FE	[illegible] CV	N		N	...		...	M	N	...	....			T	Z	E	CCI	95
	SA	REC	2 CV	N	...	N	...		CF	Dc	N		...		PE	MT	Z	Pn	BM	96
	N		4 CV	W	RC	N			CF	M		CF	M	Ex			Sc In	E	...	97
...	4 SA	COE	[illegible] CV	N		N			SW	T		SW	T	[illegible]	GP	MOT	Z	E	HAY	98
....	1 SA	COE	4 GF	We	GF	N			AC	M	N	...			WO	MT	Sc Z	Pn	HCC	99
....		EC	N	N	...	N	...		BF	M	N	...	...		GP	M	MuD	Pr	HCC	100
DSC	N		[illegible] DF	Me	FAA	N	....		CF	M		FAA	M		RER	M	In	Pr	PF	101
....	4 DF	RC	4 CF	N		N			WE	Dc	N			2		...	Z	Pn		102
DSC	4 Me	BW	4 DF	We	WF	N			FAA	M		FAA	Dc	Ex	BJ	MT	Sc	Pn	HCC	103
HCE		COE	[illegible] DF	We	WF	N	...		CF	M		CF	T		WC	M	MuD	Pn	HCC	104
LC	N		[illegible] DF	N		N			CF	M		CF	M	Ex	PE	MT	Ca Fl,Sc Z In	Pn	F	105
DSC	N		[illegible] CV	We	WF	TL	WIE		SW	M		SW	M	[illegible]	IR	MT	Sc Z In	Pr	BM	106
....	1 SA	REC	[illegible]	N		N			CF	M	N	...		3 Ex?	...	2MT	Fl,Sc,Z In	Pr	BM	107
....	1 SA	COE	[illegible]	N		N			CF	M	N	...		Ex	...	...	Z	E	HAY	108
DSC	N		[illegible] DF	We	RC	N			CF	M		GF	Dc		GF	MT	Sc	Pn	BM	109
....	1 DF	COE	[illegible] DF	N		N			BRY	Dc	N				GP PF	MT	Sc Z In	Pn	BM	110
RS	N		E DF	W	WF	N			CF	M		CF	M		WO	M	Z	Pn	BM	111
BW	1 CF		N	W	AME	TL	AME		AME	M		AME	M			...	S	Pn	PF	112
....	4 CF	[illegible]	4 DF	N		P	APC		BF	M	N		...	Ex	...	...	[illegible]	E	HAY	113
....	1 SA	BW	[illegible] DF	N		N			CF	M	N					T	Sc In	Pn	BM	114
....	4 Ta	CE	[illegible] DF CV	N		Re Ct	APC WE		CF	T	N			2 Ex	WO	T	Ex,Ca Fl,Sc	Pr	F	115
....	[illegible] SA	COE	[illegible]	N		N	...		FAA	M	N				DHP	MT	Z In	Pr E	...	116
....	[illegible] SA	REC	[illegible]	N		N			WE	M		WE	M		WC	M		Pr	BM	117
RS	N		[illegible]	We	RC	N			CF	T		CF	T		AC	MT	Z	Pn	BM	118
....	1 SA	BV	[illegible]	N		N			CF	M	N				IR	T		E	HAY	119
LC		COE	4 DF	N		N			CF	MT	N		...		WPM	M	Ca Sc Z MuT	E	HAY	120
....		COE	N	N		N			AC	M	N	...	...	1 Ex		T	Z		COE	[illegible]
....	1 SA	REC	4 CV	N		N				M	N				AMP	Dc	Z MuT	E		[illegible]
....	1 SA	WE	[illegible] CV	N		N			LG	M	N				WF	MT	Fl Z	E	CCI	[illegible]
....		REC	N	N		N			CF	M	N	...			GF	M	Z		...	124
....	[illegible] SA	BW	[illegible] DF	N		N			CF	M	N	...	...	3	HCE	M	Ca Sc	Pr	BM	125
....		COE	N	N		N			COE	M	N		...		GP	MT	Z In	E	COE	126
....		COE	N	N		N			AC	M	N				WC	M	Z In	E	COE	127
RS	N		E CV	We	RC	N			CF	MT Dc		CF	T Dc		WC	MOT	Z MuD	Pr	RF	128
....	1 SA	COE	[illegible] CV	N		N			COE	M					GP	M	In	E	...	129
LC	N		4 EV	N		N			CF	Dc	N			Ex	...		Sc Z In	E	HAY	130
LC	N		4 CV	N		N			BF	Dc	N			Ex			Sc Z In	Pr	RF	[illegible]

...ixed bed demineralizer
... Na
... Packaged
... Plate
... Pneumatic

Po - Power
Pr - Processing
Prz - Pressurized
RB - Rotary-cup burner
Re - Regenerative
RC - Refinery gas
SA - Steam-atomizing
Sat - Saturated

Sd - Sawdust
SH - Space heat
Sht - Shell and Tube
St - Softener
SS - Spreader Stoker
St - Steam
T - Turbine
Ta - Tangential

TG - Traveling-grate stoker
TL - Tubular
TV - Closed-circuit TV
UV - Ultraviolet
VG - Vibrating-grate stoker
Z - Zeolite

CONTINUED ON NEXT PAGE

Steam turbines and dual drives for auxil[illegible]

PROJECT	COMPANY	LOCATION	CONSULTING ENGINEER	Date of initial operation	New or existing plant	Principal steam use	BOILERS: No. new units, type	Manufacturer	Capacity each, 1000 lb per hr	Operating pressure, psig	Operating temp, F	Heating surface, 1000 sq ft, incl boiler, water-wall and superheater	FUEL: Type	Max. sulfur content, %	Furnace type
132	Ford Motor Co	Sterling, Mich.		1965	Ex	Pr	1 Fi	WIB	120	125	Sat	13.3	C	2	BD
133	R R Donnelley & Sons	Chicago, Ill		1965	Ex	Pr,SH	2 Fi	BW	30	125	Sat	9.7	O,G	1	BD
134	Williams College	Williamstown, Mass.	Lockwood-Greene	1966	Ex	SH	1 Fi	KEE	50	125	350	7.4	C	1.5	BD
135	Wisconsin State College	Eau Claire, Wis	Orr-Schelen-Mayeron & Assoc	1966	Ne	SH	2 Fi	BRO	50	125	Sat	...	C,G	3	BD
136	American Airlines	Tulsa, Okla		1966	Ex	SH	1 Pk	EC	50	125	Sat	5	O,G	....	Prd
137	Lincoln General Hosp	Lincoln, Neb	Davis & Wilson Architects & Engineers	1965	Ne	SH	2 Pk	BW	45	125	345	4.1	O G	....	Prd
138	Deere & Co	Welland, Ont	H G Acres & Co Ltd	1965	Ex	Pr,SH	2 Pk	FW	40	125	253	4.5	O	....	Prd
139	Adams State College	Alamosa, Colo	Swanson-Rink	1966	Ex	SH	1 Pk	KEE	35	125	Sat	2.7	O G	1	Prd
140	Associated Dye & Print Co	Paterson, NJ	Gruenwald Assoc	1966	Ex	Pr	1 Pk	KEE	35	125	Sat	3.4	O	....	Prd
141	Indiana State College	Indiana, Pa	Elwood Tower	1965	Ex	Pd,SH	1 Fi	KEE	35	125	Sat	5	C	...	BD
142	Burroughs Corp	Plymouth, Mich	Cummins & Barnard, Inc	1966	Ex	Pr	1 Pk	BW	30	125	352	3.0	G	N	Prd
143	Brock Candy Co	Chattanooga, Tenn	Wieger Engrg Co	1965	Ex	Pr	1 Pk	CE	30	125	Sat	3.1	O G	....	Prd
144	LeTourneau-Westinghouse Co	Peoria, Ill		1966	Ex	SH	1 Pk	MIW	30	125	Sat	3.3	G	N	Prd
145	Veterans Administration Hosp	Marion, Ind		1965	Ex	Pr,SH	1 Fi	VC	30	125	Sat	4	C	2	BD
146	Drake America Corp	New York, NY		1966	Ne	...	1 Pk	MIW	22	125	Sat	2	O	....	Prd
147	Bradley University	Peoria, Ill	Belling Engrg	1966	Ex	SH	1 Pk	MIW	32	120	Sat	3.3	O	....	Prd
148	San Fernando Valley State College	Northridge, Calif		1966	Ex	SH	1 Pk	BRO	30	120	350	3.5	O G	....	Prd
149	Pet Milk Co	Greensboro, Md		1966	Ex	Pd,Pr	1 Pk	KEE	25	120	350	....	C	1.2	BD
150	Wyeth Laboratories	West Chester, Pa		1965	Ex	Pr	1 Pk	KEE	25	120	Sat	2.5	O	....	Prd
151	**Marine Colloids, Inc**	**Rockland, Me**		1966	Ex	Pr	1 Pk	RS	70	118	Sat	5.7	O	....	BD
152	Tervo Dyeing & Finishing Co	Clifton, NJ	W J Beeknuysen & Assoc	1965	Ne	Pr	1 Pk	KEE	40	113	Sat	3.8	O	....	Prd
153	Firmin Desloge Hosp	St Louis, Mo	Wm Taos & Assoc	1965	Ex	Pr	1 Pk	KEE	50	120	Sat	4.9	O G	....	Prd
154	Wayne State College	Wayne, Neb	Leo A Daly Co	1965	Ex	SH	1 Pk	MIW	45.5	100	Sat	4.3	O G	....	Prd
155	Yoder Brothers, Inc	Barberton, Ohio		1965	Ex	Pr SH	1 Fi	EC	40	100	Sat	5.5	C	1.33	BD
HIGH TEMPERATURE WATER SYSTEMS (Total capacity in million Btu per hr)															
156	University of California	Riverside, Calif		1963	Ex	SH	1 Fi	BW	20	100	Sat		O G	....	BD
157	Ford Motor Co	Saline, Mich	Giffels & Rossetti, Inc	1965	Ne	SH	4 FB	CB	22	5	250		O G	...	Prd
158	E M Barracks Complex	Fort Knox, Ky	U S Army Corps of Engineers	1966	Ne	SH	2 Pk	1 BW	25[13]	450	375	2.5	C	...	BD
159	Queensborough Community College	Bayside, NY	J R Loring & Assoc	1965	Ne	SH	2 Pk	1 BW	25[13]	450	400	2.5	O	...	Prd
160	Fredonia College	Fredonia, NY	Segner & Dalton	1967	Ne	SH	1 Pk	1 BW	65[13]	300	400	5.5	G	N	Prd
				1967	Ne	SH	1 Pk	1 BW	25[13]	300	400	2.5	G	N	Prd
161	Tektronix, Inc	Beaverton, Ore		1965	Ex	Pr SH	1 Pk	WIB	25.5[14]	290	360	3.1	O G	1	Prd
162	Brigham Young University	Provo, Utah	Paul L Geiringer & Assoc	1966	Ex	SH	1 Fi	BW	100[15]	225	400	12.1	C	0.65	BD
163	College of William & Mary	Williamsburg, Va	Paul L Geiringer & Assoc	1966	Ex	SH	1 Pk	BW	50[16]	225	Sat	4.3	O	0.3	Prd
164	University of California	Santa Cruz, Calif	Kennedy Engineers	1966	Ne	SH	2 Pk	1 BW	25[13]	135	350	3.5	O G	...	Prd
165	American River Jr College	Sacramento, Calif	O'Meara-Sanford-Alessi, Inc	1965	Ex	SH	1 Pk	1 BW	23.4[13]	50	320	3	O,G	..	Prd
166	Staten Island Community College	Staten Island, NY	James Mongitore Assoc	1966	Ne	SH	3 Pk	1 BW	14[13]	150	320	1.5	O	....	Prd
167	Bechtel Corp	Palmer, Mich		1965	Ex	SH	1 Pk	WIB	30	125	390	3.4	O G	...	Prd
168	Hardin County Memorial Hosp	Elizabethtown, Ky	Procter Ingels & Assoc	1966	Ne	SH	2 Pk	1 BW	3[13]	30	250	.	O G	..	Prd
169	Southern Counties Gas Co	Anaheim, Calif	M A Nishkian, Mack and Sunderland	1965	Ne	SH	1 Pk	BSL	4.2	40	250		G EG	...	Prd
OVERSEAS STEAM SYSTEMS															
[illegible]	[illegible] de Grand Quevilly	Grand Quevilly, France	J A Heurtey	1967	Ne	Pr	1 Fi	BWF	35	220	570		RC Nap	N	BD
[illegible]	[illegible] Electrometallurgie et les Acieries Electriques d'Ugine	[illegible], France		1966	Ex	Pr Pr	2 Fi	BWF	30	1,000	755	12	O	1	Prd
[illegible]	[illegible]	[illegible], Sweden	Ingenjorsbyra H Martin	1964	Ex	Pd SH		DDT	75	960	925	13.5	O	2.5	BD
[illegible]	[illegible]	[illegible], Italy	C T I P Compagnia Tecnica Italiana Petroli	1967	Ne	Pd	4 F	TO	39	455	473	1500	O	4	BD
[illegible]	[illegible] Refinery	Kuwait	Foster Wheeler Corp	1967	Ne	Pr	2 Fi	FW	200	325	610	22	G	0.1	Prd
[illegible]	[illegible] des Produits du Mais	Clamart, France	Weirtam	1964	Ex	Pd Pr	1 Fi	SEU	45	220	340		O	4	Prd
[illegible]	[illegible]	Naples, Italy		1966	Ex	Pd Pr	Fi	TO	23.5	560	842	5.5	O[17]	4	BD
[illegible]	[illegible]	[illegible], Italy		1965	Ex	Pd Pr		TO	23.5	560	842	5.5	O[17]	4	BD
[illegible]	[illegible]	[illegible], France		1967	Ex	Pr	Fi	BWF	[illegible]	553	[illegible]		O	3.5	Prd
[illegible]	[illegible]	Paris, France	CERETE	1966	Ne	Pd,Pr	2 Pk	BWF	45	400	605	[illegible]	O EG	5	Prd
[illegible]	[illegible]	Mexico, Mexico		1965	Ex	Pr	Pk	KEE	[illegible]	240	Sat	[illegible]	[illegible]	[illegible]	Prd
[illegible]	[illegible]	[illegible], France		1965	Ex	Pr	Fi	BWF	[illegible]	[illegible]	[illegible]	5	[illegible]	3	Prd
[illegible]	[illegible]	France	L'Industrielle de Chauffage	1966	Ne	SH	Pk	BWF	[illegible][13]	[illegible]			[illegible]	3	Prd
[illegible]	[illegible]	France	L'Industrielle de Chauffage	1965	Ex	SH	1 Pk	BWF	[illegible][18]	[illegible]					BD
[illegible]	[illegible]	France	L'Industrielle de Chauffage	1966	Ne	SH	Pk	BWF	[illegible][13]	[illegible]	[illegible]		[illegible]	3	Prd
[illegible]	[illegible]	France		1966	Ex	Pr	FB	SEU	[illegible]	[illegible]	Sat	[illegible]	O	[illegible]	Prd
[illegible]	[illegible]	France		1965	Ex	Pr	Pk	BWF			Sat	[illegible]	[illegible]		Prd
[illegible]	[illegible]	[illegible], France	L'Installation Thermique Lyonnaise	1966	Ex	SH	[illegible]	BWF	[illegible][18]	15	[illegible]	[illegible]	[illegible]	3	Prd
[illegible]	[illegible]	France	Tunzini	1966	Ne	SH	Pk	BWF	[illegible][13]	15	[illegible]	[illegible]	[illegible]	3	Prd
[illegible]	[illegible]	France	Tunzini	1966	Ne	SH	Pk	BWF	[illegible][13]	15	[illegible]	[illegible]	[illegible]	3	Prd
[illegible]	[illegible]	France		1965	Ex	SH	Fi	BWF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	Prd

FOOTNOTES

1 [illegible]
2 [illegible] 1967
3 [illegible] dated at later date
4 [illegible]
5 [illegible] through [illegible] burners
6 [illegible] CO gas
7 Owned and operated by Detroit Edison Co
8 Dump stoker
9 Total
10 Natural and process gas
11 Three pumps serve five boilers
12 Separately fired FW superheater
13 Also residual wood waste
14 Replaces existing boiler
15 Once-through boiler, nitrogen-pressurized
16 Natural circulation boiler, nitrogen-pressurized
17 Once through boiler, steam-pressurized
18 Also natural circulation
19 Refinery residue
20 High-temperature water
21 See Steam Turbine Survey on new turbine generat[illegible]

…ment, such as fans, pumps and blowers, increase reliability

EQUIPMENT: Burner type, No per boiler	EQUIPMENT: Burner Manufacturer	SOOT AND DUST: Sootblowers, mfr & No	SOOT AND DUST: Dust collector type	SOOT AND DUST: Dust collector mfr	AIR HEATER: Type	AIR HEATER: Manufacturer	F.D FANS: No per boiler	F.D FANS: Manufacturer	F.D FANS: Type drive	I.D FANS: No per boiler	I.D FANS: Manufacturer	I.D FANS: Type drive	BOILER FEED SYSTEM: No of pumps	BOILER FEED SYSTEM: Manufacturer	BOILER FEED SYSTEM: Type drive	BOILER FEED SYSTEM: Feedwater treatment	COMBUSTION CONTROL: Type	COMBUSTION CONTROL: Control manufacturer	PROJECT
		[illegible]	[illegible]	AT	N	WHS		[illegible]	V		WE	V		DL	T	[illegible]	Fn	RF	[illegible]
2 SA	[illegible]	[illegible]	N		N			CF	M	N				CF	V	[illegible]	Fn	[illegible]	[illegible]
N		[illegible]	N		N			CF	Dc		CF	Dc	[illegible]	WP	T	[illegible] M B	P	BV	134
	[illegible]	[illegible]	N		N			CF	V	N					V T	[illegible]	E	HAY	[illegible]
1 CE	[illegible]	N	N		N			PF	V	N			E	CP	M T	[illegible]	P	BV	[illegible]
1 SA CF	FW		N		N			CF	V	N				IF	V	[illegible]	F	BV	[illegible]
1 SA	[illegible]	[illegible]	N	[illegible]	N			CF	V	N				WC	V	[illegible]		[illegible]	138
1 SA	[illegible]	[illegible]	N		N			CF	V	N				CHA	V	[illegible]	E	CCI	139
2	[illegible]		N		N			CF	V	N				CF	T	[illegible]	E		140
N		[illegible]	W	[illegible]	N			CHB	V		CHB	V	[illegible]	APE	M	[illegible]	Pn	…	141
1	[illegible]	N	N		N			CCE	V	N	…	…	…	…			E	COE	142
1 SA	ENG	[illegible]	N		N					N	…		[illegible]	WC	V	SE	E	CJW	143
1	CCE	N	N		N			CCE	V	N	…		[illegible]	WC	Dc	[illegible]	E	COE	144
N		[illegible]	W	[illegible]	N			CF	M	[illegible]	CF	M	[illegible]		M	Z in	E	…	145
1 SA	[illegible]	BAY						CF	V		…		[illegible]	APD	V		E	CCI	146
1 SA	COE	[illegible]	N		N			COE	V	N			[illegible]	RER	M	Z in	E	COE	147
2 SA	[illegible]	[illegible]	N		N			COE	V	N				WC	M T	Z in	Oc	HCC	148
N			W	[illegible]	N			AME	V		AME	V		F	M				149
1 SA	FA	DP	N		N			CF	V	N			[illegible]	THA	M	SC Z in	E	CCI	150
1 SA	[illegible]	CBP	N		N				V	N				WPI	M	in	E		151
1 SA	REC	[illegible]	N		N				V	N				APC	M	[illegible]	…	REC	152
1 SA		[illegible]	N		N		[illegible]	TC	V	N			[illegible]	UP	…	Ca Z in	E	HAY	153
1 SA	ENG	N	N		N			CF	V	N			[illegible]	WC			E		154
….		[illegible]	W	FLA	N			AME	Dc		CE	Dc	[illegible]	DP, RER	M	SC Z	Pn	HCC	155
4 SA	COE	[illegible]	N	N	N	N	N	N	N	[illegible]	WE	V		DL	Dc	[illegible] Z in	Oc	HCC	156
1 CF	CE	N	N		N			CB	V	N			N	RER	M	[illegible]	E		157
		N	N		N	…	N			N			N		…	N			158
1 We	WNE	N	N		N				…	N									159
?	FLA	N	N		N			CF	V	N				REP	M	Z in	Oc	CCI	160
	FLA				N			CF	V	N				REF	M	Z in	Oc	CCI	
AA	TC	C DP	N		N		N		….	N	…	…	[illegible]	WC	M	in	E	F	161
N		[illegible]	W	AF	N			FAA	V		…	…	[illegible]	WC	M	[illegible]	Fn	BV	162
1 SA	BV	[illegible]	N		N			CF	V	N				PPC	M	[illegible]	Fn	BV	163
1 We	COE	N	N		N			COE	V	N				DBP	V	[illegible]	E	HAY	164
1	COE	N	N		N		N				…			PS	V	N			165
1 AA	FLA	CEF	N		N		N						N	…	…	N	E	CCI	166
1 AA	WIE	[illegible]	N		N	…		RV	V	N			N	…	…	N	Pn	BV	167
1 AA	[illegible]	N	N		N		N			N			N		…	N			168
1	[illegible]	N	N		N			PVR	V	N			N			N			169
4 SA	[illegible]	N	N							N							Fn	BV	170
																			171
4 SA	[illegible]	[illegible]	N		N			[illegible]	V	N			[illegible]	[illegible]	V	WC	Fn	F	[illegible]
G	[illegible]	[illegible]	W	SFF	N	[illegible]		SFF	V	[illegible]	SFF	V	[illegible]	HAL	M	WC M B	Oc	…	[illegible]
2 SA	[illegible]	[illegible]	N					[illegible]	V	N		…	[illegible]		Dc	[illegible]	Fn		[illegible]
4		N						WE	V T	N				…	V		Fn	CRE	[illegible]
4 SA	[illegible]	N			[illegible]	[illegible]		PS	V	N				KSB	M T	WC	Fn	BV	[illegible]
1 SA	[illegible]	[illegible]			[illegible]	[illegible]		[illegible]	V		TC	V		KSB	M	F MuD in	Hv	REC	[illegible]
1 SA	TC	[illegible]			[illegible]	TC		TC	V		TC	V	[illegible]	KSB	M	Ca Ft MuD in	Hv	REG	[illegible]
6 SA	FL	[illegible]	N		N		N				[illegible]	V				M B	Fn	AEC	[illegible]
1 CF					N			VEN	V	N				KCB	V T	[illegible]	E	F	[illegible]
1 SA		[illegible]	N		N			CF	V	N			[illegible]	APC	M		E	ECA	[illegible]
4 SA	FT	[illegible]	W	[illegible]	N			CF	V	N			[illegible]	W	V	[illegible]	Br	GEN	[illegible]
2 We	[illegible]	[illegible]	W	[illegible]	N			VEN	V	N			[illegible]			N			[illegible]
		[illegible]	V	[illegible]	N			VEN	V	N	VEN	V	[illegible]			N			[illegible]
1 We	FL	[illegible]	W	[illegible]	N	…			V	N			[illegible]	…		N	E	WC	[illegible]
1 AA	FAM	N	N		N	…	[illegible]		V	N			[illegible]	KCB	M	Dc	E	F	[illegible]
1 We	[illegible]		N		N			FL	V	N				SAL	V	…	E	F	[illegible]
4	[illegible]	[illegible]	W	ECT	N				V	N				…	…	N	Pn	ARC	[illegible]
2 We	[illegible]	[illegible]	W	ECT	N			VEN	V	N			N			N	E	WC	[illegible]
2 We	[illegible]	[illegible]	W	ECT	N			VEC	V	N						N	E	WC	[illegible]
1 We	FL	[illegible]	N		N			FL	V	N				SUL	V	N	E	F	190

…FACTURERS

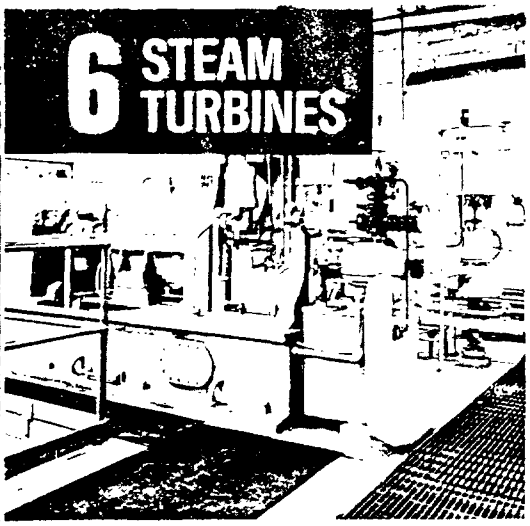
…Applications
…Wilcox France
…Inc.
…de Constructions Mecaniques Forest

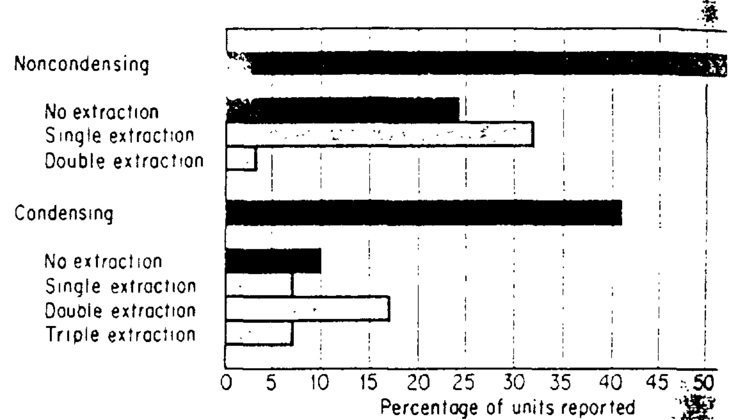
FT - Fovers Turbine
GEN - Etablissements Geneve
GOT - Gotaverken
HAL - Halberg AB
HW - Hawthorn
KSB - Klein, Schanzlin & Becker
LAG - Société Française Laroche et Cie

LP - Louis Prat
LV - Leckners Verkstads AB
PIL - Etablissements Pillard Frères et Cie
REG - Regulator SpA Milan
SAL - Société des Pompes Salmson
SAM - Société Française des Souffleurs MAT (SAFMAT)
SEU - Société d'Exploitation d'usines Metallurgiques (Riley)

SFF - Svenska Fläktfabriken
SC - Spiro-Cilis
SUL - Sulzer Bros Ltd
TO - Franco Tosi SpA
VEC - Ventinieca
VEN - Ventec

6 STEAM TURBINES





PREPONDERANCE of noncondensing turbines shows greater use of proces

Industrial turbines get bigger

R J BENDER, Consulting Editor

There is a continued increase in the size of turbines purchased by industries where both process steam and electricity are needed. This is due, in part, to present or contemplated expansion of plant capacity, and also to the fact that more and more electricity is being generated in plants of this type. The trend to more in-plant generation, which started only a few years ago, is now in full swing. At a relatively modest increase in capital cost, a larger boiler and a steam generator can be obtained that may, in the overall picture, produce a definite saving in energy cost for the owner.

This year, single-point and double-point ext turbines are the most popular. A number of thre extraction units were reported. However, U.S. facturers prefer to call them double-extraction u with an additional bleed point. Leading turbine facturers have told POWER that, in addition to creased number of relatively small steam turbi stalled to drive essential boiler auxiliaries, t growing use of steam turbines to drive large mac

PROJECT	COMPANY	LOCATION	No of new turbines	Manufacturer	Date of initial operation	Capacity, kw	Speed, rpm	Throttle temperature, F	Throttle pressure, psig	Type	No of extraction points	Extraction pressure, psig	Backpressure, in Hg or psig	Extracted steam use	Type condenser	Condenser manufacturer	Generator manufacturer	Cooling	Cooling medium drive	Power factor
STEAM TURBINES																				
1	Tennessee Eastman Co Div Eastman Kodak Co	Kingsport, Tenn	[illegible]	GE	1966	[illegible]	3600	[illegible]	[illegible]	Nc	N		515	Pr	N		GE	H_2	[illegible]	80
2	[illegible] Boxes Inc	[illegible]onagon, Mich		GE	[illegible]	9375		900	1450	Con	3	250,175,70	2	Pr		DL	GE		...	80
3	Thilmany Pulp & Paper Co	Kaukauna, Wis	1	WE	1966	7500	3600	[illegible]	[illegible]	Nc		500	152	Pr	N		WE	Air	...	...
4	Eastman Kodak Co	Rochester, NY	1	GE	1967	[illegible]	3600	900	[illegible]	Nc	1	215,275	25	Pr	N		GE	H_2	E	80
5	Detroit Edison Co	Detroit, Mich	[illegible]	WO	1967	[illegible]	3600	575	[illegible]	Nc	[illegible]	240	24	Pr	N	...	EM	Air	...	90
[illegible]	[illegible] SpA	[illegible] Italy	[illegible]	TO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con	N		[illegible]		Bag	TO	MAR	Air	...	80
[illegible]	[illegible] Paper Co	[illegible]	[illegible]	GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con	[illegible]	[illegible]	[illegible]	Pr	[illegible]	[illegible]	GE	H_2	E	80
[illegible]	[illegible]	[illegible]		STA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc	[illegible]	[illegible]	[illegible]	Fwh	N		ASE	Air		85
[illegible]	[illegible] Paper Co	[illegible], Miss		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con	[illegible]	[illegible]	[illegible]	Pr	[illegible]	[illegible]	GE	H_2	Gas	85
[illegible]	[illegible]	[illegible], Maui, Hawaii		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con	[illegible]	[illegible]	[illegible]	Pr	[illegible]	[illegible]	GE	Air		80
[illegible]	[illegible] Paper Co	[illegible] Rapids, NC	[illegible]	GE	[illegible]	[illegible]	[illegible]	825	[illegible]	Nc	N		[illegible]	Pr			GE	H_2		85
[illegible]	[illegible]	[illegible] France		STA	[illegible]	[illegible]	[illegible]	[illegible]		Nc	[illegible]	[illegible]	[illegible]	Pr	N		STA	Air		80
[illegible]	[illegible]	[illegible] Italy		TO	1966	[illegible]	[illegible]	[illegible]	[illegible]	Nc		[illegible]	[illegible]	Pr	N		[illegible]	Air	...	80
[illegible]	[illegible]	Naples, Italy		TO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc	N		[illegible]	Pr	N		[illegible]	Air		80
[illegible]	[illegible] Paper Products Co	[illegible]		GE	[illegible]	[illegible]	[illegible]	825	[illegible]	Nc		[illegible]	[illegible]	Pr	N		GE	H_2	...	80
[illegible]	Celanese Fibers Co	[illegible]		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc	N		[illegible]	Pr	N		GE	H_2		90
[illegible]	[illegible] Inc	[illegible], Texas		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con	[illegible]	[illegible]	[illegible]	Pr	[illegible] Pass	FW	GE	H_2	E	90
[illegible]	Hammermill Paper Co	[illegible]		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc		[illegible]	[illegible]	Pr	N		GE	Air	...	85
19	Park Shore Housing	Brooklyn, NY	2	WE	1966	5250	3600	[illegible]	[illegible]	Con		[illegible]	[illegible]	[illegible]	[illegible]	WO	WE	Air	E	80
[illegible]	[illegible]	[illegible]		E	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc	N		[illegible]		N		GE	Air	...	80
[illegible]	[illegible]	[illegible]		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con	[illegible]	[illegible]	[illegible]	Pr	[illegible] Pass	WO	GE	H_2	E	85
22	Homosote Co	Trenton, NJ		WE	1966	[illegible]	3600	[illegible]	[illegible]	Nc	N		[illegible]	Pr	N		WE	Air		...
23	Keystone Steel & Wire Co	Peoria, Ill	1	WE	1967	13,750	3600	[illegible]	[illegible]	Con	[illegible]	[illegible]		Fwh	Int	FW	WE	H_2	E	85
[illegible]	[illegible]	[illegible]		WO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Con		[illegible]	4	Fwh	[illegible] Pass	WO	EM		...	80
[illegible]	[illegible]	[illegible]		GE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc		[illegible]	[illegible]	Pr	N		GE	H_2	Dd	80
26	Maine Sugar Industries Inc	Easton, Me	[illegible]	WE	1966	5250	[illegible]	[illegible]	[illegible]	Nc	N		[illegible]	N			WE	Air	...	80
[illegible]	Kalamazoo [illegible]	Kalamazoo, Mich		WO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nc	[illegible]	[illegible]	[illegible]	Pr	N		EM	Air	E	

MANUFACTURERS
ASE - Allmänna Svenska Elektriska Aktiebolaget
CG - Compagnia Generale di Elettricità
DL - De Laval Turbine Inc
EM - Electric Machinery Mfg Co
[illegible] Worthington Corp
FW - Foster Wheeler Corp
GE - General Electric Co
IR - Ingersoll Rand Co
MAR - Ercole Marelli SpA
STA - Stal Laval Turbine Co
TO - Franco Tosi SpA
WE - Westinghouse Electric Corp
WO - Worthington Corp

SYMBOLS
Con - Condensing
Dd - Dual drive
E - Electric
Fd - Full diesel
Fwh - Feedwater Heating
GT - Gas turbine
N - None

[illegible]sing boiler pressures call for main turbine-driven feed pumps

	TURBINE					CONDENSER					FEEDWATER			GENERATOR			CONTROLS					
Capability ea., mw	Type	Exhaust, in. Hg	No. of bleed points	No. of exhausts	Manufacturer	Surface, 1000 sq ft	No. of water passes	Tube material	Air removal	Manufacturer	Makeup treatment	Condensate treatment	System manufacturer	Voltage, kv	Rating, mva	Cooling	Combustion, mfr	Feedwater, mfr	Closed circuit tv mfr	Data logger mfr	Computer mfr	PROJECT
900	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			SS	Ro	.	De	De[34]	.	24	545 495[14]	H_2,Li HC	..	.		.	...	1
755	[illegible]				[illegible]	[illegible]		Ad	[illegible]	IF	Sc	De	.	[illegible]	900	H_2	BM	BM		N	N	2
750	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		AIE	J	IF	Evap De	De pH	WE IN[30]	[illegible]	445 375[14]	H_2 Li,HC	BM	BM	DP	N	WE	3
670	TC	[illegible]			[illegible]	[illegible]		AsAd	Rc	IF	Evap	De	WE GW	24	[illegible]	H_2				.	.	4
665	[illegible]	[illegible]		[illegible]	AE	335		[illegible]	.	FW	De	De[34]		20	733	H_2	HCC	HCC	..	.	....	5
625	TC	[illegible]			WE[31]	350	.	SS	Rc	WE	De	De	COC	20	[illegible]	H_2	BM	BM	..	....	WE	6
600	TC			[illegible]	WE	[illegible]		SS	.	IR	De	De[34]	IN LAW[30]	20	733	H_2	LN	LN	DP MOT[36]	N	GE	7
578	[illegible]		[illegible]	[illegible]	WE	261		CuNi	.	IR	Evap	De	.	22	695	H_2	HCC[35]	HCC	DP	...	...	8
537	TC	[illegible]		[illegible]	GE	231	[illegible]	Ad	Rc	IR	De	De	COC IN[30]	22	645	H_2,Li	BM	BM	N	N	WE	9
500	TC	[illegible]		[illegible]	CGE	350	[illegible]	Ad	Rc	FW	De	De	...	24	556	H_2,Li HC	...	..	..	.	..	10
476	TC	[illegible]		4	GE	[illegible]	.	SS	Rc	BLH	De,Sc	pH	IN	22	582	H_2,Li	...	....	....	....	....	11
450	CC				WE	301.4	[illegible]	CuNi	Rc J	IF	De,Sc	De	....	40	500	H_2	BM	BM	CHU	N	N	12
434	TC	[illegible]		[illegible]	WE	[illegible]	[illegible]	AsCu	RP	WE	De	N	.	24	512	H_2	HCC	HCC	DP	.	...	13
432	TC	[illegible]		[illegible]	GE	[illegible]	.	AIB	J	IR	De	...		24	473	H_2 Li	BM	BM	DP	N	N	14
432	TC[1]	[illegible]		[illegible]	GE	231	.	AIE	J	FW	De	.	IW	22	473	H_2,Li	BM	BM	DP	.	.	15
430	TC	[illegible]			GE	[illegible]	.	[illegible]	Rc	IR	De	pH	IW MR	22	520.3	H_2,Li	LN	BM	DP	BM	BM	16
404	TC	[illegible]		[illegible]	WE	224	2	Ad	Rc	WE	De	pH	...	24	[illegible]	.	.	..	N	N	N	17
386	TC	[illegible]		[illegible]	WE	[illegible]	[illegible]	SS	Rc	FW	De	De	GW	22	465	H_2			.		..	18
300	TC			[illegible]	HDW CAP	[illegible]	.	Ad	Rc	FW	De	De	...	18	352	H_2	BM	BM	.	CGE	CGE	19
250	TC	[illegible]			WE	[illegible]	[illegible]			IR	De	pH		22	320	H_2	...		.		.	20
230	TC	[illegible]		[illegible]	WE	[illegible]	[illegible]	SS	Rc	WE	De	N	IN	22	290	H_2 Li	F	F	.	N	N	21
270	TC		[illegible]	[illegible]	WE	[illegible]	2	Ad SS	J	WC	De	De	GW	20	256	H_2	BM	BM	DP	N	N	22
270	TC	[illegible]		[illegible]	GE	94.4	[illegible]	Ad SS	J	WE	De	....	PM	20	256	H_2,Li	BM	BM	DP	BM	PB	23
216	TC	[illegible]		[illegible]	GE	[illegible]	[illegible]	Ad	Air J	NSH	Evap,Sc	De	GW	22	256	H_2,Li,HC	BM	BM	DP	BM	N	24
210	TC	[illegible]	[illegible]	[illegible]	GE	143	[illegible]	SS	J	WE	De	N	....	22	275	Li	....	...	..	....	..	25
180	TC	[illegible]	[illegible]	[illegible]	GE	[illegible]	[illegible]	Ad	.	WE	De	pH	IW PW[30]	22	224	H_2,Li	HCC	HCC	DP	BM	N	26
165	TC	[illegible]		[illegible]	WE[32]	[illegible]	[illegible]	Ad SS	J	WE	De	...	IW	18	203.1	H_2	BM	BM	N	N	N	27
	TC	[illegible]			GE	[illegible]	[illegible]	Ad SS	Rc	IR	De	....	MR,PW[30]	20	208	H_2,Li	LN	BM	N	N	N	28
	TC	[illegible]			AC	[illegible]	[illegible]	AIB	Rc	AEI	De	Hvd	COC	16.5	180	H_2	BM	BM	DP	FIS	FIS	29
	TC	[illegible]		33	GE	[illegible]	[illegible]	Ad	.	WC	De	N	....	13.8	166	H_2	....	....	....	....	....	30
	TC	[illegible]		[illegible]	GE	[illegible]	2	Ad	.	IF	De,Sc	N	LAW	13.8	[illegible]	H_2	BM	BM	DP	N	N	31
	[illegible]		[illegible]		GE[31]	[illegible]	.	Ad	Rc	IF	De	N	.	13.8	[illegible]	H_2			.	.	...	32
54	TC	[illegible]	[illegible]	.	GE	[illegible]	2	Ad	J	FW	Evap	N	WE	13.8	[illegible]	H_2	BM	BM	DP	N	N	33
22	SC	[illegible]	[illegible]		WE	[illegible]	[illegible]	Ad	J	WC	Evap	N	..	13.8	29.4	H_2	...	....	N	N	N	34
275.8	[illegible]	[illegible]	.		GE	[illegible]	[illegible]	AIE	Rc	WE	De,Sc	De	.	20	350	H_2 Li HC	BM	BM	DP	BM	BM	35
256	TC	[illegible]	[illegible]	[illegible]	WE	[illegible]	.	Ad,SS	Rc	WE	De	De	PM	20	[illegible]	H_2	LN	LN	N	....	....	36
80	TC	[illegible]	[illegible]	.	WE	[illegible]	[illegible]	Ad		MS	Evap	N	STW	13.8	95	H_2	HCC	HCC	N	N	N	37
65	SC	[illegible]	.		GE	[illegible]	[illegible]	Ad	Rc	.	De	De		..	...	H_2	HCC	FG	N	N	N	38
33	SC	[illegible]	[illegible]		WE	[illegible]	[illegible]	Ad	.	WE	De	pH	IW NCC[30]	13.8	44	H_2	.	..	N	N	N	39
29.4	SC	[illegible]	[illegible]		WE	[illegible]	[illegible]	Ad		MS	Evap	N	SWE	13.8	29.4	H_2	BM	BM	N	N	N	40
29.4	SC	[illegible]			GE	[illegible]	[illegible]	Ad	.	MS	De	N		13.8	29.4	H_2	RF	RF	N	N	N	41
22	SC	[illegible]	[illegible]		GE	[illegible]	[illegible]	Ad		WC	De	..	LAW	13.8	29.4	H_2	RF	RF		N	N	42
22	SC	[illegible]	[illegible]		GE	.	[illegible]	Ad	.	WC	Evap	N	STW	13.8	29.4	H_2	HCC	HCC	N	N	N	43
22	SC	[illegible]	.		GE	[illegible]	[illegible]	AdD SS	.	WC	Evap,Sc	...	DAV	13.8	32	H_2	RF	RF	N	N	N	44
21	SC	[illegible]	[illegible]		GE	.	[illegible]	Ad	.	FW	Evap,Sc	N	WE	13.2	[illegible]	H_2	BM	BM	N	N	N	45
20	SC	[illegible]	[illegible]		GE	[illegible]	[illegible]	Ad SS	.	FW	Sc			13.8	24.9	Air	F	F	N	N	N	46
20	SC	[illegible]	[illegible]		GE		[illegible]	Ad	Rc	FW	Evap	N		13.8	24	Air	RF	RF	N	N	N	47
16.5	SC	[illegible]	[illegible]	.	WE		[illegible]	Ad	.	WE	[illegible]		.	13.8	[illegible]	Air	BM	BM	N	N	N	48
12.5	SC	[illegible]	[illegible]		WE		[illegible]	Ad		FW	Evap		FW	13.8	12.5	Air	HCC	HCC	N	N	N	49
7.5	SC	[illegible]			WE	.	[illegible]			..	Evap	N	...	[illegible]	[illegible]	.	RF	...	N	N	N	50

[illegible]ers to each unit
[illegible]vised from 1963 Survey
[illegible]ers feed one turbine;
[illegible]rs to one boiler
[illegible] City Electric Co
[illegible] Gas and Electric Co
[illegible] Power and Light Co
[illegible]an Edison Co
[illegible]vania Power and Light Co
[illegible]phia Electric Co
[illegible] Service Electric and

8 - Jointly with Dayton Power and Light Co and Southern Ohio Electric Co
9 - Attemperator in emergency
10 - Water spray in emergency
11 - Two-hour peak capacity 260,000 lb per hr
12 - Turbine No 6, boiler No 7
13 - Boiler No 9
14 - H-p, I-p respectively
15 - 1000 lb per hr
16 - Nine future coal burners installed
17 - Oil, coal and gas respectively
18 - Oil and gas respectively
19 - Coal and gas respectively
20 - Once-through startup system, with super-critical heat exchanger, no flash tank
21 - Main control by feedwater/fuel balance
22 - Main and standby pumps respectively
23 - Sub-bituminous
24 - Oil as auxiliary or emergency fuel
25 - Use of alternate motors
26 - Oil in emergency, provision for future coal firing
27 - One 225 ton per hr coal crusher
28 - Closed heater manufacturer not yet selected
29 - Heater and deaerator respectively
30 - Makeup and condensate treatment respectively
31 - Removeable housing over turbine
32 - Turbine has automatic extraction, supplies district heating steam to city
33 - Turbine on spinning reserve; data is for peaking at 5% overpressure
34 - Hyperbolic cooling towers
35 - Integrated boiler-turbine control
36 - Furnace and coal handling respectively

1 CENTRAL STATIONS

Steam pressures continue to climb; temperature

Each project listing covers 4 pages

PROJECT	COMPANY	LOCATION	PLANT NAME	CONSULTING ENGINEER	Unit No., new unit	Date first operation	Unit capacity, mw	BOILER Capacity ea, 1000 lb per hr	Throttle pressure, psig	STEAM, F Throttle	Reheat
1	Conemaugh Group[7]	West Wheatfield, Pa	Conemaugh	Gilbert Assoc, Inc	1,2[4]	1970	900	6350	3575	1000	1000
2	Southern California Edison Co	Farmington, NM	Four Corners	Bechtel Corp	4,5[4]	69 70	755	5446	3500	1000	1000
3	Pacific Gas and Electric Co	Monterey, Calif	Moss Landing		6,7[4,5]	1967	750	5100	3675	1000	1000
4	Virginia Electric and Power Co	Chester, Va	Chesterfield	Stone & Webster Engrg Corp	5	3-69	570	4620	3521	1000	1000
5	Pennsylvania Electric Co	Homer City, Pa	Homer City	Gilbert Assoc, Inc	1,2[4]	69 70	563	4500	3500	1000	1000
6	Public Service Electric and Gas Co	Jersey City, NJ	Hudson		2	10-68	620	4000	3675	1000	1025
7	Commonwealth Edison Co	Kincaid, Ill	Kincaid	Sargent & Lundy	2	1-68	600	4000	2520	1000	1000
8	New England Electric Systems	Somerset, Mass	Brayton Point	Stone & Webster Engrg Corp	3	4-69	575	4050	3675	1000	1025
9	Texas Power & Light Co	Savoy, Texas	Valley	Brown & Root, Inc	2	11-67	552	3930	3500	1005	1005
10	Hydro-Elec Commission of Ontario	Sarnia, Ont, Can	Lambton		1-4[4]	69,70	500	3630	2350	1000	1000
11	Florida Power Corp	Red Level, Fla	Crystal River	Black & Veatch	2	1-69	475	3367	2401	1000	1000
12	Southern California Edison Co	Redondo Beach, Calif	Redondo Beach	Bechtel Corp	7,8[4]	1967	450	3015	3500	1000	1000
13	Cincinnati Gas & Electric Co	New Richmond, Ohio	Walter C Beckjord	Sargent & Lundy	6	5-66	434	3350	2400	1000	1000
14	Florida Power & Light Co	Cocoa, Fla	Cape Kennedy	Bechtel Corp	2	11-68	432	2540	2400	1000	1000
15	Florida Power & Light Co	Tice, Fla	Fort Myers	Bechtel Corp	2	1969	432	2540	2400	1005	1005
16	Indianapolis Power & Light Co	Petersburg, Ind	Petersburg	Stone & Webster Engrg Corp	2	5-69	430	2200	2521	1000	1000
17	Oklahoma Gas & Electric Co	Harrah, Okla	Horseshoe Lake	Brown & Root, Inc	8	5-69	404	2340	2400	1000	1000
18	Missouri Public Service Co	Sibley, Mo	Sibley	Gilbert Assoc, Inc	3	1959	335	2584[20]	2500	1000	1000
19	Hydro-Elec Commission of Ontario	Toronto, Ont, Can	Lakeview		7,8[4]	1968	300	2000	2350	1000	1000
20	Louisville Gas and Electric Co	Louisville, Ky	Cane Run	Pioneer Service & Engrg Co	5	5-69	250	1353	2400	1000	1000
21	Central Power & Light Co	Victoria, Texas	Victoria	Sargent & Lundy	6	3-68	230	1762	2000	1000	1000
22	Toledo Edison Co	Oregon, Ohio	Bay Shore	Gibbs & Hill, Inc	4	6-68	220	1505	2450	1050	1000
23	Utah Power & Light Co	Kemmerer, Wyo	Naughton SE	Bechtel Corp	2	10-68	220	1570	2300	1005	1005
24	Basin Electric Power Co	Stanton, North Dak	Leland Olds	R W Beck & Assoc	1	11-65	216	1570	2400	1000	1000
25	Southwestern Public Service Co	Amarillo, Texas	Nichols		3	7-68	210	1333	2300	1000	1000
26	Louisville Gas and Electric Co	Louisville, Ky	Cane Run	Pioneer Service & Engrg Co	5	5-66	180	1260	1300	1005	1005
27	Tucson Gas & Electric Co	Tucson, Ariz	Irvington	Sanderson & Porter, Inc	4	6-67	165	1140	1890	1000	1000
28	Delaware Power & Light Co	Wilmington, Del	Edge Moor	United Engineers & Constructors, Inc	4	5-66	150	1068	1300	1000	1000
29	British Columbia Hydro and Power Authority	Ioco, BC, Can	Burrard	International Power Engrg Consultants, Ltd	2	1965	150	1050	1800	1010	1000
30	Wisconsin Electric Power Co	Milwaukee, Wis	Milwaukee	Stone & Webster Engrg Corp	1	6-68	140	540	1523	900	[illegible]
31	Nevada Power Co	Moapa, Nev	Reid Gardner	Stearns-Roger Corp	2	4-68	121	315	1391	1000	1000
32	Sierra Pacific Power Co	Reno, Nev	Mason Valley	Stone & Webster Engrg Corp	1	5-68	55	375	1390	1000	1000
33	Upper Peninsula Generating Co	Marquette, Mich	Presque Isle	Stone & Webster Michigan, Inc	3	12-65	53	375	1450	1005	1005
34	Community Public Service Co	Lordsburg, NM	Lordsburg	Stone & Webster Engrg Corp	4	9-67	22	200	850	900	[illegible]
	MUNICIPAL AND COOPERATIVE INSTALLATIONS										
35	City of Jacksonville	Jacksonville, Fla	Northside	Reynolds, Smith and Hills		5-66	275.3	2030	2400	1000	1000
36	City of San Antonio	Bexar County, Texas	Victor Braunig	Brown & Root, Inc	2	4-68	255	1600	1975	1005	1000
37	City of Springfield	Springfield, Ill	A Y Dalman	Burns & McDonnell Engrg Co	2	1-68	80	625[11]	1250	950	[illegible]
38	City of Independence	Independence, Mo	Blue Valley	Black & Veatch	3	5-65	55	500	1250	955	[illegible]
39	Eastern Iowa Light and Power Cooperative	Montpelier, Iowa	Montpelier	Stanley Engineering Co	2	5-67	33	285	850	900	[illegible]
40	City of Columbia	Columbia, Mo	Municipal	Lutz, Daily & Brain	5[12]	5-65	20.0	240	850	900	[illegible]
41	[illegible] Texas Electric Cooperative	[illegible], Texas	Sam Rayburn	Lutz, Daily & Brain	3	[illegible]	20.0	250	850	900	[illegible]
42	Hastings Board of Public Works	Hastings, Neb	Municipal	Sargent & Lundy	5	[illegible]	[illegible]	250	850	900	[illegible]
43	Northern Michigan Electric Cooperative	Boyne City, Mich	Advance	Stanley Engineering Co	2	[illegible]	[illegible]	250	830	905	[illegible]
44	[illegible] Power Cooperative	[illegible]	Pearl	Stanley Engineering Co	1	[illegible]	[illegible]	215	850	900	[illegible]
45	[illegible]	[illegible]	Municipal	[illegible] & Gee	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	900	[illegible]
46	[illegible] Gas and Electric Light Co	[illegible], Mass	[illegible]	Jackson & Moreland	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	900	[illegible]
47	[illegible]	[illegible], Miss	[illegible]	Burns & McDonnell Engrg Co	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	900	[illegible]
48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	900	[illegible]
49	Fairbury Light & Water Dept	Fairbury, Neb	Municipal	Lutz, Daily & Brain	4	[illegible]	[illegible]	[illegible]	625	830	[illegible]
50	[illegible] Mt Pleasant	Mt Pleasant, Iowa	Municipal	[illegible] Engrg Co	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	825	[illegible]

MANUFACTURERS

FW - Foster Wheeler Co[illegible]
GE - General Electric Co[illegible]
GF - Green Fuel Econom[illegible]
Sub of Baldwin-Lima[illegible]
GW - Graver Water Cond[illegible]
Div of Union Tank Car[illegible]
HCO - Hagan Controls Co[illegible]
Westinghouse Elec[illegible]
HCE - Hoffman Combust[illegible]
HE - Harland Engin[illegible]
HOW - James Howden C[illegible]
N - Intilco, Inc

[illegible]ls remain at the 1000 F mark. Trend is to more outdoor boilers

BOILER							FURNACE					F D FANS						I D FANS						
SURFACE, 1000 SQ FT																DRIVE						DRIVE		
Boiler & waterwalls	Superheater	Reheater	Economizer	Air heater	Superheat control	Reheat control	Pressure, in water	Volume, 1000 cu ft	Heat release, 1000 Btu per cu ft per hr	No of burners	Type	Per boiler	Capacity ea, 1000 cu ft per min	Manufacturer	Flow control	Hp	Manufacturer	Per boiler	Capacity ea, 1000 cu ft per min	Manufacturer	Flow control	Hp	Manufacturer	PROJECT
92	[illegible]	26	[illegible]	[illegible]	WC	AC TB	[illegible]	53[illegible]	[illegible]	[illegible]	Pc DB	[illegible]	[illegible]		V	50[illegible]		N	[illegible]	N	N	N	N	
130.3	[illegible]	[illegible]	[illegible]	[illegible]	WS FR	AC TB FC	[illegible]				Pc DB	[illegible]	[illegible]		[illegible]	3000		N	[illegible]	N	N	N	N	
101.8	146[illegible]	[illegible]	[illegible]	[illegible]	WC	[illegible]	[illegible]	[illegible]	[illegible]		Pc	[illegible]	[illegible]	AC	D V	[illegible]	AC	N	[illegible]	N	N	N	N	[illegible]
41.5	[illegible]		[illegible]	[illegible]	WC [illegible]	AC TB	[illegible]	[illegible]	[illegible]	45	Pc	[illegible]	[illegible]	AC	V	4500	GE	N	[illegible]	[illegible]	[illegible]	N	N	[illegible]
71.4	50[illegible]		[illegible]		WC	[illegible]10		[illegible]	[illegible]	24	Pc DB	[illegible]	[illegible]	SW	V	[illegible]		N	[illegible]	N	N	N	N	[illegible]
63.8	[illegible]	[illegible]	[illegible]	[illegible]	WC FR	WC PC	[illegible]	[illegible]	[illegible]	24	Pc DB	[illegible]	560	AC	HvC	6000	AC	N	[illegible]	N	N	N	N	6
41.7	174[illegible]	[illegible]	[illegible]	[illegible]	AT	AT GP	[illegible]	[illegible]	[illegible]	16	Pc ST	[illegible]	495	AS	[illegible]	7000	WE	N	[illegible]	N	N	N	N	[illegible]
[illegible]	146	[illegible]	[illegible]	[illegible]	WC	WC GP	[illegible]	[illegible]	1F	[illegible]	Pc DB	[illegible]	55[illegible]	SW	[illegible]	2500	WE	N	[illegible]	N	N	N	N	8
67.5	76[illegible]	[illegible]	[illegible]	[illegible]	WS FR	WC GP	[illegible]	[illegible]	24 8	[illegible]	Pc	[illegible]	10	HOW APC	HvC,D	45[illegible]	GE	N	N	N	N	N	N	9
98.5	159.5	[illegible]	162	145	AH TB	TB	[illegible]	[illegible]	[illegible]	48	Bal DB	[illegible]	53[illegible]	HOW	V	3500		[illegible]	[illegible]	HOW	V	[illegible]		10
[illegible]	[illegible]				AH TB	AH TP	2 4			20	Pc,DB	2	....	....	HvC	....	....	N	N	N	N	N	N	11
101.2	97.8	[illegible]	[illegible]	[illegible]	WC[21]	WC TB PC	[illegible]	[illegible]	[illegible]	[illegible]	Pc	[illegible]	455	AC	D V	3500	AC	N	N	N	N	N	N	12
135.8	150[illegible]	[illegible]	[illegible]	[illegible]	WS	TB	[illegible]	274	[illegible]	[illegible]	Pc DB	[illegible]	555	AWE	HvC	4000	GE	N	N	N	N	N	N	13
38.4	80.9	[illegible]	[illegible]	302	AT		[illegible]	154	[illegible]	18	Pc	[illegible]	384	AC	HvC	2600	LA	N	N	N	N	N	N	14
38.3	63.9	94[illegible]	[illegible]	[illegible]	WC BV	WC,BV	[illegible]	154	[illegible]	18	Pc	[illegible]	49	BF	HvC	150[illegible]	LA	N	N	N	N	N	N	15
38.5	14[illegible]	[illegible]	[illegible]	[illegible]	WC	WC TB	[illegible]	[illegible]	[illegible]	[illegible]	Pc DB	[illegible]	396	SW	D V	[illegible]	AC	N	N	N	N	N	N	16
20	57	[illegible]	[illegible]	[illegible]	WC	TB		[illegible]		[illegible]	Pc	[illegible]	445	APC	V	[illegible]	[illegible]	N	N	N	N	N	N	17
24.5	8[illegible]	[illegible]	[illegible]	[illegible]	AC GR,FR	WC GP	[illegible]	[illegible]	[illegible]	60	Pc ST	[illegible]	4[illegible]	GF	V	50[illegible]	WE	N	N	N	N	N	N	18
58.9	120	[illegible]	[illegible]	[illegible]	WC	GP	[illegible]	42	[illegible]	[illegible]	Ba DB	[illegible]	30[illegible]	HOW	HvC	[illegible]	CWE	[illegible]	[illegible]	HOW	HvC	[illegible]	CWE	19
38.5	106.5	[illegible]	[illegible]	[illegible]	WS	TB,AC	[illegible]	43[illegible]	[illegible]	[illegible][19]	Ba DB	[illegible]	[illegible]	WE	V	1050	GE	[illegible]	[illegible]	AC	HvC	[illegible]	GE	20
26.3	41.2	[illegible]	25.5	[illegible]	WC	EA	[illegible]	[illegible]	37[illegible]	14	Pc	[illegible]	250	BF	V	2000	AC	N	N	N	N	N	N	21
18.56	125.2	74[illegible]	76[illegible]	322[illegible]	AC,GR	AH		[illegible]22.54	19.45	15	Ba ST	[illegible]	275	SW	V	3000	GE	[illegible]	281	SW	V	1500	GE	22
24.5	50.5	[illegible]	51	404	WC	WC TB	[illegible]	15[illegible]	[illegible]	16	Ba	[illegible]	408	WE	D	1700	GE	[illegible]	[illegible]	WE	D	2500	GE	23
35	129	4[illegible]	[illegible]	204	AH GR	AH GR	[illegible]	[illegible]	[illegible]	20	Bal DB	[illegible]	[illegible]	AC	D	6[illegible]	GE	[illegible]	[illegible]	AC	D	1200	GE	24
22.3	36	15.75	[illegible]	[illegible]	WC TB	WC TB	16	57 4	25 1	32	Pc	[illegible]	29[illegible]	[illegible]	V	1500	...	N	N	N	N	N	N	25
[illegible]	[illegible]	60[illegible]	[illegible]	222[illegible]	WC	PC WC	...	114.5F	16[illegible]	[illegible]	Bal DB	[illegible]	[illegible]	WE	HvC	600	WE	[illegible]	400	WE	HvC	1750	WE	26
					WC	WC PC	[illegible]			[illegible]	Pc	[illegible]	450	WE	S V	500 2250	WE	N	N	N	N	N	N	27
		[illegible]	4	9[illegible]	WS TB	WC	[illegible]	50 89	[illegible]	[illegible] 26 24[17]	Bal DB	[illegible]	200	WE	D,V	500	GE	[illegible]	350	WE	D	1500	GE	28
		[illegible]9	4[illegible]	90[illegible]	GR,WC TB	GP WC TB	[illegible]	64 3	[illegible]	36 20[18]	Pc	[illegible]	192	SW	V	900	CWE	N	N	N	N	N	N	29
	24 85	N	[illegible]	[illegible]	WS	N	[illegible]	[illegible]	19[illegible]	[illegible]	Pc DB	[illegible]	210	WE	[illegible]	[illegible]	GE	N	N	N	N	N	N	30
10.74	28 26	21.60	[illegible]	57 6	WS	PC	[illegible]	69 [illegible]	36	[illegible]	Pc DB	[illegible]	146	SW		700	AC	N	N	N	N	N	N	31
10.04	22.65	[illegible]	[illegible]	[illegible]	EA[9]	EA[9]	[illegible]	40 44	2[illegible]	216	Pc	[illegible]	[illegible]	WE	V	1500	LA	N	N	N	N	N	N	32
12.4	21 5	4 9	[illegible]	47 4	WC	WS TB	[illegible]	78 [illegible]	....	[illegible]	Pc,DB		14[illegible]	GF	V	700	GE	N	N	N	N	N	N	33
18.42	....	N	N		N	N	9 02	[illegible]	40 9	[illegible]	Pc		[illegible]	WE	[illegible]	400	WE	N	N	N	N	N	N	34
107.4	90.75	28 87	[illegible]	[illegible]	FR	WS GP	[illegible]	102 5	[illegible]	[illegible]	Ba	[illegible]	250	SW	V	700	GE	[illegible]	29[illegible]	SW	HvC	2250	GE	35
22.3	36	24 5	[illegible]	[illegible]	WS TB	WC TE	[illegible]	[illegible]	[illegible]	12 [illegible][18]	Pc	[illegible]	[illegible]	GE	HvC	1750	GE	N	N	N	N	N	N	36
10.7	35.8	N	N	[illegible]	WC	N	[illegible]	30 64	[illegible]	40	Pc,ST	[illegible]	[illegible]	WE	V	1500	AC	N	N	N	N	N	N	37
11.23	11[illegible]	N	[illegible]	[illegible]	WS TE	N	[illegible]	[illegible]	[illegible]	[illegible]	Pc	[illegible]	[illegible]	WE	HvC	1000	AC	N	N	N	N	N	N	38
17[illegible]	9 5	N	N		WC	N	[illegible]	[illegible]	[illegible]	[illegible]	Pc DB	[illegible]	...		HvC	100	WE	N	N	N	N	N	N	39
35	13	N	[illegible]	N	AH	N	[illegible]	[illegible]	[illegible]	6 SC	Bal DB		20[illegible][15]	SW	V	100	WE	[illegible]	40[illegible][15]	SW	HvC,V	350	WE	40
		[illegible]		[illegible]	AH	N	[illegible]	[illegible]	[illegible]	[illegible]	Pc	[illegible]	65	GF	V	75 450	WE	N	N	N	N	N	N	41
10.1	4 2	N	N	[illegible]	AH	N	[illegible]	[illegible]	35 9	[illegible]	Pc		[illegible]	SW	V	500	GE	N	N	N	N	N	N	42
17.2	11 0[illegible]	N	N	[illegible]	WC	N	[illegible]	[illegible]	[illegible]	[illegible]	Pc DB	[illegible]	[illegible]	GF	V	[illegible]	GE	N	N	N	N	N	N	43
10.3	7 2	N	N	[illegible]	WC	N	[illegible]	[illegible]	[illegible]	[illegible]	Pc DB	[illegible]	[illegible]	AS	[illegible]	300	GE	N	N	N	N	N	N	44
12	[illegible]	N	N	[illegible]	WC	N	[illegible]	[illegible]	4[illegible]	[illegible]	Pc		50	SW	[illegible]	40 150	GE	N	N	N	N	N	N	45
15.8	[illegible]	N	N	[illegible]	WC	N	[illegible]	[illegible]	4[illegible]	[illegible]	Pc		53 5	WE	[illegible]	[illegible]	WE	N	[illegible]	N	N	N	N	46
15.6	6.5	N	[illegible]	[illegible]	AC	N		[illegible]	[illegible]	[illegible]	Ba	[illegible]	[illegible]	BF	[illegible]	75 200	WE		[illegible]	BF	[illegible]	[illegible]	WE	47
16.5	6.8	N	[illegible]	[illegible]	WC	N	[illegible]	[illegible]	[illegible]	[illegible]	Ba		[illegible]	SW	V	[illegible]	GE		[illegible]	SW	N	[illegible]	GE	48
10.71	2 44	N	N	[illegible]	N	N	[illegible]	[illegible]	4[illegible]	[illegible]	Pc DB	[illegible]	[illegible]	BF	[illegible]	[illegible] 150	WE	N	N	N	N	N	N	49
10.46	3[illegible]	N	[illegible]	N	N	N	[illegible]	[illegible]	[illegible]	55	Ba	[illegible]	[illegible]	GF	[illegible]	300	LA	[illegible]	214	GF	Mag	200	EM	50

[illegible]soll-Rand Co
[illegible] Water Treatment Co
[illegible]facturing Co
[illegible], Inc
[illegible]s Co
[illegible]eles Water Conditioning, Inc
[illegible]ssure Dynamic and Cryotic Ltc
[illegible] and Northrup, Inc
[illegible] Locomotive Works
[illegible]ola Co
[illegible] and Platt Ltc
[illegible] Roy Co

MG - Maryland Shipbuilding & Drydock Co
NCC - Nalco Chemical Co
NSH - Nash Engineering
PE - Packard Bell Inc
PM - Permutit Co Div
Pfaudler Permutit Inc
PP - Pacific Pumps Inc, Div of
Dresser Industries Inc
RC - Research-Cottrell, Inc
RE - Reliance Electric and Engineering Co
RF - Republic Div, Rockwell Mfg Co
RS - Riley Stoker Corp

STW - Struthers-Wells Corp
SW - Sturtevant Div,
Westinghouse Electric Corp
SWE - Southwest Engineering Co
UF - Union Iron Works
WE - Westinghouse Electric Corp
WIB - Wickes Boiler Co Sub of Wickes Corp
WM - Whiting Mfg Co
WC - Worthington Corp
WP - Western Precipitation Div of
Joy Mfg Co
YU - Yuba Consolidated Industries, Inc

SYMBOLS
Ac - Admiralty
AdD - Admiralty, type D
Adi - Admiralty, inhibited
AlB - Aluminum brass
An - Anthracite
AsAc - Arsenical admiralty
AsCu - Arsenical Copper
Att - Attemperators
Bal - Balanced
B - Brass
Bv - Gas bypass

Turbines are predominantly indoors, or under a removable housi...

PROJECT	BOILER FEED PUMPS: Capacity ea, gpm	Discharge, psig	Manufacturer	Flow control	Drive type	DRIVE: Hp each motor or turbine	DRIVE: Manufacturer
[illegible]	3730	4850	...	....	T MTS	35 000	GE
[illegible]					T	19 100	
[illegible]	5000	4708	DL	S,HvC	T,MTS	20 000	GE
4	12 30 5545	2060	IR	HvC	2M MTS	5000	AC
[illegible]	5650	4120	DL	S	T	20 000	DL
[illegible]	4886	4540	WO	S	2T	15 040	DL
[illegible]	5000	2550	IR	S HvC	MTS,T,M	13,100 13,000	WE
[illegible]	4250	4500	IR	S	T	30 000	WE
[illegible]	2750	4073	PP	S	2T	13 500	GE
[illegible]	6,150 2200	2220	IR,BJ	S,HvC[22]	2M,T	16 235 5000	CGE
[illegible]	2040	2210	IR	S	2T	3000	GE
[illegible]	4280	1445	BJ	S	2T	12 375	WE
[illegible]	3700	2050	DL	HvC	2M MTS	4000	WE
[illegible]	2050	2035		HvC	2M	2500	LA
15	2050	2035	BJ	HvC	2M	3500	LA
[illegible]	4185	2120	DL	R HvC	2M MTS	4000	AC
[illegible]	2410	2360	BJ		2T	2000	WE
[illegible]	4740	4400	WO	S	2T	12,000	WE
[illegible]	5x0 330	2500	WE,PP	HvC	2M	4350,1250	RE LOC
[illegible]	2030	2500		HvC	2M	5500	...
[illegible]	2110	2537	PP	HvC	M	2500	GE
[illegible]	25	2313	BJ	HvC	M	4000	GE
[illegible]	2050	2525	PP	R	2M	3500	GE
24		3300	BJ	R	2M	4000	BJ
25	2500	2000	WO	HvC	2M	4500	...
[illegible]	700	2300	AC	HvC	2M	3000	AC
[illegible]	420	2120	PP	HC	M	2500	WE
28	254	2400	IR	HC	2M	2250	GE
29	1255	2300	MPL	R	2M	2000	CGE
30	1540	1350	PP	R	2M	2100	GE
31	382	2060	PP	R	2M	500	AC
32	335	2250	PP	R	2M	1500	LA
33	3.5	587	WO	R	M	1250	GE
34	125	1200	WO	R	2M	350	WE
[illegible]	1400	3230	BJ	HvC	2M MTS	4500	GE
[illegible]	4230,1210	2200 2250	AC	HvC R	MTS M	3500,2000	WE AC
[illegible]	....	1500	PP	R	M	1500	AC
[illegible]	400	2500	IR	R	M	300	GE
39	400	300	BJ	HvC	2T	700	EM
40	500	1324	BJ	R	M T	450	GE
41	400	100	BJ	HvC S	2M	500	....
42	100	1200	WO	R	2M	300	GE
43	500	1000	BJ	R	2M	450	GE
44			PP	R	2M	450	WE
45	750	150	WO	R	M	400	GE
[illegible]	[illegible]	250	WO	R	2M	250	GE
[illegible]	440	1200	WO	R	2M	400	
[illegible]	[illegible]	165	WO	R	M	450	GE
[illegible]	[illegible]	[illegible]	[illegible]	R	M	[illegible]	GE
[illegible]	[illegible]	55	BJ	R	M T	200	GE

PROJECT	FUEL: Type	FUEL: 1000 Btu per lb	FIRING: Pulverizers per boiler	FIRING: Manufacturer	SOOT: Blower type	SOOT: Blowing medium	SOOT: Manufacturer
[illegible]	C	12	6	CE	Ro,Ret	Air	CV
[illegible]	C	3.3	9	BW	Ro,Ret	Air	DP
[illegible]	O,G	13.4 1070[2]	N	N	N	N	N
4	C	13	5	CE	Ret	Air St	DP
[illegible]	C	12.2	5	FW	Ro Ret	Air	CV
[illegible]	C	13	5	FW	Ret	Air	CV
[illegible]	C	3.3	N	N	Ro,Ret	St	DP
[illegible]	C	11.5 13.5	5	BW	Ret	Air	DP
[illegible]	G	1000[2]	N	N	N	N	N
[illegible]	C	12.3	5	CE	Ro Ret	St	CV
[illegible]	C	11.7	5	CE	Ro Ret	St	CV
[illegible]	O G	13,1085[2]	N	N	N	N	N
[illegible]	C	11	5	CE	Ret	Air	DP
[illegible]	O	18.25	N	N	Ret	Air	DP
15	O	18.25	N	N	Ret	St	DP
[illegible]	C	10.4	5	CE	Ret	St	DP
[illegible]	G		N	N	N	N	N
[illegible]	C	10.5	..	....	Ro Ret	Air	DP
[illegible]	C	12.0	5	BWM	Ro Ret	St	CLY
[illegible]	O,G	11.5	5	CE	Ro,Ret	St	CV
[illegible]	G	22.7	N	N	N	N	N
[illegible]	C	12.15	5	BW	Ret	Air	DP
[illegible]	C[23]	3.5	4	CE	Ro Ret	St	CV
24	L	6.75	20	BW	Ro Ret	St	DP
25	G	21	N	N	N	N	N
[illegible]	C	10.2	5	FW	Ret	St	CV
[illegible]	O,G	18.3 1084[2]	N	N	Ret	St	CV
28	O C G	10.4,1040[2]	4	CE	Ro Ret	Air	DP
29	O,G	13.5,1065[2]	N	N	Ret	St	DP
30	C	12	2	RS	Ro,Ret	St	CV
31	C	12.9	2	FW	Ro Ret	St	DP
32	O G,C[26]			...			...
33	C	11.5	2	CE	Ro Ret	St	CV
34	G	1079[2]	N	N	N	N	N
[illegible]	O G	13	N	N			N
[illegible]	O G[24]	13.5,1000[2]	N	N	N	N	N
[illegible]	C	10.67	N[27]		Ro Ret	St	DP
[illegible]	C,O G	... 1050[2]	[illegible]	CE	Ro Ret	Air	CV
39	C	12.3	[illegible]	FW	Ro Ret	St	DP
40	G,O,C	..	CS	HCE	Ro Ret	St	CV
41	O G	...	N	N		....	N
42	G[24]	18.4	N	N	Ro	St	BW
43	C	12.2	[illegible]	BW	Ret	St	DP
44	C	12.0	[illegible]	FW	Ro Ret	St	DP
45	O G	1000[2]	N	N	N	N	N
[illegible]	O G	[illegible] 1000[2]	N	N	Ro Ret	St	CV
[illegible]	O G	[illegible] 1000[2]	CS	HCE	Ro Ret	St	CV
[illegible]	[illegible]	[illegible]	N	N	Ret	St	DP
[illegible]	[illegible]	1000[2]	N	N	N	N	N
[illegible]	C		CS	RC			

PROJECT	DUST: Collector type	DUST: Manufacturer	Stack height, ft	HEATER: Number	Feedwater exit, F	Max deaerating pressure, psia	Manufacturer
[illegible]	El	..	1000	14	550	175	....
[illegible]	El	..	500	5	....	110	COC
[illegible]	N	N	....	3	543	133	WE,YU GW
4	El	RC	4.8	7	492	106	WE FW
[illegible]	El	BU	500	15	543	125	FW,WO[29]
[illegible]	El	RC	499	11	550	173	FW,WO[29]
[illegible]	El	RC	500	4	481	135	GW
[illegible]	El	KC	350	3	560	110	BLH,FW[29]
[illegible]	N	N		7	501	171.5	SWE
[illegible]	El	JOY	350	7	432	158	FW MLW,GW
[illegible]	....		..	7	471	160	YU
[illegible]	N	N		3	528	75	SWE
[illegible]	El	BU	450	10	475	125	FW
[illegible]	We	AT	400	7	459	...	YU
15	We	AT	400	7	471		YU
[illegible]	El	WP	550	7	485		SWE
[illegible]	N	N	..	5	450	...	SWE,COC
[illegible]	El	AT	700		485	159	YU WO,GW
[illegible]	El	JOY	490		462	33.1	MLW COC[29]
[illegible]	El	BU	500	5	485	165	CHH[28]
[illegible]	N	N		5	467	150	YU,GW[29]
[illegible]	El	WP	250	3	528	60	CHH
[illegible]	We	RC	225		450	160	SWE
24	We	RC	250		477	70.1	FW
25	N	N	....	5	470	153	WO
[illegible]	El	RC	257	5	463	20.5	WE,GW[29]
[illegible]	N	N	146	5	520	74.0	WE,GW[29]
28	El	RC	220	5	454		WO
29	....	...	28	5	460	75	AEI
30	El	..	400	2	370	55	GW,YU[29]
31	We	RC	200	5	360	59.5	CHH SWE
32		..	....	5	458	52.2	YU,CHH[29]
33	We	RC	134	5	310	...	YU
34	N	N	100	4	312	153	CHH,YU
[illegible]	N	N		5	540.5	120	GW,WE YU
[illegible]	N	N			532	153	SWE GW[29]
[illegible]	We	WP	200	5	440	51	CHH SWE[29]
[illegible]	We	AT	250	4	440	75.2	SWE
39	We	AT	155	4	440	75	STW
40	We	WP	300		550	35	GW
41	N	N		4	510	53	LAW
42	N	N	122	4	370	70.3	STW
43	We	WP	153	4	370	35	STW
44	We	AT	25	4	355	7.5	SWE COC[29]
45	N	N		[illegible]	355	75	WM
[illegible]	N	N	70	[illegible]	[illegible]	31.33	YU,GW[29]
[illegible]	We	FAA	150	[illegible]	[illegible]	[illegible]	COC
[illegible]	We	WP			[illegible]		[illegible]Y CHH[29]
[illegible]	N	N			[illegible]	75	WM
[illegible]	We	...					...

C - Coal, bituminous
CC - Cross compound
CuNi - Copper-nickel
D - Damper
DB - Dry bottom
De - Demineralizer
EA - Excess air
El - Electrostatic
Evap - Evaporator
FR - Firing rate
G - Gas
GR - Flue gas recirculation

H_2 - Hydrogen
HC - Hollow conductor
HvC - Hydraulic coupling
Hyd - Hydrazine
J - Steam jet
L - Lignite
Li - Liquid
M - Motor
Me - Mechanical
MTS - Main turbine shaft
N - None
O - Oil

Pd - Pressurized
PD - Proportioning dampers
pH - pH control
R - Regulator control
Ret - Retractable
Ro - Rotary pump or blower
RP - Reciprocating pump
S - Speed control
SC - Single cylinder
So - Softener
SS - Spreader stoker
SSt - Stainless steel

St - Steam ...
ST - Slag tap ...
T - Turbine ...
TB - Tilting burne...
TC - Tandem com...
V - Vane contr...
WS - Water spray...

FOOTNOTES
1 - Outdoor ...
2 - Btu per cu ft ...
3 - Cyclone fire...