Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2 2/14/92

NOTES ON TEST CONDITIONS:

1 The second test condition (with flame stabilizers) is tested with less cooling air flow levels. This is due to the fact that windbox duct pressures have increased by 1.3"wc due to shrouding of the outer air register. There is no compartmentalized air flow metering to set test conditions the same, so the same damper positions were used.

2 Due to physical problems with the burner assemblies (warpage, poor vane condtions, etc.), register setup had to be compromised to prove flame conditions for the scanners. This condition adversely effects cooling air flow requirements to individual burners.

BURNER FRONT TEMPERATURES (F average)

		Burner Number 1	2	3	4	5	6		Maximum	Average
Pulv E	W/O FS	1266	1318	1261	1164	1237	1234		1318	1247
	W/ FS	1257	1309	1216	1256	1219	1086		1309	1224
								Dev	9	23
Pulv A	W/O FS	1104	1233	1035	1142	1205	1120		1233	1140
	W/ FS	1089	1197	1274	1048	1060	1080		1274	1125
								Dev	-41	15
Pulv F	W/O FS	1102	1097	1221	1241	1157	1082		1241	1150
	W/ FS	1153	1112	1139	1197	1102	1088		1197	1132
								Dev	44	18
Pulv B	W/O FS	1070	1196	1181	1164	1132	1060		1196	1134
	W/ FS	1037	1071	1127	1100	1045	995		1127	1063
								Dev	69	71
								Summary- Frnt Wall Dev	20	32
Pulv D	W/O FS	1115	1185	1208	1250	1248	1174		1250	1197
	W/ FS	1051	1111	1119	1170	1159	1090		1170	1117
								Dev	80	80
Pulv H	W/O FS	1037	1066	1152	1291	1141	1066		1291	1126
	W/ FS	983	1146	1049	1226	1155	1146		1226	1118
								Dev	65	8
Pulv C	W/O FS	1009	1150	1151	1144	1075	1122		1151	1109
	W/ FS	964	1053	1056	1097	1155	1082		1155	1068
								Dev	-4	41
Pulv G	W/O FS	1024	1091	1188	1199	1131	1062		1199	1116
	W/ FS	936	940	1010	1032	1007	993		1032	986
								Dev	167	130
								Summary- Rear Wall Dev	77	65
								SUMMARY AVE DEV	49	48

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2 2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	5/6/91	2/13/92
Load (MWg)	838.6	839.8
7 mill operation, Pulv ?? out of service	2E	2E
Total Air Flow (%)	73.4	74.4
Excess Air (%)	3.06	3.08
Total Fuel Flow (TPH)	321.7	327.1
O/S Windbox Damper Position:	19	19

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1266	1318	1261	1164	1237	1234	1318	1247
W/ Stabilizers	1257	1309	1216	1256	1219	1086	1309	1224
Overall Temp Improvement							9	23

IP7_004871

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2 — 2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	9/2/91	2/18/92
Load (MWg)	839.1	839.9
7 mill operation, Pulv ?? out of service	2A	2A
Total Air Flow (%)	74.1	73.4
Excess Air (%)	3.06	2.95
Total Fuel Flow (TPH)	318	317.5
O/S Windbox Damper Position:	25	25

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1104	1233	1035	1142	1205	1120	1233	1140
W/ Stabilizers	1089	1197	1274	1048	1060	1080	1274	1125
Overall Temp Improvement							-41	15

IP7_004872

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2

2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	7/16/91	2/12/91
Load (MWg)	839.3	840.1
7 mill operation, Pulv ?? out of service	2F	2F
Total Air Flow (%)	74.8	73.8
Excess Air (%)	2.93	2.98
Total Fuel Flow (TPH)	330.3	325.2
O/S Windbox Damper Position:	28	28

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1102	1097	1221	1241	1157	1082	1241	1150
W/ Stabilizers	1153	1112	1139	1197	1102	1088	1197	1132
Overall Temp Improvement							44	18

IP7_004873

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2

2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	8/27/91	2/7/92
Load (MWg)	841	841.1
7 mill operation, Pulv ?? out of service	2B	2B
Total Air Flow (%)	75.7	76.6
Excess Air (%)	3.00	3.15
Total Fuel Flow (TPH)	330.9	322.7
O/S Windbox Damper Position:	23	23

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1070	1196	1181	1164	1132	1060	1196	1134
W/ Stabilizers	1037	1071	1127	1100	1045	995	1127	1063
Overall Temp Improvement							69	71

IP7_004874

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2

2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	9/3/91	2/5/92
Load (MWg)	839.8	839.5
7 mill operation, Pulv ?? out of service	2D	2D
Total Air Flow (%)	73.7	74.5
Excess Air (%)	3.03	2.98
Total Fuel Flow (TPH)	319	320
O/S Windbox Damper Position:	40	40

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1115	1185	1208	1250	1248	1174	1250	1197
W/ Stabilizers	1051	1111	1119	1170	1159	1090	1170	1117
Overall Temp Improvement							80	80

IP7_004875

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2

1/24/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	10/16/91	12/10/91
Load (MWg)	842.2	840.6
7 mill operation, Pulv ?? out of service	2H	2H
Total Air Flow (%)	74.2	74.7
Excess Air (%)	3.42	3
Total Fuel Flow (TPH)	329.7	326.2
O/S Windbox Damper Position:	51	51

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1037	1066	1152	1291	1141	1066	1291	1126
W/ Stabilizers	955	1128	1079	1194	1140	1128	1194	1104
Overall Temp Improvement							97	22

IP7_004876

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2 — 2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	4/15/91	2/9/92
Load (MWg)	841	840.1
7 mill operation, Pulv ?? out of service	2C	2C
Total Air Flow (%)	74.4	75.1
Excess Air (%)	3.13	2.98
Total Fuel Flow (TPH)	320.7	325.5
O/S Windbox Damper Position:	53	53

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1009	1150	1151	1144	1075	1122	1151	1109
W/ Stabilizers	964	1053	1056	1097	1155	1082	1155	1068
Overall Temp Improvement							-4	41

IP7_004877

Burner Front Temperature Analysis (Based upon typical operating conditions)

IGS UNIT 2

2/14/92

	Case 1: Before Flame Stabilizers	Case 2: After Flame Stabilizers
Average Operating Conditions:		
Date:	6/19/91	2/6/92
Load (MWg)	840.8	839.2
7 mill operation, Pulv ?? out of service	2G	2G
Total Air Flow (%)	75.4	75.4
Excess Air (%)	3.10	3.04
Total Fuel Flow (TPH)	322.2	323.2
O/S Windbox Damper Position:	33	33

BURNER FRONT TEMPERATURES (F average)

	Burner Number							
H Burners O/S	1	2	3	4	5	6	Maximum	Average
W/O Stabilizers	1024	1091	1188	1199	1131	1062	1199	1116
W/ Stabilizers	936	940	1010	1032	1007	993	1032	986
Overall Temp Improvement							167	130

IP7_004878