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PRELIMINARY CALCULATIONS !!!!!!!!!
FINAL CALCULATIONS TO BE RUN AFTER
FECHHEIMER PROBES ARE
INDEPENDENTLY CALIBRATED

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DATE = 6-26-87
LOCATION = EPAH AIR OUT
FILE IDENITY = IP6_26EPAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
DUCT AREA = 129.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1436	1.14	536
1	2	1560	1.24	568
1	3	1290	1.03	434

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1026	.82	402
2	2	1394	1.11	535
2	3	1368	1.09	498

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	915	.73	360
3	2	1004	.80	389
3	3	851	.68	321

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	0	0.00	0
4	2	1644	1.31	644
4	3	1276	1.01	479

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1471	1.17	593
5	2	1796	1.43	713
5	3	1824	1.45	695

LOCATION = EPAH AIR OUT
FILE IDENITY = IP6_26EPAO

AVERAGE VELOCITY = 1257 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 478

AVERAGE (ARITHMETIC) TEMPERATURE = 480

AVERAGE STATIC PRESSURE (in. H2O) = 31.0
AVERAGE DENSITY (LBM/FT^3) = .03923

ACFM (ACTUAL FT^3/MIN) = 162148
LB/HR (WET) = 381630

DATE = 6-26-87
LOCATION = TEMP AIR WEST
FILE IDENITY = IP6_26WTA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
DUCT HEIGHT = 10.0
DUCT WIDTH = 12.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	32.0	111	.156	0
1	2	32.0	112	.041	5
1	3	32.0	112	.004	0
1	4	32.0	111	.004	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	32.0	112	.136	0
2	2	32.0	112	.053	15
2	3	32.0	113	.007	0
2	4	32.0	113	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	32.0	114	.163	3
3	2	32.0	114	.056	20
3	3	32.0	113	.004	0
3	4	32.0	113	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	32.0	113	.168	5
4	2	32.0	113	.043	10
4	3	32.0	113	.002	5
4	4	32.0	112	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	32.0	111	.136	5
5	2	32.0	111	.056	15
5	3	32.0	110	.004	0
5	4	32.0	110	.004	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	32.0	110	.144	2
6	2	32.0	111	.104	10
6	3	32.0	110	.036	15
6	4	32.0	110	.002	0

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DATE = 6-26-87
LOCATION = TEMP AIR WEST
FILE IDENITY = IP6_26WTA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
DUCT AREA = 120.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1788	2.09	232
1	2	920	1.07	120
1	3	290	.34	38
1	4	290	.34	38

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1672	1.95	218
2	2	1013	1.18	132
2	3	384	.45	51
2	4	206	.24	27

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	1830	2.13	243
3	2	1014	1.18	135
3	3	291	.34	38
3	4	206	.24	27

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1851	2.16	244
4	2	932	1.09	123
4	3	205	.24	27
4	4	205	.24	27

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1664	1.94	215
5	2	1040	1.21	135
5	3	290	.34	37
5	4	290	.34	37

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1716	2.00	220
6	2	1441	1.68	187
6	3	835	.97	107
6	4	205	.24	26

LOCATION = TEMP AIR WEST
FILE IDENITY = IP6_26WTA

AVERAGE VELOCITY = 857 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 112

AVERAGE (ARITHMETIC) TEMPERATURE = 112

AVERAGE STATIC PRESSURE (in. H2O) = 32.0
AVERAGE DENSITY (LBM/FT^3) = .06460

ACFM (ACTUAL FT^3/MIN) = 102890
LB/HR (WET) = 398777

DATE = 6-26-87
LOCATION = TEMP AIR EAST
FILE IDENITY = IP6_26ETA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
DUCT HEIGHT = 10.0
DUCT WIDTH = 12.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	32.0	126	.095	10
1	2	32.0	127	.014	0
1	3	32.0	127	.004	0
1	4	32.0	127	.014	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	32.0	125	.065	10
2	2	32.0	125	.029	10
2	3	32.0	125	.004	0
2	4	32.0	124	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	32.0	122	.109	5
3	2	32.0	123	.036	10
3	3	32.0	121	.004	0
3	4	32.0	120	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	32.0	120	.080	5
4	2	32.0	120	.029	15
4	3	32.0	119	.014	0
4	4	32.0	118	.036	7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	32.0	116	.073	5
5	2	32.0	115	.014	20
5	3	32.0	114	.017	0
5	4	32.0	114	.036	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	32.0	115	.068	5
6	2	32.0	115	.053	10
6	3	32.0	114	.019	0
6	4	32.0	114	.007	0

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DATE - 6-26-87
LOCATION - TEMP AIR EAST
FILE IDENITY - IP6_26ETA
BAROMETRIC PRESSURE - 25.49
PROBE IDENTY - E-9
DUCT AREA - 120.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1396	1.86	235
1	2	549	.73	93
1	3	294	.39	50
1	4	549	.73	93

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1156	1.54	193
2	2	775	1.03	129
2	3	294	.39	49
2	4	208	.28	34

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	1506	2.01	245
3	2	861	1.15	141
3	3	293	.39	47
3	4	207	.28	33

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1290	1.72	207
4	2	756	1.01	121
4	3	545	.73	87
4	4	864	1.15	136

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1229	1.64	190
5	2	510	.68	78
5	3	597	.80	91
5	4	864	1.15	131

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1185	1.58	182
6	2	1035	1.38	159
6	3	631	.84	96
6	4	384	.51	58

LOCATION = TEMP AIR EAST
FILE IDENITY = IP6_26ETA

AVERAGE VELOCITY = 749 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 120

AVERAGE (ARITHMETIC) TEMPERATURE = 120

AVERAGE STATIC PRESSURE (in. H2O) = 32.0
AVERAGE DENSITY (LBM/FT^3) = .06366

ACFM (ACTUAL FT^3/MIN) = 89886
LB/HR (WET) = 343345

DATE = 6-26-87
LOCATION = WSAH AIR OUT
FILE IDENITY = IP6_26WSAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
DUCT HEIGHT = 27.7
DUCT WIDTH = 21.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	2.2	636	.065	0
1	2	2.0	635	.363	10
1	3	2.3	641	.068	20
1	4	2.3	642	.034	20
1	5	2.4	647	.019	20
1	6	2.4	645	.116	0
1	7	2.2	637	.036	0
1	8	2.3	631	.039	0
1	9	2.5	629	.034	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	2.3	642	.061	0
2	2	2.4	639	.170	5
2	3	2.5	647	.087	5
2	4	2.5	656	.129	10
2	5	2.2	656	.029	5
2	6	2.4	656	.288	15
2	7	2.6	657	.126	20
2	8	2.8	654	.417	15
2	9	2.3	654	.031	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	2.4	643	.070	0
3	2	2.5	640	.029	25
3	3	2.4	643	.217	0
3	4	2.5	652	.583	5
3	5	2.7	656	.300	0
3	6	2.7	656	.490	0
3	7	3.0	660	.520	0
3	8	2.9	663	.507	10
3	9	3.5	663	.590	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	2.0	647	.026	0
4	2	2.2	640	.048	0
4	3	2.3	639	.107	15
4	4	2.5	649	.429	35
4	5	2.9	654	.397	5
4	6	2.9	657	.356	15
4	7	2.9	660	.327	0
4	8	2.8	667	.417	5
4	9	3.0	651	.456	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	2.3	640	.305	35
5	2	2.1	640	.035	0
5	3	2.4	647	.122	20
5	4	2.6	645	.455	15
5	5	2.8	655	.400	5
5	6	2.9	657	.318	0
5	7	2.9	661	.434	5
5	8	2.8	669	.114	10
5	9	2.6	661	.188	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	2.0	640	.080	0
6	2	2.3	638	.058	0
6	3	2.4	638	.083	5
6	4	3.2	645	.197	35
6	5	3.0	649	.290	10
6	6	2.8	655	.119	20
6	7	3.0	660	.341	15
6	8	3.0	667	.405	25
6	9	2.7	652	.021	45

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
7	1	2.0	640	.014	20
7	2	2.2	638	.021	35
7	3	2.4	639	.126	0
7	4	2.4	645	.236	10
7	5	2.6	648	.170	0
7	6	2.8	652	.202	5
7	7	3.0	653	.268	0
7	8	3.0	668	.468	0
7	9	3.3	663	.188	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
8	1	2.5	645	.478	10
8	2	2.7	642	.209	15
8	3	2.5	642	.039	15
8	4	2.7	646	.263	0
8	5	2.9	647	.225	0
8	6	2.9	652	.185	10
8	7	3.0	653	.205	5
8	8	3.2	661	.227	10
8	9	3.1	661	.190	10

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
9	1	2.7	651	.275	5
9	2	2.7	646	.217	5
9	3	2.9	646	.146	5
9	4	2.7	650	.278	0
9	5	2.7	650	.092	25
9	6	2.7	650	.100	30
9	7	2.9	654	.241	20
9	8	2.9	658	.200	20
9	9	2.9	655	.307	10

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PRELIMINARY CALCULATIONS !!!!!!!!!
FINAL CALCULATIONS TO BE RUN AFTER
FECHHEIMER PROBES ARE
INDEPENDENTLY CALIBRATED

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DATE = 6-26-87
LOCATION = WSAH AIR OUT
FILE IDENITY = IP6_26WSAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
DUCT AREA = 602.5

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1684	.61	388
1	2	3892	1.41	894
1	3	1621	.59	376
1	4	1149	.42	267
1	5	862	.31	202
1	6	2254	.82	526
1	7	1255	.45	289
1	8	1302	.47	297
1	9	1215	.44	276

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1635	.59	380
2	2	2707	.98	626
2	3	1947	.70	456
2	4	2351	.85	558
2	5	1132	.41	268
2	6	3436	1.24	816
2	7	2218	.80	527
2	8	4119	1.49	974
2	9	1174	.42	278

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	1752	.63	407
3	2	1022	.37	237
3	3	3072	1.11	714
3	4	5014	1.81	1183
3	5	3627	1.31	860
3	6	4625	1.67	1097
3	7	4770	1.73	1139
3	8	4647	1.68	1115
3	9	5081	1.84	1218

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1073	.39	251
4	2	1450	.52	336
4	3	2086	.75	482
4	4	3536	1.28	830
4	5	4147	1.50	981
4	6	3814	1.38	906
4	7	3791	1.37	905
4	8	4275	1.55	1032
4	9	4434	1.60	1044

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	2976	1.08	689
5	2	1239	.45	287
5	3	2173	.79	509
5	4	4286	1.55	1000
5	5	4164	1.51	986
5	6	3734	1.35	888
5	7	4347	1.57	1039
5	8	2223	.80	538
5	9	2883	1.04	689

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1870	.68	433
6	2	1592	.58	367
6	3	1895	.69	438
6	4	2398	.87	560
6	5	3500	1.27	822
6	6	2153	.78	510
6	7	3738	1.35	892
6	8	3832	1.39	925
6	9	683	.25	161

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
7	1	738	.27	171
7	2	786	.28	181
7	3	2342	.85	541
7	4	3157	1.14	736
7	5	2727	.99	639
7	6	2964	1.07	699
7	7	3424	1.24	809
7	8	4544	1.64	1097
7	9	2883	1.04	691

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
8	1	4478	1.62	1045
8	2	2910	1.05	676
8	3	1264	.46	293
8	4	3383	1.22	790
8	5	3131	1.13	733
8	6	2805	1.01	661
8	7	2986	1.08	705
8	8	3115	1.13	745
8	9	2853	1.03	682

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
9	1	3453	1.25	813
9	2	3063	1.11	716
9	3	2516	.91	588
9	4	3483	1.26	819
9	5	1823	.66	429
9	6	1816	.66	427
9	7	3054	1.10	722
9	8	2789	1.01	664
9	9	3610	1.31	855

LOCATION = WSAH AIR OUT
FILE IDENITY = IP6_26WSAO

AVERAGE VELOCITY = 2765 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 652

AVERAGE (ARITHMETIC) TEMPERATURE = 650

AVERAGE STATIC PRESSURE (in. H2O) = 2.6
AVERAGE DENSITY (LBM/FT^3) = .03071

ACFM (ACTUAL FT^3/MIN) = 1665757
LB/HR (WET) = 3069249

DATE = 6-26-87
LOCATION = ESAH AIR OUT
FILE IDENITY = IP6_26ESAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
DUCT HEIGHT = 27.7
DUCT WIDTH = 21.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	2.3	656	.537	0
1	2	2.6	657	.087	0
1	3	2.8	655	.075	20
1	4	2.7	653	.083	10
1	5	2.7	653	.356	15
1	6	3.0	649	.117	0
1	7	3.3	668	.170	0
1	8	3.2	675	.222	15
1	9	3.2	658	.195	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	2.1	657	.036	45
2	2	2.6	655	.117	0
2	3	2.8	655	.219	30
2	4	3.0	660	.292	20
2	5	3.3	661	.053	10
2	6	3.3	664	.278	5
2	7	3.3	667	.221	0
2	8	3.3	672	.258	0
2	9	3.2	664	.256	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	2.5	655	.354	0
3	2	2.2	654	.039	0
3	3	2.5	655	.117	45
3	4	2.7	658	.344	30
3	5	2.9	665	.234	30
3	6	2.8	666	.336	15
3	7	2.9	668	.317	20
3	8	3.1	672	.295	20
3	9	3.2	657	.266	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	2.5	657	.429	10
4	2	2.4	656	.061	0
4	3	2.4	657	.048	45
4	4	2.6	661	.236	40
4	5	2.5	668	.290	35
4	6	2.7	667	.366	25
4	7	2.8	672	.397	30
4	8	3.0	673	.366	20
4	9	3.2	673	.197	20

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	2.0	657	.031	0
5	2	2.3	657	.039	0
5	3	2.2	655	.039	45
5	4	2.5	660	.454	25
5	5	2.7	665	.300	25
5	6	2.7	670	.424	20
5	7	3.0	673	.424	20
5	8	3.0	672	.371	25
5	9	2.7	660	.493	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	2.0	659	.056	35
6	2	2.1	658	.065	0
6	3	2.5	656	.148	25
6	4	2.5	668	.517	30
6	5	2.3	669	.241	20
6	6	2.5	669	.483	30
6	7	2.3	670	.488	10
6	8	2.7	674	.214	30
6	9	2.8	679	.515	10

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
7	1	2.4	662	.415	20
7	2	2.3	661	.285	0
7	3	2.3	657	.188	0
7	4	2.3	670	.068	10
7	5	2.1	672	.373	0
7	6	2.0	675	.451	15
7	7	2.3	688	.544	10
7	8	2.4	678	.515	10
7	9	2.9	657	.546	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
8	1	2.7	642	.380	15
8	2	2.7	609	.317	0
8	3	2.5	634	.383	10
8	4	2.3	645	.324	10
8	5	2.3	643	.156	25
8	6	2.0	639	.048	35
8	7	2.5	631	.029	30
8	8	2.5	634	.031	30
8	9	2.3	636	.510	30

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
9	1	1.9	591	.087	20
9	2	2.2	602	.112	20
9	3	2.2	632	.014	0
9	4	2.0	549	.014	0
9	5	2.2	524	.029	0
9	6	2.2	581	.031	0
9	7	2.2	574	.029	0
9	8	2.3	570	.031	0
9	9	2.3	575	.041	0

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PRELIMINARY CALCULATIONS !!!!!!!!!
FINAL CALCULATIONS TO BE RUN AFTER
FECHHEIMER PROBES ARE
INDEPENDENTLY CALIBRATED

****
****

DATE = 6-26-87
LOCATION = ESAH AIR OUT
FILE IDENITY = IP6_26ESAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
DUCT AREA = 602.5

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	4842	1.71	1124
1	2	1963	.69	456
1	3	1712	.61	397
1	4	1886	.67	436
1	5	3809	1.35	880
1	6	2265	.80	520
1	7	2749	.97	649
1	8	3041	1.08	726
1	9	2831	1.00	660

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	896	.32	208
2	2	2272	.80	526
2	3	2686	.95	623
2	4	3367	1.19	786
2	5	1512	.54	354
2	6	3489	1.23	820
2	7	3130	1.11	739
2	8	3387	1.20	806
2	9	3350	1.19	787

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	3936	1.39	912
3	2	1316	.47	304
3	3	1607	.57	373
3	4	3365	1.19	783
3	5	2788	.99	656
3	6	3723	1.32	878
3	7	3520	1.25	832
3	8	3403	1.20	810
3	9	3301	1.17	768

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	4267	1.51	991
4	2	1645	.58	382
4	3	1033	.37	240
4	4	2473	.88	579
4	5	2939	1.04	695
4	6	3646	1.29	861
4	7	3636	1.29	865
4	8	3790	1.34	903
4	9	2787	.99	664

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1176	.42	273
5	2	1318	.47	306
5	3	931	.33	216
5	4	4044	1.43	944
5	5	3301	1.17	777
5	6	4071	1.44	965
5	7	4075	1.44	970
5	8	3677	1.30	874
5	9	4490	1.59	1049

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1294	.46	302
6	2	1701	.60	396
6	3	2316	.82	537
6	4	4137	1.46	978
6	5	3077	1.09	728
6	6	4002	1.42	948
6	7	4577	1.62	1085
6	8	2679	.95	639
6	9	4716	1.67	1133

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
7	1	4016	1.42	941
7	2	3547	1.26	830
7	3	2880	1.02	670
7	4	1721	.61	408
7	5	4073	1.44	968
7	6	4329	1.53	1034
7	7	4870	1.72	1186
7	8	4718	1.67	1132
7	9	4881	1.73	1135

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
8	1	3913	1.38	889
8	2	3646	1.29	785
8	3	3991	1.41	895
8	4	3694	1.31	843
8	5	2364	.84	538
8	6	1188	.42	268
8	7	973	.34	217
8	8	1007	.36	226
8	9	4051	1.43	912

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
9	1	1791	.63	375
9	2	2040	.72	434
9	3	782	.28	175
9	4	752	.27	146
9	5	1067	.38	198
9	6	1135	.40	233
9	7	1094	.39	222
9	8	1128	.40	228
9	9	1300	.46	265

LOCATION = ESAH AIR OUT
FILE IDENITY = IP6_26ESAO

AVERAGE VELOCITY = 2826 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 658

AVERAGE (ARITHMETIC) TEMPERATURE = 651

AVERAGE STATIC PRESSURE (in. H2O) = 2.6
AVERAGE DENSITY (LBM/FT^3) = .03069

ACFM (ACTUAL FT^3/MIN) = 1702532
LB/HR (WET) = 3135474

INTERMOUNTAIN POWER PROJECT
UNIT NO. 1 - RB-614

AIR HEATER/EFFICIENCY TEST - JUNE 1987

OVERVIEW

Boiler performance tests were conducted on Unit No. 1 from June 22 through June 27, 1987. The purpose of the tests was to was to determine boiler efficiency, air heater leakage and air heater performance. The test method was specified by Air Preheater Co. and consisted of point by point traverses for velocity, temperature, and orsat (where applicable) at the economizer gas outlet, bag house inlet, primary and secondary air heater gas inlets and air outlets, primary air heater gas outlet, and tempering air. Denver Service was contracted by IPP to conduct the tests. The tests were witnessed by Air Preheater Co.

On Saturday, June 27, performance tests were conducted on the Boiler to obtain quality data with an upper mill out of service. Data was collected with balanced firing, normal high cooling air to the idle burner compartment, pulverizers biased up with normal cooling air and pulverizers biased up with reduced cooling air.

The test results are summarized on Table I. The conclusions are:

1. The average efficiency the 6/25 and 6/26 tests was 88.61 % when corrected to contract conditions versus the guarantee value of 88.57 %.

2. The average total air heater leakage for the 6/24, 6/25 and 6/26 tests was 461 Klb/hr versus a guarantee of 477 Klb/hr.

3. The calculated gas temperature leaving the secondary air heaters was 6 to 7 F more than expected for the test conditions which is within APCO's guarantee margin when considering test uncertainty.

4. The gas temperature leaving the primary air heaters was on the order of 65 F more than expected for the test conditions. This translates to approximately 6 to 7 F on final end temperature since only 10 % of the gas weight passes through the primary air heaters.

5. The composite gas temperature leaving the air heaters (excluding leakage) when corrected to contract conditions is 20 F higher than expected. Two thirds of this is due to poorer than expected air heater performance and one third due to higher than expected economizer gas outlet temperature. The addition of economizer sootblowers is expected to reduce economizer gas outlet temperature to expected.

6. Steam Temperature - With the upper rear wall burners out of service, pulverizers biased toward the upper burners and reduced cooling air to the idle compartment, superheat and reheat temperatures were 1008 and 1013 respectively with 22 % excess air. Steam temperature would be expected to be within guarantee with 17 % excess air (contract).

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INTERMOUNTAIN POWER PROJECT
AIR HEATER/EFFICIENCY TEST SUMMARY

	EXPECTED	6/24/87	6/25/87	6/26/87	AVE
BOILER EFFICIENCY, %					
TEST	---	---	88.53	88.51	88.52
CORRECTED	* 88.57	---	88.60	88.62	88.61
AH LEAKAGE, KLB/HR					
TOTAL	477	446	430	508	461
PRIMARY	* 163	216	176	120	171
SECONDARY (BY DIFFERENCE)	* 314	230	254	388	291
AIR TEMP ENT AIR HEATERS, F					
PRIMARY TEST	---	---	114	114	---
PRIMARY CORRECTED	77	---	77	77	77
SECONDARY TEST	---	---	90	91	---
SECONDARY CORRECTED	64	---	64	64	64
GAS TEMP LVG AH'S (EXCL LKG), F					
EXPECTED (TEST CONDITIONS)	---	---	321	318	320
TEST	---	---	333	331	332
CORRECTED	295	---	315	314	315
GAS TEMP LVG PRI AH (EXCL LKG), F					
EXPECTED (TEST CONDITIONS)	---	---	264	269	267
TEST	---	---	334	330	332
CORRECTED	313	---	310	306	308
GAS TEMP LVG SEC AH (EXCL LKG), F					
EXPECTED (TEST CONDITIONS)	---	---	326	324	325
TEST	---	---	332	331	332
CORRECTED	292	---	316	314	315

* Guaranteed

Calculations based on O2 and measured primary air flow from plant computer.

Boiler

TEMPERATURES, F	SH	RH
BALANCED FIRING - NORM COOLING	968	965
BIAS UP - NORM COOLING	986	977
BIAS UP - MIN COOLING	1008	1013

TABLE I

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INSTRUMENTATION AND TEST PROCEDURE

The test procedure used was essentially in accordance with Air Preheater Co's requirements for an acceptance. The only exception was that the conditions at the secondary air heater gas outlets could not be measured directly. For air and gas side measurements, APCO requires a point by point traverse (with the exception of the air heater air inlets where a thermocouple grid was installed). The number of points per flue or duct was determined by dividing the flue or duct into equal areas not to exceed 3 ft. by 3 ft. A table showing the test locations, measurements required at each location and the number of points per location is contained in Appendix C. A sketch showing the physical dimensions of each location is also included. One complete traverse constituted one test. The economizer gas outlet, bag house inlet (air heater gas outlets), secondary air heater gas in and air out were coordinated such that the start and stop times coincided. Since these locations had the most points, they governed the length of a test. The primary air heaters were measured individually during the test period. The gas inlet and gas outlet of each primary air heater were traversed simultaneously and the primary air outlet and tempering air were traversed either immediately before or after the gas side traverses.

Water manometers were installed at the air heater air inlets and gas outlets to measure static pressure and air to gas pressure differential.

Coal and ash samples were obtained by IPP personnel. The ash and fuel analysis results are contained in Appendix I. IPP personnel also obtained local barometric pressure and wet and dry bulb temperatures to calculate moisture in air.

The remaining data necessary to determine output and efficiency were obtained from the plant computer. Data was obtained at five (5) minute intervals and later downloaded to an HP-9816 computer for averaging and reporting.

DATA REDUCTION AND CALCULATION METHODOLOGY

Static pressure and velocity head was measured at each traverse point with a Fechheimer probe and B&W's Velocity Pressure Averaging System (VPAS). Velocities were calculated for each point in accordance with PTC-11 Fans. Flue gas density was calculated in accordance with PTC-4.1 Steam Generators. All temperatures and O_2/CO_2 readings were weight averaged based on velocity as well as arithmetically averaged. A linear regression analysis was used to determine the combustion line (with respect to the flue gas volumetric combustion chart) for each orsat station. The combustion line relationship was then used to eliminate obviously bad orsat points; points with a CO_2 deviation greater than 0.35 from expected for the measured O_2. The point by point data listing, calculated velocity and weight average calculations are contained in appendices D, E and F. The orsat points that were eliminated are indicated as well as the weighted and arithmetic averages for each test station.

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A comparison of the arithmetic versus weighted average is summarized in Appendix K. It will be observed that there is virtually no difference between the weighted average results and the arithmetic average results. Thus, for future testing, B&W recommends that multi-point grids and the composite sampling method be employed. This has the benefit of reducing uncertainty by virtue of more samples.

For the test, there were eleven orsat stations. All orsat results were to the left of the flue gas combustion line. Refer to Appendix J for a tabulation of the combustion line results (maximum CO_2 at zero O_2) for each test station for each of the test days. It will be observed that the results for each test station are very consistent between the test days. The average combustion line based on the orsat results was 18.6 % CO_2 +/- 0.25 % at 0 % O_2. This order of variation is typically as good as one can achieve with an orsat. For the final fuel analysis, the expected CO_2 at zero O_2 is 18.3 %. If the O_2/CO_2 data is not on the combustion line, the CO_2 method (PTC 4.1 paragraphs 9.1 and 9.2) for calculating excess air and air and gas weights can be erroneous, especially when comparing differentials as when calculating air heater leakage. For this reason, B&W has more confidence in the calculations based on O_2 than CO_2, however, both are reported for comparison.

Unit efficiency was calculated in accordance with ASME PTC 4.1 Heat Loss Method, Abbreviated Efficiency Form. The key measurement points for determining efficiency by the heat loss method are average air temperature entering the unit and average gas temperature and excess air leaving the unit. The average air inlet temperature is a weighted average of the air temperature entering the primary and secondary air heaters. The alternate methods for determining the primary/secondary air flow split are described below. The average gas temperature/excess air leaving the air heaters (unit) is a composite sample of the gas entering the bag house which is a mix of the gas leaving the primary and secondary air heaters. This is the most accurate measurement location for determining unit efficiency. Flue gas sampling at the economizer gas outlet in conjunction with the bag house inlet enables calculation of total air heater leakage with a high confidence level.

Problems were encountered with measuring the air temperature at the air heater air inlets on 6/24. For purposes of evaluating air heater leakage, the difference between the plant and test averages on 6/25 and 6/26 was used to adjust the plant air heater air inlet temperature in order to calculate efficiency and gas flow. These results were not used for evaluation of unit efficiency and/or air heater performance, however, any error in the efficiency calculation has negligible impact on calculated air heater leakage mass flows.

In order to evaluate individual air heater performance and leakage, it is desirable to measure the conditions at the gas and air inlets and outlets of each air heater. On this unit, it was not possible to measure the secondary air heater gas outlet temperature and flue gas analysis directly due to the flue arrangement. Therefore, it was necessary to calculate the secondary air heater gas outlet conditions based on the primary air heater gas outlet and bag house gas inlet conditions. The following describes this calculation as well as the alternate methods used to determine air and gas mass flow splits.

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Total gas mass flow leaving the economizer and air heaters (entering the bag house) was calculated stoichiometrically based on the gas analysis data and fuel input. Fuel input was calculated from measured unit output and efficiency determined as described above.

Gas mass flow splits - B&W preferred method - Based on measured primary air flow to the pulverizers, mill inlet temperature, hot and cold primary air temperature; calculate air flow through the primary air heater by heat balance. Calculate the gas flow through the primary air heater by heat balance from the primary air heater gas side data and heat added to the primary air as measured and calculated above. It is noted that the pulverizers and primary air flow pressure transducers had been recently calibrated. The plant indication of percent primary air flow was converted to primary element pressure differential based on the latest calibration data. Primary air flow to each pulverizer was then calculated from this pressure differential, mill inlet temperature, and calibration ('K') factors for each mill. The gas mass flow entering the secondary air heaters is the difference between total gas mass flow leaving the economizer and the gas mass flow entering the primary air heaters.

Gas mass flow splits - APCO method - The measured gas flows entering the primary and secondary air heaters are adjusted proportionally by the ratio of calculated gas mass flow leaving the economizer divided by the sum of the measured gas mass flows entering the air heaters. These calculations are contained in Appendix H. It will be observed that the gas flow correction factors are reasonable.

Secondary air heater gas outlet conditions - Total leakage between the economizer gas outlet and bag house gas inlet (composite leaving all air heaters) was calculated as described above. The primary air heater leakage was calculated from the primary air heater gas inlet and outlet orsat data and gas mass flow entering as determined by either of the methods above. The secondary air heater leakage is the difference between the total air heater leakage and primary air heater leakage. Knowing the secodary air heater leakage, gas temperature leaving the primary air heater, average gas temperature leaving all the air heaters and gas mass flows, it is possible to calculate the average gas temperature leaving the secondary air heaters. A detailed description of this calculation procedure and calculations are contained in Appendix H.

For air heater evaluation and efficiency calculations using measured gas flows, the air flow through the air heaters was determined by heat balance. For efficiency calculated by the B&W method for calculating gas flow splits, the total air flow was calculated stoichiometrically assuming 2 % setting infiltration. Secondary air flow is the difference between total air flow and the measured air flow entering the pulverizers. The primary/secondary air flow split is required to determine the average entering air temperature for the efficiency calculations, and is not critical.

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TEST RESULTS

For the final analysis of the results, B&W considers the following methods for reducing the data and calculating the results to be the most accurate:

1. O2 method for calculating excess air and efficiency.

2. Utilizing the primary air flow measured by the plant instrumentation for calculating air/gas flow splits.

In this section, the results of the different calculation methods are presented and discussed. For simplicity of presentation in the tables and discussion, the following nomenclature is used:

1. O2 - O2 method for calculating excess air.

2. CO2 - CO2 method for calculating excess air.

3. MPAF - Calculated air/gas flow splits based on primary air flow to the pulverizers measured by the plant control system. In the text, this is referred to as the 'heat balance method'.

4. TRAV - Calculated air/gas flow splits based on the point by point velocity measurements. In the text, 'measured air/gas flow' refers to directly measured or calculated flows based upon the traverse data.

A summary of the air and gas flow results are shown in Table II. The calculations are contained in Appendix _H. Items of note are:

1. The measured primary air heater gas flow is higher than the gas flow calculated by heat balance. Since the primary air heater gas flow is only about 10 % of the total gas weight, this has no significant impact on the calculations except primary air heater versus secondary air heater leakage. The differences in secondary air heater gas flow follow the primary air heater gas flow, but the percent error is significantly less by virtue of the higher gas flow for the same error.

2. For the 6/25 and 6/26 tests, there is resonable agreement between the calculation methods for air flow to the pulverizers and secondary air heaters. The plant instrumentation is repeatable and thus more believable. Differences would have a slight impact on the weighted average entering air temperature and thus efficiency.

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	6/24/87 AVE		6/25/87 AVE		6/26/87 AVE	
	WEST	EAST	WEST	EAST	WEST	EAST
PRI AH GAS FLOW, KLB/HR						
MPAF / O2	372		349		360	
MPAF / CO2	370		348		362	
TRAV / O2	406	529	373	413	394	418
TRAV / CO2	394	514	363	402	384	407
PRI AH AIR FLOW, KLB/HR						
TO MILLS, TOTAL						
MPAF	1441		1451		1455	
TRAV / O2	1848		1471		1624	
TRAV / CO2	1766		1421		1563	
THRU AH, AVE PER HTR						
MPAF	453		411		443	
TRAV / O2	569		456	471	501	498
TRAV / CO2	555		445	462	486	484
PULV TEMP AIR, TOTAL						
MPAF	536		629		569	
TRAV / O2	711		544		625	
TRAV / CO2	656		514		594	
SEC AH GAS FLOW, KLB/HR						
MPAF / O2	6824		6827		7056	
MPAF / CO2	6610		6634		6846	
TRAV / O2	6633		6739		6963	
TRAV / CO2	6442		6564		6778	
SEC AH AIR FLOW, KLB/HR						
MPAF / O2	5425		5380		5623	
MPAF / CO2	5168		5148		5380	
TRAV / O2	5018		5359		5454	
TRAV / CO2	4842		5178		5272	

TABLE II
AIR & GAS FLOW CALCULATION SUMMARY

TCH-082787

A summary of the air heater leakage results is shown in Table III. The calculations are contained in Appendix H.

1. The composite air heater leakage was very repeatable for all three tests. The maximum deviation from the average is 10 % (0.6 % of total gas weight).

2. The leakage using the CO_2 method is higher than that calculated using the O_2 method, approximately 1.0 % of total gas weight. Due to the average O_2/CO_2 relationship being above the combustion line, B&W considers the O_2 method to be more believable.

3. The west primary air heater leakage is out of line (high) on 6/24 versus 6/25 and 6/26. The east primary air heater leakage is out of line (low) on 6/26 versus 6/24 and 6/25. The average air heater leakage column reflects deleting these two points from the average.

4. There is no significant difference in the primary air heater leakage calculated by either the O_2 or CO_2 method.

5. The primary air heater leakage is higher utilizing the measured gas flow data than the heat balance method since the traverse data indicates a higher primary air heater gas flow.

6. Based on the O_2 method and gas flow calculated by heat balance, the primary air heater leakage guarantee of 163 Klb/hr and secondary air heater leakage guarantee of 314 Klb/hr are met.

	6/24/87		6/25/87		6/26/87		AVERAGE *	
AH LEAKAGE, KLB/HR	TRAV	MPAF	TRAV	MPAF	TRAV	MPAF	TRAV	MPAF
COMPOSITE OF ALL AH'S								
O_2	446		430		509		462	
CO_2	518		525		616		553	
WEST PRI AH								
O_2	150	138	90	84	79	72	85	78
CO_2	140	131	86	82	83	78	85	80
EAST PRI AH								
O_2	111	78	109	92	57	49	110	85
CO_2	105	76	100	86	58	51	103	81
AVE PRI AH								
O_2	266	216	199	176	136	121	195	163
CO_2	250	207	186	168	141	129	188	161
AVE SEC AH								
O_2	180	234	231	254	373	388	267	299
CO_2	268	314	339	356	476	487	365	392

* AVERAGE OMITS 6/24 WEST PAH AND 6/26 EAST PAH DATA

TABLE III - AIR HEATER LEAKAGE SUMMARY

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A comparison of the results of the gas temperature entering the bag house (composite leaving the air heaters) is shown on Table IV and discussed below. The results for the individual air heaters is discussed later.

1. The corrected gas temperature entering the bag house (temperature excluding leakage) is 2 F to 3 F higher using the CO_2 method versus the O_2 method. This is due to the higher calculated leakage. The difference translates to 0.07 % in calculated efficiency.

2. Some concern has been expressed about the high gas temperature (including AH leakage) entering the bag house. The design target value was 280 F. The average for the three tests was 319 F. However, the average entering air temperature during the tests was 95 F versus the average design value of 67 F (64 F entering the secondary and 77 F entering the primary air heaters). Correcting the exit gas temperature for entering air temperature yields an average exit gas temperature of 300 F. The air heater exit gas temperature is expected to decrease on the order of 5 F with the addition of economizer sootblowers.

		6/24/87	6/25/87	6/26/87
GAS ENT BAG HOUSE, F				
	(INCL LKG)	318	321	317
O_2 BASIS	(EXCL LKG)	330	333	331
CO_2 BASIS	(EXCL LKG)	332	336	334
AVE AIR IN TEMP		93	95	96
*ENT BAG HOUSE	(INCL LKG)	301	302	298
AVE ECON GAS OUT		752	747	753

* CORRECTED FOR CONTRACT AVERAGE ENTERING AIR TEMP OF 67 F

TABLE IV - GAS TEMPERATURE ENTERING BAG HOUSE SUMMARY

The efficiency results are shown on Table V. Efficiency was first calculated based on the composite gas temperature entering the bag house. These results were used to calculate total gas flow and air heater leakage. The plant measured primary air flow was used for these calculations. From these results, the measured gas flow data entering the air heaters was adjusted to agree with the total leaving the economizer calculated stoichiometrically. Also the gas conditions leaving the secondary air heater were calculated. A summary of the composite efficiency calculations is contained in Appendix H.

Efficiency was then re-calculated based on the separate primary and secondary air heater data and calculated results. These efficiency calculation results were also corrected to contract conditions (identified by CORR). The correction to contract conditions are for entering air temperature, fuel analysis and excess air. A summary of the composite efficiency calculations is contained in Appendix G.

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It will be observed that the test efficiencies are the same for both the composite and individual air heater basis. Other items of note are:

1. The efficiency for the test conditions is higher using the CO2 method than the O2 method because the calculated excess air and thus dry gas weight is lower even though the gas temperature leaving (excluding leakage) is higher.

2. The method for determining gas and air splits has no impact on the calculated or corrected efficiency.

3. The corrected efficiency is 0.06 % to 0.08 % lower using the CO2 method than the O2 method. This is due to the higher calculated exit gas temperature (excluding leakage) using the CO2 method.

	6/24/87		6/25/87		6/26/87	
EXCESS AIR MEAS BASIS	O2	CO2	O2	CO2	O2	CO2
EXCESS AIR LVG ECON, %	21	16	21	17	23	19
EFFICIENCY, %						
COMPOSITE ANALYSIS						
TEST - MPAF	88.40	88.50	88.53	88.61	88.50	88.58
INDIVIDUAL PRI/SEC AH						
TEST - MPAF	---	---	88.53	---	88.51	---
CORR - MPAF	---	---	88.60	---	88.62	---
TEST - TRAV	---	---	88.54	88.62	88.52	88.60
CORR - TRAV	---	---	88.61	88.53	88.63	88.57

TABLE V - EFFICIENCY SUMMARY

Table VI shows actual versus expected exit gas temperature for the air heaters. This table shows the air heater exit gas temperature as measured (including leakage) and corrected for no leakage for both the O2 and CO2 methods for calculating leakage. Also shown is the expected air heater exit gas temperature for the test conditions for both the measured flow (TRAV) and heat balance (MPAF) methods for determining air and gas flows. B&W's first principle air heater model was used to determine expected air heater performance based on the original predicted performance for the air heaters.

1. The secondary air heater exit gas temperature is 2 to 11 F higher than expected depending upon the test and calculation method. This is well within Air Preheater's guarantee considering test uncertainty.

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2. The primary air heater exit gas temperature is 56 to 70 F higher than expected. The performance of the east and west primary air heaters is similar and repeatable for the two tests. The expected exit gas temperature is approximately the same for the alternate calculation methods.

		6/25/87	6/26/87
SEC AH EXIT GAS TEMPERATURE, F			
TST	(INCL LKG)	324	319
TST - O2	(EXCL LKG)	332	331
EXP - O2 - MPAF	(EXCL LKG)	326	324
EXP - O2 - TRAV	(EXCL LKG)	323	329
TST - CO2	(EXCL LKG)	336	335
EXP - CO2 - TRAV	(EXCL LKG)	325	330

		AVE		AVE	
PRI AH EXIT GAS TEMPERATURE, F		WEST	EAST	WEST	EAST
TST	(INCL LKG)	289	293	295	306
TST - O2	(EXCL LKG)	329	339	329	331
EXP - O2 - MPAF	(EXCL LKG)	264		269	
EXP - O2 - TRAV	(EXCL LKG)	264	283	267	272
TST - CO2	(EXCL LKG)	328	336	332	333
EXP - CO2 - TRAV	(EXCL LKG)	262	280	267	273

TABLE VI - ACTUAL VS EXPECTED AH PERFORMANCE

SUMMARY AND CONCLUSIONS

1. The average efficiency corrected to contract conditions was 88.61 % by the O2 method and 88.55 % by the CO2 method. This meets the guarantee of 88.57 %.

2. The total air heater leakage was 462 Klb/hr by the O2 method and 553 Klb/hr by the CO2 method. The guarantee is 477 Klb/hr. The calculated primary air heater leakage varies between 161 and 195 Klb/hr depending upon the calculation method versus a guarantee of 163 Klb/hr. The calculated secondary air heater leakage varies between 267 and 392 Klb/hr depending upon the calculation method versus a guarantee of 314 Klb/hr. Note that the secondary air heater leakage is the difference between the measured total air heater leakage and the measured primary air heater leakage, thus the high secondary air heater leakage corresponds to the low primary air heater leakage and vice versa.

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3. The secondary air heater exit gas temperature (excluding leakage) is 6 to 7 F higher than expected which is within normal design tolerances when considering test uncertainty.

4. The primary air heaters are not performing as well as expected. The exit gas temperature is on the order of 55 to 65 F higher than expected. This conclusion is independent of the test calculation procedure. The primary air heaters only handle approximately 10 % of the gas flow, thus, the impact of primary air heater performance on average exit temperature is on the order of 6 F.

5. The average gas temperature entering the bag house (including air heater leakage) was 319 F with an entering air temperature of 95 F. Correcting for the contract average entering air temperature of 67 F, the gas temperature entering the bag house would be 300 F, or 20 F higher than expected. Two thirds of this is attributed to air heater performance and one third due to higher than expected gas temperature leaving the boiler. The addition of economizer sootblowers is expected to reduce the boiler gas outlet temperature.

6. Excessive cooling air to upper burner compartments was demonstrated to have a significant impact on steam temperature. Steam temperatures can be maintained by minimizing cooling air and bias firing.

7. While the test results utilizing point by point traverses were repeatable, there is concern on the part of B&W about the uncertainty introduced due to variations with time and coordination between test locations. The test results demonstrated that the arithmetic average of the individual traverse points agreed with the weighted average. For future testing, it is recommended that temperature grids and composite flue gas analysis be utilized. This would have the advantage of reducing test uncertainty by virtue of more samples as well as eliminate the uncertainty due to time and coordination between test locations in that all test locations are measured simultaneously.

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RB-614 26 Aug 1987 14:47:35

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	
FUEL		PC	PC	PC	PC	

2A AVERAGE OF SCANS 1-81
3A AVERAGE OF SCANS 1 - 68
4A AVERAGE OF SCANS 1 - 64
5A AVERAGE OF SCANS 1 - 69

DATA PAGE NO. 2 FLOWS MLB/HR

LOAD MW			857.2	850.1	846.6	853.0	2 1
HP STEAM FLOW			6213.1	6183.8	6140.4	6217.7	2 2
FW FLOW			6155.5	6142.4	6050.3	6159.4	2 3
BLOW DOWN FLOW			0.0	0.0	0.0	0.0	2 4
RH-1 SP FLOW			5.1725	5.6713	3.8197	4.2307	2 5
SH-1 SP FLOW	W		0.0	0.0	0.0	0.0	2 7
SH-1 SP FLOW	E		13.00	13.83	14.23	14.14	2 8
SH-2 SP FLOW	W		16.90	0.00	32.23	11.42	2 9
SH-2 SP FLOW	E		19.24	11.92	32.17	17.87	2 10
TOTAL AIR FLOW			79.71	78.51	78.16	81.18	2 18
TOTAL FUEL FLOW			337.5	333.5	328.4	336.0	2 19
FEGT - PYROSONICS		TG	100.0	100.0	100.0	100.0	2 20

DATA PAGE NO. 3 FLUID TEMPERATURES F - PLANT

SSH OUT T (P)			1004.8	1007.1	1005.0	1005.4	3 1
TURB THROT T (P)			1004.0	1006.4	1004.1	1005.0	3 3
ECON IN T (P)			551.8	551.0	550.9	551.8	3 5
SH-1 SPRAY TEMP			337.5	333.9	337.5	341.1	3 7
LVG 1st STG ATT(P)-W			719.0	717.3	718.1	724.7	3 8
LVG 1st STG ATT(P)-E			725.0	726.0	728.2	729.3	3 9
ENT 1st STG ATT(P)-W			718.9	718.9	719.7	722.2	3 10
ENT 1st STG ATT(P)-E			724.4	724.7	726.2	727.6	3 11
LVG RH-1 T (P)-N			1006.9	1008.3	996.3	997.1	3 12
LVG RH-1 T (P)-S			1009.9	1011.3	1000.5	1001.6	3 13
HRH AT TURB (P)-N			1009.0	1009.4	998.3	999.7	3 14
HRH AT TURB (P)-S			1011.9	1012.4	1001.3	1003.4	3 15
ENT RH-1 T (P)			625.1	617.4	624.2	624.8	3 16
CRH ENT ATT (P)		SGJ024	626.6	627.7	626.1	626.4	3 18

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	

DATA PAGE NO. 3 FLUID TEMPERATURES F - PLANT

RH DSUPHTR INL T (P)	COA06A	624.6	625.5	623.5	624.1	3 19
RH-1 SPRAY T (P)		150.3	275.8	164.3	276.2	3 20
LVG 2nd STG AT (P)-W		788.8	792.4	790.2	789.7	3 21
LVG 2nd STG AT (P)-E		779.4	779.4	767.8	777.5	3 22
ENT 2nd STG AT (P)-L		792.6	789.2	796.7	792.6	3 23
ENT 2nd STG AT (P)-R		783.9	779.1	778.0	781.3	3 24
ECON OUT T (P)		573.4	571.8	571.8	572.2	3 27
ECON OUT T (P)		571.1	570.6	574.2	574.2	3 28
SAT CON TUBE(P)		678.4	678.0	678.0	676.7	3 29

DATA PAGE NO. 5 FLUID PRESSURES PSIG

SEC SH OUT PRESS (P)		2439.5	2460.1	2445.8	2460.9	5 2
DRUM PRESS (P)		2667.3	2682.0	2666.8	2686.8	5 3
HRH RH-1 PRESS (P)		523.4	520.9	517.8	522.8	5 4
CRH RH-1 PRESS (P)		556.6	553.9	549.8	555.9	5 5
NO.1 HTR EXT P (P)-A		171.9	270.9	1044.9	1055.7	5 6
NO.1 HTR EXT P (P)-B		1053.0	1045.9	1043.2	1054.1	5 7
NO.2 HTR EXT P (P)-A		546.1	543.1	539.9	545.3	5 8
NO.2 HTR EXT P (P)-B		549.7	546.7	543.2	549.0	5 9
ECON IN PRESS (P)		36.25	36.25	36.25	36.25	5 12
SEC SH IN PRES (P) E		2564.9	2582.1	2568.3	2585.6	5 13
SEC SH IN PRES (P) W		0.0	0.0	0.0	0.0	5 14

DATA PAGE NO. 6 AIR & GAS DATA - PLANT

AMBIENT AIR TEMP		83.19	86.02	87.11	90.44	6 1
AIR ENT SEC AH (P)-A		87.06	90.52	91.94	94.72	6 2
AIR ENT SEC AH (P)-B		86.11	89.87	91.42	93.78	6 3
AIR ENT PRI AH (P)-A		108.2	111.2	112.6	115.1	6 4
AIR ENT PRI AH (P)-B		106.3	109.4	110.6	113.0	6 5
AIR LVG SEC AH (P)-A		655.5	658.9	655.7	659.9	6 6
AIR LVG SEC AH (P)-B		667.4	670.9	672.1	675.1	6 7
AIR LVG PRI AH (P)-A		536.7	537.0	534.0	532.7	6 8
AIR LVG PRI AH (P)-B		499.1	502.1	500.6	498.7	6 9
GAS LVG SEC AH (P)-A		307.0	310.6	312.9	314.9	6 10
GAS LVG SEC AH (P)-B		318.4	323.2	318.7	321.8	6 11
GAS LVG PRI AH (P)-A		307.3	306.0	304.8	306.3	6 12
GAS LVG PRI AH (P)-B		309.6	308.4	307.5	306.9	6 13
GAS LVG ECON (P)-E		750.8	752.7	757.3	761.6	6 14
GAS LVG ECON (P)-W		748.3	748.0	750.3	756.0	6 15
O2 LVG ECON (P)-W		2.5930	2.4666	2.4691	2.8116	6 20
O2 LVG ECON (P)-E		2.7013	2.8213	2.7730	2.7988	6 21
NOX @ STACK (P)		256.3	234.2	238.5	236.1	6 24
O2 @ STACK (P)		256.3	234.2	238.4	236.1	6 25

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	

DATA PAGE NO. 6 AIR & GAS DATA - PLANT

BAROMETRIC PRESS (P)		25.45	25.55	25.52	25.49	6 29
DRY BULB TEMP (B)		81.00	83.40	84.10	86.00	7 26
WET BULB TEMP (B)		55.00	56.10	55.30	56.40	7 27
MOIST IN AIR (B)		.0049	.0050	.0044	.0046	7 28
REL HUMIDITY (P)		-25.00	-25.00	-25.00	-25.00	7 30

DATA PAGE NO. 7 AIR & GAS DATA - TEST

AIR ENT SEC AH (B) W	GRID	86.40	83.60	93.80	94.10	7 2
AIR ENT SEC AH (B) E	GRID	87.00	83.70	87.10	87.30	7 3
AIR ENT PRI AH (B) W	GRID	107.8	105.9	115.8	117.4	7 4
AIR ENT PRI AH (B) E	GRID	111.1	109.1	111.9	110.7	7 5
AIR LVG SEC AH (B) W	TRAV	0.0	655.0	636.0	652.0	7 6
AIR LVG SEC AH (B) E	TRAV	0.0	663.0	661.0	658.0	7 7
AIR LVG PRI AH (B) W	TRAV	474.0	452.0	470.0	467.0	7 8
AIR LVG PRI AH (B) E	TRAV	513.0	469.0	489.0	478.0	7 9
GAS LVG PRI AH (B) W	TRAV	287.0	290.0	288.0	295.0	7 12
GAS LVG PRI AH (B) E	TRAV	296.0	307.0	295.0	306.0	7 13
GAS LVG ECON (B) W	GRID	754.0	756.1	753.4	760.8	7 14
GAS LVG ECON (B) E	GRID	756.3	760.0	755.2	760.7	7 15
GAS ENT SEC AH (B) W	TRAV	0.0	747.0	747.0	744.0	7 16
GAS ENT SEC AH (B) E	TRAV	0.0	722.0	747.0	747.0	7 17
GAS ENT PRI AH (B) W	TRAV	734.0	742.0	731.0	742.0	7 18
GAS ENT PRI AH (B) E	TRAV	742.0	740.0	737.0	738.0	7 19
O2 LVG ECON (B) W	TELE	4.3679	3.1774	2.9530	3.5826	7 20
O2 LVG ECON (B) E	TELE	3.1506	3.5595	3.2767	4.2640	7 21

DATA PAGE NO. 8 FW HTR TEMPERATURES F - PLANT

NO.1 HTR EXT T (P)-A		799.5	800.0	798.6	799.5	8 1
NO.1 HTR EXT T (P)-B		799.5	800.2	798.6	799.9	8 2
NO.2 HTR EXT T (P)-A		625.6	627.1	624.8	625.7	8 3
NO.2 HTR EXT T (P)-B		625.9	626.9	625.4	625.2	8 4
NO.1 FW LVG T (P)-A		553.1	552.8	552.8	553.2	8 5
NO.1 FW LVG T (P)-B		553.3	552.2	551.9	553.1	8 6
NO.1 FW ENT T (P)-A		478.2	478.8	478.0	478.3	8 7
NO.1 FW ENT T (P)-B		480.1	480.1	479.6	480.2	8 8
NO.2 FW ENT T (P)-A		395.0	394.5	394.2	394.2	8 11
NO.2 FW ENT T (P)-B		394.5	393.9	394.7	395.0	8 12
NO.1 DRAIN T (P)-A		489.8	488.7	488.4	489.0	8 13
NO.1 DRAIN T (P)-B		488.1	488.1	487.3	487.8	8 14
NO.2 DRAIN T (P)-A		402.0	402.2	402.8	403.1	8 15
NO.2 DRAIN T (P)-B		401.4	402.7	401.0	401.4	8 16
INT SSH MANIF (P)-1		879.7	876.7	870.3	883.4	8 17
INT SSH MANIF (P)-2		907.4	908.9	902.6	915.8	8 18

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	

DATA PAGE NO. 8 FW HTR TEMPERATURES F - PLANT

INT SSH MANIF (P)-3		915.8	907.4	907.0	919.3		8 19
INT SSH MANIF (P)-4		954.8	949.5	948.4	962.7		8 20
INT SSH MANIF (P)-5		930.9	923.0	920.3	924.8		8 21
INT SSH MANIF (P)-6		961.5	956.3	950.4	953.5		8 22
INT SSH MANIF (P)-7		924.1	925.7	916.0	920.6		8 23
INT SSH MANIF (P)-8		948.3	952.5	942.7	949.4		8 24
INT SSH MANIF (P)-9		907.9	905.1	899.1	905.2		8 25
INT SSH MANIF (P)-10		948.9	944.7	932.7	935.1		8 26
INT SSH MANIF (P)-11		906.3	905.7	895.6	900.6		8 27
INT SSH MANIF (P)-12		943.8	938.2	925.3	927.6		8 28
INT SSH MANIF (P)-13		904.4	901.3	895.0	901.6		8 29
INT SSH MANIF (P)-14		939.9	935.7	919.2	925.0		8 30
INT SSH MANIF (P)-15		913.3	916.6	915.2	910.2		9 17
INT SSH MANIF (P)-16		951.2	948.3	947.4	939.9		9 18
INT SSH MANIF (P)-17		910.8	920.1	916.7	911.1		9 19
INT SSH MANIF (P)-18		937.1	946.4	944.3	936.5		9 20
INT SSH MANIF (P)-19		919.6	928.7	927.8	919.0		9 21
INT SSH MANIF (P)-20		947.8	958.7	952.7	947.1		9 22
INT SSH MANIF (P)-21		922.1	930.1	928.7	919.4		9 23
INT SSH MANIF (P)-22		952.2	959.3	960.1	950.9		9 24
INT SSH MANIF (P)-23		924.5	933.7	934.4	925.7		9 25
INT SSH MANIF (P)-24		958.3	967.6	968.1	958.8		9 26
INT SSH MANIF (P)-25		923.5	928.0	930.1	925.3		9 27
INT SSH MANIF (P)-26		957.5	963.8	965.0	961.7		9 28
INT SSH MANIF (P)-27		888.3	893.4	889.1	891.8		9 29
INT SSH MANIF (P)-28		911.9	918.1	915.0	916.5		9 30

DATA PAGE NO. 10 PULVERIZER COAL AND PA FLOW

PULV A COAL FLOW		48.31	47.79	46.95	48.17		10 1
PULV B COAL FLOW		48.08	47.56	46.71	47.93		10 2
PULV C COAL FLOW		-.05	47.94	47.09	48.34		10 3
PULV D COAL FLOW		49.32	48.77	47.94	49.19		10 4
PULV E COAL FLOW		48.49	47.97	47.13	48.37		10 5
PULV F COAL FLOW		48.29	.15	.15	.15		10 6
PULV G COAL FLOW		48.68	48.12	47.26	48.49		10 7
PULV H COAL FLOW		48.91	48.39	47.54	48.79		10 8
PULV A PA FLOW		85.24	85.77	87.25	87.92		10 16
PULV B PA FLOW		88.11	87.72	87.25	87.92		10 17
PULV C PA FLOW		3.92	87.67	87.12	87.81		10 18
PULV D PA FLOW		87.30	86.90	86.34	87.23		10 19
PULV E PA FLOW		86.25	85.92	85.46	86.22		10 20
PULV F PA FLOW		87.91	0.00	0.00	0.00		10 21
PULV G PA FLOW		84.03	84.92	86.76	88.40		10 22
PULV H PA FLOW		87.71	87.23	86.85	87.64		10 23

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	

DATA PAGE NO. 11 PULVERIZER INLET TEMP AND PA DIFF

PULV A INLET T		326.7	311.2	308.3	319.0	11 1
PULV B INLET T		337.1	320.3	310.0	340.2	11 2
PULV C INLET T		97.2	336.1	329.3	299.4	11 3
PULV D INLET T		347.6	334.3	330.3	339.4	11 4
PULV E INLET T		343.9	333.3	318.8	333.4	11 5
PULV F INLET T		378.3	112.3	103.8	104.9	11 6
PULV G INLET T		365.2	345.4	326.0	337.7	11 7
PULV H INLET T		370.4	342.3	333.7	365.6	11 8
PULV A DIFF P		13.90	13.60	12.46	12.10	11 24
PULV B DIFF P		12.38	12.23	11.67	11.82	11 25
PULV C DIFF P		.04	12.02	11.12	11.84	11 26
PULV D DIFF P		13.29	12.94	12.78	12.61	11 27
PULV E DIFF P		13.20	12.60	12.21	12.52	11 28
PULV F DIFF P		12.13	0.00	0.00	0.00	11 29
PULV G DIFF P		13.86	13.63	13.63	13.60	11 30
PULV H DIFF P		13.35	13.04	12.49	12.47	11 9

DATA PAGE NO. 12 OPERATOR POSITIONS %

RH-1 SP VLV POSIT		0.0	0.0	0.0	0.0	12 1
SH-1 SP VLV POSIT-A		0.0	0.0	0.0	0.0	12 3
SH-1 SP VLV POSIT-B		0.0	0.0	0.0	0.0	12 4
SH-2 SP VLV POSIT-A		0.0	0.0	0.0	0.0	12 5
SH-2 SP VLV POSIT-B		0.0	0.0	0.0	0.0	12 6
RH PASS DMPR POS-A		0.0	0.0	0.0	0.0	12 15
RH PASS DMPR POS-B		0.0	0.0	0.0	0.0	12 16
SH PASS DMPR POS-A		0.0	0.0	0.0	0.0	12 17
SH PASS DMPR POS-B		0.0	0.0	0.0	0.0	12 18

DATA PAGE NO. 13 MISCELLANEOUS GAS DATA - TEST

O2 LVG PRI AH W	TRAV	6.8000	8.2700	7.1200	6.8800	13 5
O2 LVG PRI AH E	TRAV	6.5000	6.5300	7.1900	5.4700	13 6
CO2 LVG PRI AH W	TRAV	12.40	11.40	12.31	12.43	13 7
CO2 LVG PRI AH E	TRAV	12.30	12.83	12.34	13.70	13 8
O2 ENT PRI AH W	TRAV	4.2000	3.0500	3.4300	3.7700	13 13
O2 ENT PRI AH E	TRAV	3.6000	3.1700	3.1700	3.1300	13 14
CO2 ENT PRI AH W	TRAV	14.60	15.92	15.57	15.44	13 15
CO2 ENT PRI AH E	TRAV	15.30	15.77	15.76	15.88	13 16
GAS LVG RH PS (B)SW	GRID	735.7	736.8	727.6	724.7	13 21
GAS LVG RH PS (B)SE	GRID	740.8	738.8	728.7	725.9	13 22
GAS LVG PSH PS (B)NW	GRID	751.7	753.2	754.1	764.4	13 23
GAS LVG PSH PS (B)NE	GRID	752.3	755.5	756.8	764.7	13 24
STACK O2/CO2 (P)		5.1897	5.1991	5.2697	5.5532	13 25
		0.0	0.0	0.0	0.0	13 28

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	

DATA PAGE NO. 13 MISCELLANEOUS GAS DATA - TEST

A = RIGHT = EAST		0.0	0.0	0.0	0.0	13 29
GAS LVG ECON T A-G W	TRAV	0.0	0.0	0.0	0.0	13 30

DATA PAGE NO. 14 MISCELLANEOUS

GAS LVG ECON T A-G W	TRAV	746.0	748.0	744.0	753.0	14 1
GAS LVG ECON T H-N W	TRAV	751.0	757.0	750.0	762.0	14 2
GAS LVG ECON T A-G E	TRAV	739.0	746.0	751.0	742.0	14 3
GAS LVG ECON T H-N E	TRAV	750.0	757.0	743.0	754.0	14 4
O2 LVG ECON A-G W	TRAV	4.7000	3.6400	3.6700	3.8700	14 5
O2 LVG ECON H-N W	TRAV	3.9000	3.8900	4.1600	4.5800	14 6
O2 LVG ECON A-G E	TRAV	3.1000	3.8700	3.9700	4.3400	14 7
O2 LVG ECON H-N E	TRAV	4.5000	3.3300	3.1200	3.0400	14 8
CO2 LVG ECON A-G W	TRAV	14.60	15.57	15.57	15.38	14 9
CO2 LVG ECON H-N W	TRAV	14.90	15.16	14.97	14.60	14 10
CO2 LVG ECON A-G E	TRAV	15.80	15.14	15.13	14.81	14 11
CO2 LVG ECON H-N E	TRAV	15.50	15.76	15.93	16.01	14 12
GAS ENT BAG HS T W	TRAV	295.0	299.0	302.0	297.0	14 13
GAS ENT BAG HS T C	TRAV	337.0	337.0	338.0	340.0	14 14
GAS ENT BAG HS T E	TRAV	299.0	317.0	322.0	315.0	14 15
O2 ENT BAG HS W	TRAV	6.0000	4.8700	4.9200	5.4800	14 16
O2 ENT BAG HS C	TRAV	4.2000	4.3600	4.5300	4.9700	14 17
O2 ENT BAG HS E	TRAV	4.7000	4.9900	4.8100	4.8600	14 18
CO2 ENT BAG HS W	TRAV	13.10	14.08	14.08	13.60	14 19
CO2 ENT BAG HS C	TRAV	14.80	14.69	14.50	14.00	14 20
CO2 ENT BAG HS E	TRAV	14.30	14.07	14.19	14.20	14 21
TEMP AIR T W	TRAV	110.0	110.0	113.0	112.0	14 22
TEMP AIR T E	TRAV	109.0	112.0	110.0	120.0	14 23

DATA PAGE NO. 15 MISCELLANEOUS

PRI AH AIR IN P W	MANO	0.00	31.10	31.80	33.70	15 1
PRI AH AIR IN P E	MANO	0.00	30.40	31.10	33.00	15 2
PRI AH AIR OUT P W	TRAV	29.00	29.00	30.00	31.00	15 3
PRI AH AIR OUT P E	TRAV	29.00	29.10	30.00	31.00	15 4
PRI AH GAS IN P W	TRAV	-3.8000	-4.0000	-4.0000	-4.0000	15 5
PRI AH GAS IN P E	TRAV	-3.9000	-4.0000	-4.0000	-4.0000	15 6
PRI AH GAS OUT P W	TRAV	-8.5000	-8.0000	-8.0000	-8.5000	15 7
PRI AH GAS OUT P E	TRAV	-8.2000	-8.0000	-8.0000	-8.5000	15 8
PRI AH AIR-GAS DP W	MANO	38.50	38.40	39.20	41.30	15 9
PRI AH AIR-GAS DP E	MANO	35.70	37.50	38.10	40.50	15 10
SEC AH AIR IN P W	MANO	0.0000	3.9000	4.0000	4.4000	15 11
SEC AH AIR IN P E	MANO	0.0000	4.0000	4.0000	4.4000	15 12
SEC AH GAS IN P W	TRAV	0.0000	-3.6000	-3.7000	-3.8000	15 13
SEC AH GAS IN P E	TRAV	0.0000	-3.8000	-3.6000	-3.9000	15 14

TEST NO.		2A	3A	4A	5A	
TEST SEQ. NO.		1	2	3	4	
DATE		06/23/87	06/24/87	06/25/87	06/26/87	
TIME START		1050	1110	1015	1045	
TIME END		1735	1645	1530	1625	
LOAD MW		857	850	847	853	

DATA PAGE NO. 15 MISCELLANEOUS

SEC AH AIR-GAS DP	W	MANO	11.90	11.60	11.80	12.50	15 15
SEC AH AIR-GAS DP	E	MANO	11.80	11.40	11.70	12.50	15 16
SEC AH AIR OUT P	W	TRAV	0.0000	2.0000	2.0000	2.6000	15 17
SEC AH AIR OUT P	E	TRAV	0.0000	1.9000	1.9000	2.6000	15 18

RB-614 2 Aug 1987 10:52:56

TEST NO 5A DATE 06/26/87 TIME START 1045 TIME END 1625

USING MEASURED HP STEAM FLOW
USING DATA CHOICE 1

DRUM, SAT FLUID	P = 2686.8 PSIG	T = 679.6 F	H = 757.5 BTU/LB
DRUM, SAT VAPOR	P = 2686.8 PSIG	T = 679.6 F	H = 1069.5 BTU/LB
DRUM, BLOWDOWN	P = 2686.8 PSIG	T = 679.6 F	H = 757.5 BTU/LB
SH SPRAY	P = 2836.8 PSIG	T = 341.1 F	H = 316.9 BTU/LB
ENT SEC.	P = 2565.4 PSIG	T = 789.7 F	H = 1287.6 BTU/LB
LVG PRI-2	P = 2565.4 PSIG	T = 792.6 F	H = 1290.5 BTU/LB
ENT PRI-2	P = 2617.7 PSIG	T = 727.0 F	H = 1205.0 BTU/LB
LVG PRI-1	P = 2617.7 PSIG	T = 724.9 F	H = 1201.6 BTU/LB
CORR LVG PRI-1	P = 2617.7 PSIG	T = 726.0 F	H = 1203.3 BTU/LB
CORR ENT PRI-2	P = 2617.7 PSIG	T = 726.0 F	H = 1203.3 BTU/LB
ENT ECON	P = 2736.8 PSIG	T = 551.8 F	H = 548.6 BTU/LB
LVG SEC SH	P = 2460.9 PSIG	T = 1005.4 F	H = 1462.0 BTU/LB
ENT RH-1 ATTEMP	P = 555.9 PSIG	T = 626.4 F	H = 1309.7 BTU/LB
ENT RH-1	P = 555.9 PSIG	T = 624.8 F	H = 1308.7 BTU/LB
LVG RH-1	P = 522.8 PSIG	T = 999.3 F	H = 1518.9 BTU/LB
NO. 1 HTR FW ENT	P = 2736.8 PSIG	T = 479.3 F	H = 464.1 BTU/LB
NO. 1 HTR FW LVG	P = 2736.8 PSIG	T = 553.2 F	H = 550.3 BTU/LB
NO. 1 HTR DRAIN	P = 1054.1 PSIG	T = 488.4 F	H = 474.2 BTU/LB
NO. 1 HTR EXTR	P = 1054.1 PSIG	T = 799.7 F	H = 1386.1 BTU/LB
NO. 2 HTR FW ENT	P = 2736.8 PSIG	T = 394.6 F	H = 372.4 BTU/LB
NO. 2 HTR FW LVG	P = 2736.8 PSIG	T = 479.3 F	H = 464.1 BTU/LB
NO. 2 HTR DRAIN	P = 547.1 PSIG	T = 402.3 F	H = 377.9 BTU/LB
NO. 2 HTR EXTR	P = 547.1 PSIG	T = 625.5 F	H = 1309.8 BTU/LB
RH-1 SPRAY	P = 755.9 PSIG	T = 276.2 F	H = 246.7 BTU/LB

1st STAGE SPRAY	MEASURED	14.1	CALCULATED	0.0	USED C
2nd STAGE SPRAY	MEASURED	29.3	CALCULATED	18.7	USED C
RH-1 SPRAY	MEASURED	0.0	CALCULATED	4.7	USED M

FLOWS MLB/HR

STEAM LVG SEC SH	=	6217.7
STEAM LVG PRI-2 SH	=	6199.0
STEAM LVG PRI-1 SH	=	6199.0
FEEDWATER TO ECON	=	6199.0
BLOWDOWN	=	0.0
SH EXTRACTION	=	0.0
STEAM LVG RH-1	=	5026.1
STEAM ENT RH-1 ATTEMP	=	5026.1
NO. 1 HTR. EXTR. FLOW	=	586.2
NO. 2 HTR. EXTR. FLOW	=	549.4
TURB LKG	=	56.1

HEAT ABSORPTION MKB/HR

BOILER	=	3228.9
BLOWDOWN HEAT	=	0.0
EXTRACTION HEAT	=	0.0
SUPERHEATER	=	2454.3
REHEATER 1	=	1051.5
REHEATER 2	=	0.0
TOTAL OUTPUT	=	6734.6

			CONTRACT SUMMARY SHEET	TEST 5A CORRECTED FOR CONTR. CONDITIONS	TEST 5A WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5087	1455/5622
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.5
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Temp Ent AH	PRI/SEC	F	736/ 736	740/ 746	740/ 746
Gas Temp Lvg AH (Incl Lkg)	PRI/SEC	F	279/ 282	-/ -	300/ 319
Gas Temp Lvg AH (Excl Lkg)	PRI/SEC	F	313/ 292	306/ 314	330/ 331
Gas Flow Ent AH	PRI/SEC	MLB/HR	924/6286	720/6521	720/7055
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	313.5	331.1
Excess Air Lvg Econ		%	17.0	17.0	22.6
Excess Air Ent Pri AH		%	---	17.0	19.1
Excess Air Ent Sec AH		%	---	17.0	22.6
Excess Air Lvg Sec AH		%	---	---	29.9
Excess Air Lvg Pri AH		%	---	---	40.6
Excess Air to Burners		%	15.0	15.0	20.5
Sec AH Leakage		MLB/HR	315	---	388
Pri AH Leakage		MLB/HR	169	---	120
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.848
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.287
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.458
Losses		%			
Dry Gas			4.84	5.38	5.49
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.38	11.49
Efficiency		%	88.57	88.62	88.51
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7550.8	7608.9
Fuel Rate		MLB/HR	686.2	685.8	624.1

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : O2/PRI-SEC TCH-080487

			CONTRACT SUMMARY SHEET	TEST 5AM CORRECTED FOR CONTR. CONDITIONS	TEST 5AM WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	476/ 651
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1624/4917	1624/5452
AH Air By-Pass Flow		MLB/HR	497.8	625.0	625.0
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	67.2	96.1
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Temp Ent AH	PRI/SEC	F	736/ 736	740/ 746	740/ 746
Gas Temp Lvg AH (Incl Lkg)	PRI/SEC	F	279/ 282	-/ -	300/ 319
Gas Temp Lvg AH (Excl Lkg)	PRI/SEC	F	313/ 292	306/ 314	330/ 331
Gas Flow Ent AH	PRI/SEC	MLB/HR	924/6286	813/6428	813/6961
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	313.4	331.1
Excess Air Lvg Econ		%	17.0	17.0	22.6
Excess Air Ent Pri AH		%	---	17.0	19.1
Excess Air Ent Sec AH		%	---	17.0	22.6
Excess Air Lvg Sec AH		%	---	---	29.9
Excess Air Lvg Pri AH		%	---	---	40.6
Excess Air to Burners		%	15.0	15.0	20.5
Sec AH Leakage		MLB/HR	315	---	383
Pri AH Leakage		MLB/HR	169	---	135
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.848
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.287
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.458
Losses		%			
Dry Gas			4.84	5.37	5.48
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.37	11.48
Efficiency		%	88.57	88.63	88.52
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7549.9	7608.0
Fuel Rate		MLB/HR	686.2	685.7	624.0

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5M : 06/26/87 : 1045-1625 : 853 MW : O2/PRI-SEC/MEAS FLOW TCH-080487

			CONTRACT SUMMARY SHEET	TEST 5MC CORRECTED FOR CONTR. CONDITIONS	TEST 5MC WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	476/ 660
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1563/4983	1563/5270
AH Air By-Pass Flow		MLB/HR	497.8	594.0	594.0
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	67.1	96.0
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Temp Ent AH	PRI/SEC	F	736/ 736	740/ 746	740/ 746
Gas Temp Lvg AH (Incl Lkg)	PRI/SEC	F	279/ 282	-/ -	300/ 319
Gas Temp Lvg AH (Excl Lkg)	PRI/SEC	F	313/ 292	308/ 317	332/ 334
Gas Flow Ent AH	PRI/SEC	MLB/HR	924/6286	791/6454	791/6777
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	316.3	333.8
Excess Air Lvg Econ		%	17.0	17.0	18.6
Excess Air Ent Pri AH		%	---	17.0	15.2
Excess Air Ent Sec AH		%	---	17.0	18.6
Excess Air Lvg Sec AH		%	---	---	28.3
Excess Air Lvg Pri AH		%	---	---	37.9
Excess Air to Burners		%	15.0	15.0	16.5
Sec AH Leakage		MLB/HR	315	---	462
Pri AH Leakage		MLB/HR	169	---	141
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.531
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	10.909
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.138
Losses		%			
Dry Gas			4.84	5.43	5.40
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.43	11.40
Efficiency		%	88.57	88.57	88.60
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7555.0	7601.1
Fuel Rate		MLB/HR	686.2	686.2	623.5

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW :CO2/PRI-SEC/MEAS FLOW |TCH-080487

			CONTRACT SUMMARY SHEET	TEST 5A CORRECTED FOR CONTR. CONDITIONS	TEST 5A WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5086	1455/5623
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.5
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Flow Ent AH		MLB/HR	7210	7239	7776
Ave Gas Temp Lvg AH (Incl Lkg)		F	281.6	---	317.3
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	312.9	331.1
Excess Air Lvg Econ		%	17.0	17.0	22.6
Excess Air Lvg AH		%	---	---	31.3
Excess Air to Burners		%	15.0	15.0	20.5
AH Leakage		MLB/HR	484	---	509
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.848
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.287
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.458
Losses		%			
Dry Gas			4.84	5.36	5.50
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.36	11.50
Efficiency		%	88.57	88.64	88.50
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7549.1	7609.7
Fuel Rate		MLB/HR	686.2	685.7	624.2

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/ O2 TCH-080287

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/ O2 TCH-080287

EXCESS AIR = 22.62 O2 % = 3.96 CO % = 0.00 CO2 % = 14.71 SO2 % = .05
DRY AIR = 11.49 MOIS AIR = .053 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.848 WET GAS = 12.458 LB/LB FUEL MOIS GAS, % = 4.89

EXCESS AIR = 31.29 O2 % = 5.10 CO % = 0.00 CO2 % = 13.72 SO2 % = .04
DRY AIR = 12.30 MOIS AIR = .057 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.661 WET GAS = 13.274 LB/LB FUEL MOIS GAS, % = 4.62
Cpa = .242 Cpg = .254 AH LKG, % = 6.55 GAS LVG AH (EXCL LKG) = 331.1

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080287

EXCESS AIR = 19.15 O2 % = 3.45 CO % = 0.00 CO2 % = 15.15 SO2 % = .05
DRY AIR = 11.16 MOIS AIR = .052 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.523 WET GAS = 12.131 LB/LB FUEL MOIS GAS, % = 5.01

EXCESS AIR = 40.62 O2 % = 6.18 CO % = 0.00 CO2 % = 12.79 SO2 % = .04
DRY AIR = 13.17 MOIS AIR = .061 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.535 WET GAS = 14.152 LB/LB FUEL MOIS GAS, % = 4.36
Cpa = .242 Cpg = .254 AH LKG, % = 16.67 GAS LVG AH (EXCL LKG) = 330.2

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080287

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.96*	3.45*	6.18*	3.96*	4.94	5.10*
CO2,	%	14.71	15.15	12.79	14.71	13.86	13.72
EXCESS AIR,	%	22.6	19.1	40.6	22.6	29.9	31.3
H2O IN GAS,	%	4.89	5.01	4.36	4.89	4.65	4.62
T AIR,	F		114.1*	472.5*	90.7*	655.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			472.8		645.7	
T GAS,	F	752.8*	740.0*	300.5*	745.5*	319.2	317.3*
H GAS,	BTU/LB			54.7		59.6	59.1
H GASC,	BTU/LB			62.5		62.8	62.7
T GAS (W/O LKG),	F			329.8		331.1	331.0
WT AIR,	KLB/HR			885.7		5623.0	0.0
WT GAS,	KLB/HR	7776.0	719.9	839.9	7056.1	7445.6	8285.5
AH LKG,	KLB/HR			120.0*		389.5	509.5*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 568.9
MOIS IN AIR, LB/LB DA = .0046

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080387

EXCESS AIR = 21.31 O2 % = 3.77 CO % = 0.00 CO2 % = 14.88 SO2 % = .05
DRY AIR = 11.36 MOIS AIR = .053 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.726 WET GAS = 12.335 LB/LB FUEL MOIS GAS, % = 4.94

EXCESS AIR = 47.53 O2 % = 6.88 CO % = 0.00 CO2 % = 12.17 SO2 % = .04
DRY AIR = 13.82 MOIS AIR = .064 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 14.183 WET GAS = 14.804 LB/LB FUEL MOIS GAS, % = 4.19
Cpa = .242 Cpg = .254 AH LKG, % = 20.02 GAS LVG AH (EXCL LKG) = 329.0

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080387

EXCESS AIR = 17.06 O2 % = 3.13 CO % = 0.00 CO2 % = 15.43 SO2 % = .05
DRY AIR = 10.96 MOIS AIR = .051 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.327 WET GAS = 11.934 LB/LB FUEL MOIS GAS, % = 5.09

EXCESS AIR = 34.34 O2 % = 5.47 CO % = 0.00 CO2 % = 13.40 SO2 % = .04
DRY AIR = 12.58 MOIS AIR = .058 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.946 WET GAS = 13.561 LB/LB FUEL MOIS GAS, % = 4.53
Cpa = .242 Cpg = .254 AH LKG, % = 13.63 GAS LVG AH (EXCL LKG) = 331.4

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2/MEAS AIR GAS FLOW |TCH-080487

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.96*	3.45*	6.18*	3.96*	4.91	5.10*
CO2,	%	14.71	15.15	12.79	14.71	13.88	13.72
EXCESS AIR,	%	22.6	19.1	40.6	22.6	29.7	31.3
H2O IN GAS,	%	4.89	5.01	4.36	4.89	4.65	4.62
T AIR,	F		114.1*	472.5*	90.7*	655.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			544.9		655.1	
T GAS,	F	752.8*	740.0*	300.5*	745.5*	319.5	317.3*
H GAS,	BTU/LB			54.7		59.7	59.1
H GASC,	BTU/LB			62.5		62.8	62.7
T GAS (W/O LKG),	F			329.8		331.1	331.0
WT AIR,	KLB/HR			829.7		5454.0	0.0
WT GAS,	KLB/HR	7776.0	812.6	948.0	6963.4	7337.4	8285.5
AH LKG,	KLB/HR			135.4*		374.0	509.5*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 625.0
MOIS IN AIR, LB/LB DA = .0046
WT AIR LVG SEC BY HT BAL = 5455.0

			CONTRACT SUMMARY SHEET	TEST 5AC CORRECTED FOR CONTR. CONDITIONS	TEST 5AC WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5092	1455/5380
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.7
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Flow Ent AH		MLB/HR	7210	7246	7569
Ave Gas Temp Lvg AH (Incl Lkg)		F	281.6	---	317.3
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	316.3	334.5
Excess Air Lvg Econ		%	17.0	17.0	18.6
Excess Air Lvg AH		%	---	---	29.6
Excess Air to Burners		%	15.0	15.0	16.5
AH Leakage		MLB/HR	484	---	616
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.531
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	10.909
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.138
Losses		%			
Dry Gas			4.84	5.44	5.42
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.44	11.42
Efficiency		%	88.57	88.56	88.58
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7555.9	7602.8
Fuel Rate		MLB/HR	686.2	686.3	623.6

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5AC: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 TCH-080287

TEST 5AC: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 TCH-080287

EXCESS AIR = 0.00 O2 % = 3.96 CO % = 0.00 CO2 % = 15.20 SO2 % = 0.00
DRY AIR = 11.09 MOIS AIR = .051 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.531 WET GAS = 12.138 LB/LB FUEL MOIS GAS, % = 5.01

EXCESS AIR = 0.00 O2 % = 5.10 CO % = 0.00 CO2 % = 13.93 SO2 % = 0.00
DRY AIR = 12.12 MOIS AIR = .056 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.514 WET GAS = 13.127 LB/LB FUEL MOIS GAS, % = 4.66
Cpa = .242 Cpg = .254 AH LKG, % = 8.14 GAS LVG AH (EXCL LKG) = 334.5

TEST 5AC: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 TCH-080287

EXCESS AIR = 0.00 O2 % = 3.45 CO % = 0.00 CO2 % = 15.66 SO2 % = 0.00
DRY AIR = 10.77 MOIS AIR = .050 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.211 WET GAS = 11.817 LB/LB FUEL MOIS GAS, % = 5.13

EXCESS AIR = 0.00 O2 % = 6.18 CO % = 0.00 CO2 % = 13.06 SO2 % = 0.00
DRY AIR = 12.89 MOIS AIR = .060 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.304 WET GAS = 13.920 LB/LB FUEL MOIS GAS, % = 4.42
Cpa = .242 Cpg = .254 AH LKG, % = 17.79 GAS LVG AH (EXCL LKG) = 332.1

TEST SAC: 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-08028

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.96*	3.45*	6.18*	3.96*	4.66	5.10*
CO2,	%	15.20*	15.66*	13.06*	15.20*	14.10	13.93*
EXCESS AIR,	%	18.6	15.2	37.9	18.6	27.8	29.6
H2O IN GAS,	%	5.01	5.13	4.42	5.01	4.69	4.66
T AIR,	F		114.1*	472.5*	90.7*	655.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			472.8		649.3	
T GAS,	F	752.8*	740.0*	300.5*	745.5*	319.3	317.3*
H GAS,	BTU/LB			54.8		59.7	59.2
H GASC,	BTU/LB			63.1		63.7	63.7
T GAS (W/O LKG),	F			331.8		334.6	334.4
WT AIR,	KLB/HR			885.7		5380.0	0.0
WT GAS,	KLB/HR	7569.0	722.6	851.1	6846.4	7334.3	8185.4
AH LKG,	KLB/HR			128.5*		487.9	616.4*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 568.9
MOIS IN AIR, LB/LB DA = .0046

TEST 5AC : 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-080387

EXCESS AIR = 0.00 O2 % = 3.77 CO % = 0.00 CO2 % = 15.44 SO2 % = 0.00
DRY AIR = 10.91 MOIS AIR = .051 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.363 WET GAS = 11.970 LB/LB FUEL MOIS GAS, % = 5.07

EXCESS AIR = 0.00 O2 % = 6.88 CO % = 0.00 CO2 % = 12.43 SO2 % = 0.00
DRY AIR = 13.54 MOIS AIR = .063 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.950 WET GAS = 14.569 LB/LB FUEL MOIS GAS, % = 4.25
Cpa = .242 Cpg = .254 AH LKG, % = 21.71 GAS LVG AH (EXCL LKG) = 331.8

TEST 5AC : 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-080387

EXCESS AIR = 0.00 O2 % = 3.13 CO % = 0.00 CO2 % = 15.88 SO2 % = 0.00
DRY AIR = 10.63 MOIS AIR = .049 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.064 WET GAS = 11.670 LB/LB FUEL MOIS GAS, % = 5.19

EXCESS AIR = 0.00 O2 % = 5.47 CO % = 0.00 CO2 % = 13.70 SO2 % = 0.00
DRY AIR = 12.30 MOIS AIR = .057 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.718 WET GAS = 13.331 LB/LB FUEL MOIS GAS, % = 4.60
Cpa = .242 Cpg = .255 AH LKG, % = 14.24 GAS LVG AH (EXCL LKG) = 332.5

TEST 5AC: 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-080387

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.96*	3.45*	6.18*	3.96*	4.64	5.10*
CO2,	%	15.20* 55	15.66* 56	13.06* 59	15.20* 57	14.12 60	13.93*
EXCESS AIR,	%	18.6	15.2	37.9	18.6	27.7	29.6
H2O IN GAS,	%	5.01	5.13	4.42	5.01	4.70	4.66
T AIR,	F		114.1*	472.5*	90.7*	655.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			506.2		643.9	
T GAS,	F	752.8*	740.0*	300.5*	745.5*	319.5	317.3*
H GAS,	BTU/LB			54.8		59.7	59.2
H GASC,	BTU/LB			63.1		63.7	63.7
T GAS (W/O LKG),	F			331.8		334.6	334.4
WT AIR,	KLB/HR			885.7		5380.0	0.0
WT GAS,	KLB/HR	7569.0	791.0	931.7	6778.0	7253.7	8185.4
AH LKG,	KLB/HR			140.7*		475.7	616.4*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 568.9
MOIS IN AIR, LB/LB DA = .0046

PG-1980-1

Babcock & Wilcox
GENERAL CALCULATIONS

	WPAH	EPAH	WSAH	ESAH	TOTAL
MEAS GAS ENT	431.6	457.7	3488.3	4132.6	8510.2
CORR FACTOR/CALC TOTAL		.9187			7776
ADJUSTED GAS FLOW	394.4	418.2	3187.4	3776.1	
	812.6		6963.4		
O2 ENT	3.77	3.13			
CO2 ENT	15.44	15.88			
O2 LVG	6.88	5.47			
CO2 LVG	12.43	13.70			
% LKG	20.02	13.63			
TAIR ENT	117.4	110.7	90.7		
T LVG W/LKG	295	306	319.5		
T LVG W/O LKG	329.0	331.4	331.2		
W LKG	79	136 57	373		509
TAIR LVG	467	478	655		
TGAS ENT	742	738	745.5		
% MOIS	5.0		4.9		
HA ENT	9.02	7.4	2.58		
HA LVG	94.33	97.06	141.43		
HG ENT	170.74	169.66	171.54		
HG LVG	62.29	62.50	62.79		
W AIR LVG AH	501	999 498	5454		7078
W AIR BY-PASS					625
BY PASS HT BAL					569
MEAS TEMPER	742-93				649

CUSTOMER IPP	TEST NO. 5A		FILE NO. RB-614
SUBJECT CALC AIR/GAS FLOWS USING O2		PREPARED BY TCH	DATE 8/3/87

IP14_002222

PG-1980-I

Babcock & Wilcox
GENERAL CALCULATIONS

	WPAH	EPAH	WSAH	ESAH	TOTAL
MEAS GAS ENT	432	458	3488	4133	8511
CORR FACTOR/CALC TOTAL		.8893			7569
ADJUSTED GAS FLOW	384	407	6778		
	791				
O2 ENT	3.27	3.13	Cpa =		
CO2 ENT	15.44	15.88	Cpg =		
O2 LVG	6.88	5.47			
CO2 LVG	12.43	13.70			
% LKG	21.71	14.24			
TAIR ENT	117.4	110.7	90.7		
TG LVG W/LKG	295	306	319.5		
TG LVG W/O LKG	331.8	332.5	334.6		
W LKG	83.4	141.3 58.0	475.7		616
TAIR LVG	467	478	655		
TGAS ENT	742	738	745.5		
% MOIS	5.13		5.01		
HA ENT	9.02	7.40	2.6		
HA LVG	94.33	97.06	141.43		
HG ENT	170.93	169.85	171.71		
HG LVG	63.07	63.25	63.72		
W AIR LVG AH	486	969 484	5272		6835
W AIR By-PASS					594
By PRLV HT BAL					569

CUSTOMER IPP	TEST NO. SAC		FILE NO. RB-614
SUBJECT CALC AIR/GAS FLOWS - USING CO2		PREPARED BY TCH	DATE 8/3/87

IP14_002223

	CASE	TUE 21 6/23/87	WED 22 6/24/87	THUR 23 6/25/87	FRI 24 6/26/87
1	% Ash Coal	6.96	7.28	7.67	7.37
2					
3	% Carbon				
4	Fly Ash	.55	.76	.38	.64
5	Econ Ash	1.28	.46	.77	.35
6	Bottom Ash	.46	.34	.64	1.24
7					
8	[4] x .8	.44	.608	.304	.512
9	[5] x .05	.064	.023	.039	.018
10	[6] x .15	.069	.051	.096	.186
11	Ave % C refuse	.573	.682	.4385	.7155
12					
13	UBC = $\frac{[1] * [11]}{100 - [11]}$, %	.04	.05	.034	.053
14					
15					
16					
17	% C	65.93	66.74	67.27	68.61
18	H2	5.54	5.61	5.44	5.40
19	S	.55	.54	.52	.57
20	O2	12.25	10.96	10.63	9.63
21					
22	HHV	12263	12110	12080	12192
23					
24	Theo Air, LB/10KB	7.325	7.560	7.592	7.675

CALCULATION OF UNBURNED CARBON

TCH
7/24/87

			6/24	6/25	6/26
BH W			18.36	18.41	18.41
BH C			18.53	18.46	18.37
BH E			18.44	18.42	18.98
ECON	W	A-G	18.83	18.85	18.85
"	W	H-N	18.60	18.63	18.66
"	E	A-G	18.57	18.63	18.65
"	E	H-N	18.72	18.72	18.68
WEST	PRI	GAS IN	18.62	18.60	18.80
"	"	" OUT	18.78	18.61	18.44
EAST	PRI	GAS IN	18.57	18.58	18.66
"	"	" OUT	18.61	18.77	18.54
AVE			18.60	18.61	18.59

AVERAGE CO2 AT Ø O2

LINEAR REGRESSION ANALYSIS RESULTS

TCH

TEST 6/26 ARITH AVE/WTD AVE

		T	O2	CO2
BH IN	AVE	317.3/316.0	5.10/5.10	13.93/13.94
	L	311.3/309.7	5.31/5.33	13.73/13.72
	R	323.3/321.8	4.90/4.89	14.13/14.15
ECON	L	757.5/756.9	4.22/4.18	14.99/15.04
	R	748.0/746.5	3.69/3.86	15.41/15.26
	AVE	752.1/751.0	3.92/4.00	15.23/15.16
PAH GAS IN		740/739.9	3.45/3.44	15.66/15.67
PAH GAS OUT		300.5/300.6	6.18/6.16	13.07/13.08
PAH AIR OUT		472.5/472.4		
TEMP AIR		116.0/115.7		

TEST 5A : 06/26/87 : SEC AH / O2 / PLANT PA FLOW TCH-080587

	BASE	NEW		BASE	NEW			
GAS WT ENT =	6286	7055	AIR WT LVG =	5184	5622	MOIST =	6.6	4.9
GAS TEMP ENT =	736	746	GAS TEMP LVG =	292	324	EXCL. LKG		
AH LKG, %		5.50	GAS TEMP LVG =		313	INCL. LKG		
			AVE COLD END =	178	208			
AIR TEMP ENT =	64	91	AIR TEMP LVG =	647	664			

TEST 5M : 06/26/87 : SEC AH / O2 / MEAS AIR-GAS FLOW TCH-080587

	BASE	NEW		BASE	NEW			
GAS WT ENT =	6286	6961	AIR WT LVG =	5184	5452	MOIST =	6.6	4.9
GAS TEMP ENT =	736	746	GAS TEMP LVG =	292	329	EXCL. LKG		
AH LKG, %		5.50	GAS TEMP LVG =		317	INCL. LKG		
			AVE COLD END =	178	210			
AIR TEMP ENT =	64	91	AIR TEMP LVG =	647	668			

TEST 5MC: 06/26/87 : SEC AH / CO2 / MEAS AIR-GAS FLOW TCH-080587

	BASE	NEW		BASE	NEW			
GAS WT ENT =	6286	6777	AIR WT LVG =	5184	5270	MOIST =	6.6	5.0
GAS TEMP ENT =	736	746	GAS TEMP LVG =	292	330	EXCL. LKG		
AH LKG, %		6.82	GAS TEMP LVG =		316	INCL. LKG		
			AVE COLD END =	178	211			
AIR TEMP ENT =	64	91	AIR TEMP LVG =	647	670			

TEST 5M : 06/26/87 : W PRI AH / O2 / MEAS AIR-GAS FLOW TCH-081
887

	BASE	NEW		BASE	NEW	
GAS WT ENT =	924	788	AIR WT LVG =	837	1020	MOIST = 6.0 4.9
GAS TEMP ENT =	736	742	GAS TEMP LVG =	313	267	EXCL. LKG
AH LKG, %		20.05	GAS TEMP LVG =		245	INCL. LKG
			AVE COLD END =	195	196	
AIR TEMP ENT =	77	124	AIR TEMP LVG =	582	519	

TEST 5M : 06/26/87 : E PRI AH / O2 / MEAS AIR-GAS FLOW TCH-081
887

	BASE	NEW		BASE	NEW	
GAS WT ENT =	924	836	AIR WT LVG =	837	988	MOIST = 6.0 4.9
GAS TEMP ENT =	736	738	GAS TEMP LVG =	313	272	EXCL. LKG
AH LKG, %		13.64	GAS TEMP LVG =		253	INCL. LKG
			AVE COLD END =	195	189	
AIR TEMP ENT =	77	106	AIR TEMP LVG =	582	531	

TEST 5MC: 06/26/87 : W PRI AH / CO2 / MEAS AIR-GAS FLOW TCH-081
887

	BASE	NEW		BASE	NEW	
GAS WT ENT =	924	768	AIR WT LVG =	837	988	MOIST = 6.0 4.9
GAS TEMP ENT =	736	742	GAS TEMP LVG =	313	267	EXCL. LKG
AH LKG, %		21.61	GAS TEMP LVG =		243	INCL. LKG
			AVE COLD END =	195	196	
AIR TEMP ENT =	77	124	AIR TEMP LVG =	582	522	

TEST 5MC: 06/26/87 : E PRI AH / CO2 / MEAS AIR-GAS FLOW TCH-081
887

	BASE	NEW		BASE	NEW	
GAS WT ENT =	924	814	AIR WT LVG =	837	954	MOIST = 6.0 5.0
GAS TEMP ENT =	736	738	GAS TEMP LVG =	313	273	EXCL. LKG
AH LKG, %		14.25	GAS TEMP LVG =		253	INCL. LKG
			AVE COLD END =	195	189	
AIR TEMP ENT =	77	106	AIR TEMP LVG =	582	534	

ATTACHMENT F

TRAVERSE DATA & CALCULATIONS - TEST 6/26/87

Revised 10/23/87
Calibrated probes

Fuel #26

Date. 6/26/87

	W	P	T	O_2	CO_2
West BH In	3,313,353	-9.0	297	5.46	13.60
Center BH In	2,642,276	-8.5	340	4.47	14.00
East BH In	3,509,273	-8.9	315	4.85	14.20
AVE			315.7	5.10	13.93
Econ W A-G	2,187,910	-3.6	753	3.90	15.33
W H-N	1,644,871	-2.4	762	4.58	14.60
E A-G	3,099,993	-3.3	741	4.32	14.81
E H-N	1,979,677	-3.3	754	3.05	16.00
AVE			750.7	3.98	15.16
PAH W Gas In	489,876	-4.0	742	3.76	15.44
Gas Out	330,995	-8.5	295	6.88	12.42
Air Out	431,883	31.0	467	—	—
Temp	432,345	32.0	112	—	—
PAH E Gas In	517,674	-4.0	735	3.13	15.86
Gas Out	347,584	-8.5	306	5.47	13.70
Air Out	416,162	31.0	478	—	—
Temp	432,345	32.0	112	—	—
SAH W Air Out	3,448,815	2.6	652	—	—
E Air Out	3,512,223	2.6	657	—	—
W Gas In	3,728,327	-3.8	744	4.50	15.10
E Gas In	4,417,818	-3.9	747	3.70	15.40
Wet Bulb					
Dry Bulb					
Barometric Press.					
Moisture in Air					
SEC Air in West .495 × ~~94.7~~	94.1				
East .505 × ~~87.3~~ ~~44.2~~	87.3				
	90.7				
PRI Air in West .509 × ~~114.7~~	117.4				
East .491 × ~~112.5~~ ~~114.7~~	110.7				
	114.1				

SUMMARY

REV 10/23/87

IP14_002231

DATE = 6-26-87
LOCATION = BAG IN WEST
FILE IDENITY = IP6_26BHW
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-44
DUCT HEIGHT = 19.3
DUCT WIDTH = 18.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-8.8	296	.302	5	5.3	13.9
1	2	-8.9	296	.378	5	5.2	13.7
1	3	-9.1	294	.507	0	5.8	13.1
1	4	-8.9	289	.568	0	6.1	13.0
1	5	-9.0	286	.595	0	6.5	12.7
1	6	-8.9	285	.493	0	6.1	13.1
1	7	-9.0	284	.544	7	6.5	12.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-8.7	298	.549	0	5.3	13.7
2	2	-8.7	297	.505	5	5.4	13.7
2	3	-8.9	294	.158	0	6.2	12.9
2	4	-8.9	290	.051	5	6.2	12.9
2	5	-9.0	288	.354	0	6.4	12.5
2	6	-9.0	288	.341	0	6.2	13.0
2	7	-9.0	288	.234	0	5.7	13.1

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-8.9	301	.144	0	5.3	13.9
3	2	-9.2	299	.344	0	5.2	14.0
3	3	-9.2	295	.361	1	5.9	13.4
3	4	-9.2	294	1.196	7	5.8	13.4
3	5	-9.0	292	1.186	6	5.7	13.3
3	6	-8.7	292	1.013	0	6.0	13.0
3	7	-8.9	294	.551	4	5.8	13.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-9.0	303	.871	5	5.2	13.8
4	2	-9.1	298	.156	2	5.4	13.7
4	3	-9.3	294	.302	2	5.8	13.2
4	4	-9.2	296	.339	0	6.0	13.0
4	5	-9.1	302	.295	2	5.6	13.4
4	6	-9.1	295	.290	0	5.4	13.6
4	7	-9.2	298	.427	0	5.3	13.9

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-9.0	305	.425	4	4.8	14.2
5	2	-8.9	304	.395	4	5.5	13.7
5	3	-9.0	300	.446	7	5.7	13.6
5	4	-9.0	295	.390	6	5.8	13.4
5	5	-9.0	292	.412	4	5.7	13.5
5	6	-9.1	299	.363	2	5.7	13.5
5	7	-9.1	299	.522	0	5.1	14.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-9.0	305	.283	5	4.9	14.1
6	2	-9.1	303	.302	2	5.2	13.8
6	3	-9.1	299	.468	5	5.0	14.0
6	4	-9.0	297	.449	0	5.5	13.5
6	5	-9.1	295	.456	2	5.4	13.6
6	6	-9.0	296	.324	0	5.2	13.8
6	7	-9.1	299	.424	0	5.2	14.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-9.1	308	.151	20	4.9	14.3
7	2	-9.1	306	.053	5	4.9	14.3
7	3	-9.3	305	.007	12	4.8	14.3
7	4	-9.4	300	.046	7	5.3	13.9
7	5	-9.4	299	.104	6	5.4	13.8
7	6	-9.2	300	.031	4	5.2	14.0
7	7	-9.1	299	.278	2	5.3	13.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
8	1	-8.9	309	.637	10	4.3	14.7
8	2	-9.0	308	.644	15	5.1	14.0
8	3	-9.0	304	.114	10	4.4	14.6
8	4	-9.0	303	.761	0	4.8	14.2
8	5	-9.1	301	.107	10	* 4.9	*13.7
8	6	-9.1	301	.131	10	4.7	14.2
8	7	-8.9	303	.615	5	4.6	14.3

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = BAG IN WEST
FILE IDENITY = IP6_26BHW
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-44
A0 = 1.23619E+00
A1 = -8.35970E-06
A2 = 2.84819E-10
A3 = -3.25479E-15
A4 = 7.18749E-21
DUCT AREA = 346.5

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	3322	5.3	13.9	.92/ .92	4.9	12.7	273
1	2	3709	5.2	13.7	1.02/1.03	5.3	14.0	305
1	3	4299	5.8	13.1	1.18/1.19	6.9	15.5	351
1	4	4531	6.1	13.0	1.25/1.26	7.6	16.2	364
1	5	4628	6.5	12.7	1.28/1.29	8.3	16.2	368
1	6	4212	6.1	13.1	1.16/1.17	7.1	15.2	333
1	7	4388	6.5	12.8	1.21/1.22	7.9	15.5	346

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	4478	5.3	13.7	1.23/1.24	6.5	16.9	371
2	2	4278	5.4	13.7	1.18/1.19	6.4	16.1	353
2	3	2434	6.2	12.9	.67/ .68	4.2	8.7	199
2	4	1396	6.2	12.9	.38/ .39	2.4	5.0	112
2	5	3592	6.4	12.5	.99/1.00	6.3	12.4	287
2	6	3524	6.2	13.0	.97/ .98	6.0	12.6	282
2	7	2933	5.7	13.1	.81/ .81	4.6	10.6	235

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	2335	5.3	13.9	.64/ .65	3.4	8.9	195
3	2	3563	5.2	14.0	.98/ .99	5.1	13.7	296
3	3	3640	5.9	13.4	1.00/1.01	5.9	13.4	298
3	4	6554	5.8	13.4	1.81/1.82	10.5	24.2	535
3	5	6530	5.7	13.3	1.80/1.81	10.3	23.9	530
3	6	6060	6.0	13.0	1.67/1.68	10.0	21.7	491
3	7	4465	5.8	13.4	1.23/1.24	7.1	16.5	365

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TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	5634	5.2	13.8	1.55/1.56	8.1	21.4	474
4	2	2423	5.4	13.7	.67/ .67	3.6	9.1	201
4	3	3334	5.8	13.2	.92/ .93	5.3	12.1	272
4	4	3535	6.0	13.0	.97/ .98	5.8	12.7	291
4	5	3313	5.6	13.4	.91/ .92	5.1	12.2	278
4	6	3270	5.4	13.6	.90/ .91	4.9	12.3	268
4	7	3958	5.3	13.9	1.09/1.10	5.8	15.2	328

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	3956	4.8	14.2	1.09/1.10	5.2	15.5	335
5	2	3816	5.5	13.7	1.05/1.06	5.8	14.4	322
5	3	4019	5.7	13.6	1.11/1.12	6.3	15.1	335
5	4	3759	5.8	13.4	1.04/1.04	6.0	13.9	308
5	5	3865	5.7	13.5	1.06/1.07	6.1	14.4	313
5	6	3657	5.7	13.5	1.01/1.02	5.7	13.6	304
5	7	4372	5.1	14.0	1.20/1.21	6.1	16.9	363

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	3239	4.9	14.1	.89/ .90	4.4	12.6	274
6	2	3351	5.2	13.8	.92/ .93	4.8	12.7	282
6	3	4127	5.0	14.0	1.14/1.15	5.7	15.9	343
6	4	4056	5.5	13.5	1.12/1.13	6.1	15.1	335
6	5	4079	5.4	13.6	1.12/1.13	6.1	15.3	334
6	6	3453	5.2	13.8	.95/ .96	4.9	13.1	284
6	7	3946	5.2	14.0	1.09/1.10	5.7	15.2	328

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	2256	4.9	14.3	.62/ .63	3.0	8.9	193
7	2	1436	4.9	14.3	.40/ .40	1.9	5.7	122
7	3	523	4.8	14.3	.14/ .15	.7	2.1	44
7	4	1331	5.3	13.9	.37/ .37	1.9	5.1	111
7	5	1982	5.4	13.8	.55/ .55	2.9	7.5	165
7	6	1103	5.2	14.0	.30/ .31	1.6	4.3	92
7	7	3210	5.3	13.8	.88/ .89	4.7	12.2	267

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
8	1	4779	4.3	14.7	1.32/1.33	5.7	19.4	410
8	2	4713	5.1	14.0	1.30/1.31	6.6	18.2	403
8	3	2056	4.4	14.6	.57/ .57	2.5	8.3	174
8	4	5284	4.8	14.2	1.46/1.47	7.0	20.7	445
8	5	1993	4.9	13.7	.55/ .55	0.0	0.0	167
8	6	2197	4.7	14.2	.61/ .61	2.8	8.6	184
8	7	4733	4.6	14.3	1.30/1.31	6.0	18.6	398

REV 10/20/87

LOCATION = BAG IN WEST
FILE IDENITY = IP6_26BHW

AVERAGE VELOCITY = 3601 FPM

AVERAGE (WEIGHTED) % O2 = 5.48 *
AVERAGE (WEIGHTED) % CO2 = 13.60 *
AVERAGE (WEIGHTED) TEMPERATURE = 297

AVERAGE (ARITHMETIC) % O2 = 5.45 *
AVERAGE (ARITHMETIC) % CO2 = 13.64 *
AVERAGE (ARITHMETIC) TEMPERATURE = 297

AVERAGE STATIC PRESSURE (in. H2O) = -9.0
AVERAGE DENSITY (LBM/FT^3) = .04426

ACFM (ACTUAL FT^3/MIN) = 1247598
LB/HR (WET) = 3313383

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 1 OUT OF 56

REV 10/20/87

LOCATION = BAG IN WEST
FILE IDENITY = IP6_26BHW

AVERAGE VELOCITY = 3601 FPM

AVERAGE (WEIGHTED) % O2 = 5.48
AVERAGE (WEIGHTED) % CO2 = 13.60
AVERAGE (WEIGHTED) TEMPERATURE = 297

AVERAGE (ARITHMETIC) % O2 = 5.44
AVERAGE (ARITHMETIC) % CO2 = 13.64
AVERAGE (ARITHMETIC) TEMPERATURE = 297

AVERAGE STATIC PRESSURE (in. H2O) = -9.0
AVERAGE DENSITY (LBM/FT^3) = .04426

ACFM (ACTUAL FT^3/MIN) = 1247598
LB/HR (WET) = 3313383

REV 10/20/87

DATE = 6-26-87
LOCATION = BAG IN CENTER
FILE IDENITY = IP6_26BHC
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-42
DUCT HEIGHT = 19.3
DUCT WIDTH = 18.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-8.5	317	.441	20	5.3	13.8
1	2	-8.6	318	.065	25	5.4	13.6
1	3	-8.6	317	.007	15	5.5	13.7
1	4	-8.5	316	.485	5	5.6	13.5
1	5	-8.5	316	.031	10	5.3	13.8
1	6	-8.5	314	.100	25	5.0	14.0
1	7	-8.3	315	.314	20	5.2	13.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-8.4	321	.046	5	5.0	14.1
2	2	-8.4	322	.104	5	5.2	14.0
2	3	-8.4	322	.209	10	5.0	13.8
2	4	-8.2	322	.197	5	5.3	13.7
2	5	-8.4	322	.376	10	5.4	13.6
2	6	-8.4	321	.305	5	4.9	13.9
2	7	-8.7	318	.129	10	5.5	13.6

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-8.6	328	.129	0	5.0	14.0
3	2	-8.6	324	.175	5	5.2	13.9
3	3	-8.4	328	.175	20	5.3	13.9
3	4	-8.6	330	.319	10	5.0	13.7
3	5	-8.4	329	.388	5	5.6	13.2
3	6	-8.2	328	.297	10	5.3	13.9
3	7	-8.2	329	.314	10	5.3	13.9

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-8.6	345	.297	10	4.6	14.4
4	2	-8.6	342	.495	0	4.9	14.0
4	3	-8.8	344	.537	0	4.8	14.2
4	4	-8.8	345	.522	10	5.2	14.0
4	5	-8.9	341	.429	10	5.1	13.9
4	6	-8.8	338	.493	5	4.9	13.8
4	7	-8.6	335	.510	10	5.1	13.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-8.6	347	.268	5	4.9	14.0
5	2	-8.5	348	.542	0	4.6	14.2
5	3	-8.7	346	.632	10	4.8	13.9
5	4	-8.4	343	.559	5	4.8	14.0
5	5	-8.5	342	.554	10	5.0	14.0
5	6	-8.7	340	.546	10	5.0	13.9
5	7	-8.7	339	.502	10	4.7	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-8.4	348	.090	5	4.8	14.2
6	2	-8.5	353	.434	10	4.8	14.2
6	3	-8.6	354	.546	0	4.8	14.3
6	4	-8.4	355	.644	5	5.0	14.0
6	5	-8.5	355	.512	10	5.0	13.9
6	6	-8.6	354	.437	0	4.6	14.4
6	7	-8.5	350	.400	10	4.6	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-8.6	350	.017	0	4.9	14.2
7	2	-8.8	351	.026	15	5.0	14.1
7	3	-8.8	354	.166	20	4.9	14.2
7	4	-8.7	355	.329	10	4.8	14.2
7	5	-8.8	357	.478	0	4.7	14.1
7	6	-8.7	356	.356	0	4.8	14.4
7	7	-8.5	351	.534	5	5.0	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
8	1	-8.2	350	.649	10	4.4	14.6
8	2	-8.5	351	.031	20	5.0	14.2
8	3	-8.5	353	.065	20	4.6	14.5
8	4	-8.6	355	.195	10	5.0	14.0
8	5	-8.6	355	.024	10	4.7	14.1
8	6	-8.7	352	.007	20	4.9	14.1
8	7	-8.5	350	.122	10	4.6	14.4

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = BAG IN CENTER
FILE IDENITY = IP6_26BHC
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-42
AO = 1.10891E+00
A1 = 1.05741E-06
A2 = -1.55805E-10
A3 = 4.83148E-15
A4 = -4.33794E-20
DUCT AREA = 346.5

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	3633	5.3	13.8	1.20/1.20	6.4	16.6	381
1	2	1356	5.4	13.6	.45/ .45	2.4	6.1	143
1	3	474	5.5	13.7	.16/ .16	.9	2.2	50
1	4	4036	5.6	13.5	1.34/1.34	7.5	18.0	422
1	5	1017	5.3	13.8	.34/ .34	1.8	4.6	106
1	6	1676	5.0	14.0	.55/ .55	2.8	7.8	174
1	7	3068	5.2	13.8	1.02/1.02	5.3	14.0	320

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	1256	5.0	14.1	.42/ .42	2.1	5.9	133
2	2	1888	5.2	14.0	.63/ .63	3.3	8.8	201
2	3	2641	5.0	13.8	.87/ .87	4.4	12.1	282
2	4	2594	5.3	13.7	.86/ .86	4.6	11.8	277
2	5	3532	5.4	13.6	1.17/1.17	6.3	15.9	377
2	6	3219	4.9	13.9	1.07/1.07	5.2	14.8	342
2	7	2074	5.5	13.6	.69/ .69	3.8	9.3	218

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	2119	5.0	14.0	.70/ .70	3.5	9.8	230
3	2	2450	5.2	13.9	.81/ .81	4.2	11.3	263
3	3	2316	5.3	13.9	.77/ .77	4.1	10.7	252
3	4	3275	5.0	13.7	1.08/1.08	5.4	14.9	358
3	5	3647	5.6	13.2	1.21/1.21	6.8	15.9	397
3	6	3154	5.3	13.9	1.04/1.04	5.5	14.5	342
3	7	3244	5.3	13.9	1.07/1.07	5.7	14.9	353

REV 10/20/87

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	3189	4.6	14.4	1.06/1.06	4.9	15.2	364
4	2	4161	4.9	14.0	1.38/1.38	6.8	19.3	471
4	3	4337	4.8	14.2	1.44/1.44	6.9	20.4	494
4	4	4216	5.2	14.0	1.40/1.40	7.3	19.5	482
4	5	3818	5.1	13.9	1.26/1.26	6.4	17.6	431
4	6	4129	4.9	13.8	1.37/1.37	6.7	18.9	462
4	7	4142	5.1	13.7	1.37/1.37	7.0	18.8	459

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	3071	4.9	14.0	1.02/1.02	5.0	14.2	353
5	2	4367	4.6	14.2	1.45/1.45	6.7	20.5	503
5	3	4636	4.8	13.9	1.54/1.54	7.4	21.3	531
5	4	4403	4.8	14.0	1.46/1.46	7.0	20.4	500
5	5	4331	5.0	14.0	1.43/1.43	7.2	20.1	490
5	6	4297	5.0	13.9	1.42/1.42	7.1	19.8	484
5	7	4118	4.7	14.2	1.36/1.36	6.4	19.4	462

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	1786	4.8	14.2	.59/ .59	2.8	8.4	206
6	2	3866	4.8	14.2	1.28/1.28	6.1	18.2	452
6	3	4399	4.8	14.3	1.46/1.46	7.0	20.8	516
6	4	4758	5.0	14.0	1.58/1.58	7.9	22.1	559
6	5	4202	5.0	13.9	1.39/1.39	7.0	19.3	494
6	6	3941	4.6	14.4	1.30/1.30	6.0	18.8	462
6	7	3707	4.6	14.2	1.23/1.23	5.6	17.4	430

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	781	4.9	14.2	.26/ .26	1.3	3.7	90
7	2	934	5.0	14.1	.31/ .31	1.5	4.4	109
7	3	2294	4.9	14.2	.76/ .76	3.7	10.8	269
7	4	3377	4.8	14.2	1.12/1.12	5.4	15.9	397
7	5	4131	4.7	14.1	1.37/1.37	6.4	19.3	488
7	6	3567	4.8	14.4	1.18/1.18	5.7	17.0	420
7	7	4326	5.0	14.2	1.43/1.43	7.2	20.3	503

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
8	1	4702	4.4	14.6	1.56/1.56	6.8	22.7	545
8	2	991	5.0	14.2	.33/ .33	1.6	4.7	115
8	3	1436	4.6	14.5	.48/ .48	2.2	6.9	168
8	4	2606	5.0	14.0	.86/ .86	4.3	12.1	306
8	5	917	4.7	14.1	.30/ .30	1.4	4.3	108
8	6	471	4.9	14.1	.16/ .16	.8	2.2	55
8	7	2057	4.6	14.4	.68/ .68	3.1	9.8	238

REV 10/20/87

LOCATION = BAG IN CENTER
FILE IDENITY = IP6_26BHC

AVERAGE VELOCITY = 3020 FPM

AVERAGE (WEIGHTED) % O2 = 4.97 *
AVERAGE (WEIGHTED) % CO2 = 14.00 *
AVERAGE (WEIGHTED) TEMPERATURE = 340

AVERAGE (ARITHMETIC) % O2 = 4.99 *
AVERAGE (ARITHMETIC) % CO2 = 14.00 *
AVERAGE (ARITHMETIC) TEMPERATURE = 339

AVERAGE STATIC PRESSURE (in. H2O) = -8.5
AVERAGE DENSITY (LBM/FT^3) = .04208

ACFM (ACTUAL FT^3/MIN) = 1046508
LB/HR (WET) = 2642278

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 56

REV 10/20/87

LOCATION = BAG IN CENTER
FILE IDENITY = IP6_26BHC

AVERAGE VELOCITY = 3020 FPM

AVERAGE (WEIGHTED) % O2 = 4.97
AVERAGE (WEIGHTED) % CO2 = 14.00
AVERAGE (WEIGHTED) TEMPERATURE = 340

AVERAGE (ARITHMETIC) % O2 = 4.99
AVERAGE (ARITHMETIC) % CO2 = 14.00
AVERAGE (ARITHMETIC) TEMPERATURE = 339

AVERAGE STATIC PRESSURE (in. H2O) = -8.5
AVERAGE DENSITY (LBM/FT^3) = .04208

ACFM (ACTUAL FT^3/MIN) = 1046508
LB/HR (WET) = 2642278

REV 10/20/87

CENTER BAG HOUSE INLET DATA FOR LEFT AND RIGHT SIDES
FILE IDENTITY = IP6_26BHC:

	AVG FLOW	L/R	1242.8	1399.5
	AVG TEMP	L/R	326.68	350.50
WT'D	AVG TEMP	L/R	328.97	350.02
	AVG O2	L/R	5.17	4.81
WT'D	AVG O2	L/R	5.15	4.80
	AVG CO2	L/R	13.84	14.17
WT'D	AVG CO2	L/R	13.83	14.16

DATE = 6-26-87
LOCATION = BAG IN EAST
FILE IDENITY = IP6_26BHE
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-45
DUCT HEIGHT = 19.3
DUCT WIDTH = 18.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-8.8	323	.120	90	4.6	14.6
1	2	-8.8	320	.370	25	4.7	14.5
1	3	-8.8	315	.040	10	4.6	14.4
1	4	-8.8	315	.850	15	4.6	14.3
1	5	-8.8	313	.300	30	4.8	14.4
1	6	-8.5	311	.510	20	4.6	14.6
1	7	-8.5	312	.790	15	4.6	14.5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-8.8	322	.410	35	4.4	14.8
2	2	-8.8	314	.390	5	4.7	14.6
2	3	-9.0	303	.210	5	* 4.4	*14.2
2	4	-9.0	300	.320	20	5.4	13.8
2	5	-9.0	305	.300	15	5.2	13.8
2	6	-9.0	323	.430	25	4.8	14.2
2	7	-8.8	314	.620	20	5.4	13.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-8.8	321	.550	20	4.7	14.5
3	2	-8.8	308	.530	20	4.9	14.2
3	3	-8.8	308	.650	10	4.9	14.1
3	4	-9.0	308	.710	0	4.9	14.0
3	5	-8.8	308	.550	10	5.0	14.0
3	6	-9.0	309	.540	15	5.5	13.7
3	7	-8.8	315	.630	15	4.8	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-9.0	305	.690	30	4.6	14.6
4	2	-9.0	273	.590	10	5.1	14.0
4	3	-9.0	263	.580	25	5.0	14.0
4	4	-9.0	268	.560	25	5.3	13.8
4	5	-9.0	281	.590	25	5.2	13.7
4	6	-9.0	310	.600	15	5.2	13.8
4	7	-8.8	328	.730	5	4.5	14.5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-9.0	319	.520	10	4.6	14.3
5	2	-9.0	292	.520	10	4.6	14.4
5	3	-8.8	288	.520	20	4.8	14.2
5	4	-8.8	289	.520	15	4.9	14.2
5	5	-9.0	302	.500	15	5.2	13.9
5	6	-9.0	314	.520	10	4.8	14.2
5	7	-9.2	329	.600	0	4.7	14.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-8.5	337	.400	5	4.8	14.2
6	2	-8.8	358	.400	10	4.8	14.3
6	3	-9.0	368	.450	15	4.7	14.6
6	4	-8.8	370	.430	5	4.8	14.3
6	5	-8.8	371	.410	0	5.1	13.9
6	6	-8.8	362	.400	5	4.8	14.2
6	7	-9.0	342	.500	10	4.8	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-9.0	316	.540	0	4.4	14.8
7	2	-9.0	300	.520	0	4.4	14.8
7	3	-9.0	285	.540	5	4.7	14.5
7	4	-9.0	292	.420	0	5.1	13.8
7	5	-9.0	293	.520	5	5.3	13.8
7	6	-9.0	308	.550	0	4.8	14.4
7	7	-9.0	332	.180	65	4.7	14.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
8	1	-9.0	337	.580	0	4.6	14.6
8	2	-9.0	319	.570	5	4.7	14.2
8	3	-9.2	322	.670	0	4.7	14.2
8	4	-9.0	330	.700	0	4.7	14.1
8	5	-9.0	326	.690	5	5.2	13.8
8	6	-9.0	336	.640	10	4.6	14.2
8	7	-9.0	339	.660	5	5.6	13.5

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = BAG IN EAST
FILE IDENITY = IP6_26BHE
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-45
AO = 9.51682E-01
A1 = 1.99376E-05
A2 = -9.37778E-10
A3 = 1.88580E-14
A4 = -1.36877E-19
DUCT AREA = 346.5

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	0	4.6	14.6	0.00/0.00	0.0	0.0	0
1	2	3197	4.7	14.5	.82/ .82	3.8	11.8	263
1	3	1066	4.6	14.4	.27/ .27	1.3	3.9	86
1	4	5192	4.6	14.3	1.32/1.33	6.1	18.9	420
1	5	2728	4.8	14.4	.70/ .70	3.3	10.0	219
1	6	3888	4.6	14.6	.99/1.00	4.6	14.5	310
1	7	4992	4.6	14.5	1.27/1.28	5.9	18.5	400

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	3051	4.4	14.8	.78/ .78	3.4	11.5	252
2	2	3598	4.7	14.6	.92/ .92	4.3	13.4	290
2	3	2589	4.4	14.2	.66/ .66	0.0	0.0	201
2	4	3040	5.4	13.8	.78/ .78	4.2	10.7	234
2	5	3030	5.2	13.8	.77/ .78	4.0	10.7	237
2	6	3464	4.8	14.2	.88/ .89	4.2	12.5	287
2	7	4307	5.4	13.7	1.10/1.11	5.9	15.1	347

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	4067	4.7	14.5	1.04/1.04	4.9	15.0	335
3	2	3961	4.9	14.2	1.01/1.02	5.0	14.4	313
3	3	4605	4.9	14.1	1.17/1.18	5.8	16.6	364
3	4	4891	4.9	14.0	1.25/1.26	6.1	17.5	387
3	5	4231	5.0	14.0	1.08/1.09	5.4	15.1	335
3	6	4115	5.5	13.7	1.05/1.06	5.8	14.4	326
3	7	4465	4.8	14.2	1.14/1.15	5.5	16.2	361

REV 10/20/87

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	4165	4.6	14.6	1.06/1.07	4.9	15.5	326
4	2	4288	5.1	14.0	1.09/1.10	5.6	15.3	301
4	3	3887	5.0	14.0	.99/1.00	5.0	13.9	262
4	4	3832	5.3	13.8	.98/ .98	5.2	13.5	264
4	5	3969	5.2	13.7	1.01/1.02	5.3	13.9	286
4	6	4345	5.2	13.8	1.11/1.12	5.8	15.3	346
4	7	5000	4.5	14.5	1.28/1.28	5.7	18.5	421

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	4140	4.6	14.3	1.06/1.06	4.9	15.1	339
5	2	4071	4.6	14.4	1.04/1.05	4.8	15.0	305
5	3	3874	4.8	14.2	.99/ .99	4.7	14.0	286
5	4	3985	4.9	14.2	1.02/1.02	5.0	14.4	296
5	5	3939	5.2	13.9	1.01/1.01	5.2	14.0	305
5	6	4127	4.8	14.2	1.05/1.06	5.1	15.0	333
5	7	4550	4.7	14.4	1.16/1.17	5.5	16.7	384

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	3694	4.8	14.2	.94/ .95	4.5	13.4	320
6	2	3695	4.8	14.3	.94/ .95	4.5	13.5	340
6	3	3874	4.7	14.6	.99/ .99	4.6	14.4	366
6	4	3907	4.8	14.3	1.00/1.00	4.8	14.3	371
6	5	3828	5.1	13.9	.98/ .98	5.0	13.6	365
6	6	3747	4.8	14.2	.96/ .96	4.6	13.6	348
6	7	4113	4.8	14.2	1.05/1.06	5.0	14.9	361

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	4276	4.4	14.8	1.09/1.10	4.8	16.1	347
7	2	4153	4.4	14.8	1.06/1.07	4.7	15.7	320
7	3	4178	4.7	14.5	1.07/1.07	5.0	15.5	306
7	4	3707	5.1	13.8	.95/ .95	4.8	13.1	278
7	5	4122	5.3	13.8	1.05/1.06	5.6	14.5	310
7	6	4296	4.8	14.4	1.10/1.10	5.3	15.8	340
7	7	1028	4.7	14.4	.26/ .26	1.2	3.8	88

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
8	1	4491	4.6	14.6	1.15/1.15	5.3	16.7	389
8	2	4389	4.7	14.2	1.12/1.13	5.3	15.9	359
8	3	4793	4.7	14.2	1.22/1.23	5.7	17.4	396
8	4	4924	4.7	14.1	1.26/1.26	5.9	17.7	417
8	5	4858	5.2	13.8	1.24/1.25	6.4	17.1	407
8	6	4650	4.6	14.2	1.19/1.19	5.5	16.8	401
8	7	4788	5.6	13.5	1.22/1.23	6.8	16.5	417

REV 10/20/87

LOCATION = BAG IN EAST
FILE IDENITY = IP6_26BHE

AVERAGE VELOCITY = 3896 FPM

AVERAGE (WEIGHTED) % O2 = 4.86 *
AVERAGE (WEIGHTED) % CO2 = 14.20 *
AVERAGE (WEIGHTED) TEMPERATURE = 315

AVERAGE (ARITHMETIC) % O2 = 4.85 *
AVERAGE (ARITHMETIC) % CO2 = 14.21 *
AVERAGE (ARITHMETIC) TEMPERATURE = 316

AVERAGE STATIC PRESSURE (in. H2O) = -8.9
AVERAGE DENSITY (LBM/FT^3) = .04333

ACFM (ACTUAL FT^3/MIN) = 1349862
LB/HR (WET) = 3509273

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 1 OUT OF 56

REV 10/20/87

LOCATION = BAG IN EAST
FILE IDENITY = IP6_26BHE

AVERAGE VELOCITY = 3896 FPM

AVERAGE (WEIGHTED) % O2 = 4.85
AVERAGE (WEIGHTED) % CO2 = 14.20
AVERAGE (WEIGHTED) TEMPERATURE = 315

AVERAGE (ARITHMETIC) % O2 = 4.84
AVERAGE (ARITHMETIC) % CO2 = 14.21
AVERAGE (ARITHMETIC) TEMPERATURE = 316

AVERAGE STATIC PRESSURE (in. H2O) = -8.9
AVERAGE DENSITY (LBM/FT^3) = .04333

ACFM (ACTUAL FT^3/MIN) = 1349862
LB/HR (WET) = 3509273

REV 10/20/87

DATE = 6-26-87
LOCATION = ECON WEST
FILE IDENITY = IP6_26EWA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-43
DUCT HEIGHT = 21.2
DUCT WIDTH = 20.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-3.8	733	.046	5	3.7	15.5
1	2	-3.5	743	.046	0	4.6	14.8
1	3	-3.7	737	.046	5	3.7	15.6
1	4	-3.5	729	.417	30	4.4	15.0
1	5	-3.5	733	.366	35	4.0	15.2
1	6	-3.5	736	.297	25	4.1	15.4
1	7	-3.4	732	.214	35	3.6	15.3

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-3.7	689	.051	0	* 7.5	*12.5
2	2	-3.5	749	.048	5	* 3.8	*16.0
2	3	-3.5	748	.041	10	* 3.0	*15.3
2	4	-3.4	745	.336	25	3.8	15.6
2	5	-3.4	746	.114	30	3.7	15.5
2	6	-3.3	746	.268	30	3.0	16.3
2	7	-3.3	747	.354	25	3.6	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-3.5	728	.046	0	4.9	14.7
3	2	-3.6	761	.053	5	4.0	15.0
3	3	-3.7	766	.292	15	4.0	15.4
3	4	-3.5	756	.422	25	3.9	15.4
3	5	-3.5	758	.322	30	3.1	16.1
3	6	-3.5	753	.214	20	4.1	15.4
3	7	-3.5	749	.344	10	* 3.7	*15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-3.8	755	.056	5	4.1	15.2
4	2	-3.8	768	.097	0	3.6	15.4
4	3	-3.7	772	.410	10	4.2	15.2
4	4	-3.6	766	.449	25	3.6	15.8
4	5	-3.5	752	.351	35	3.5	15.5
4	6	-3.6	751	.268	20	3.3	15.6
4	7	-3.6	749	.349	0	* 3.6	*15.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-3.6	742	.056	0	3.8	15.2
5	2	-3.5	769	.095	5	3.9	15.4
5	3	-3.6	771	.432	5	4.0	15.4
5	4	-3.6	763	.400	20	3.6	15.6
5	5	-3.5	750	.288	20	3.9	15.4
5	6	-3.6	752	.356	20	3.5	15.4
5	7	-3.4	751	.422	0	* 3.8	*15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-3.8	762	.058	5	4.2	15.2
6	2	-3.8	767	.092	0	3.8	15.6
6	3	-3.7	767	.200	0	3.7	15.6
6	4	-3.5	759	.372	5	4.0	15.0
6	5	-3.6	752	.209	10	4.0	15.2
6	6	-3.5	755	.244	35	4.2	15.4
6	7	-3.5	750	.268	0	3.6	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-3.6	712	.067	0	* 4.8	*15.0
7	2	-3.5	767	.102	5	4.0	15.2
7	3	-3.5	766	.148	10	4.4	15.1
7	4	-3.5	759	.434	10	3.8	15.4
7	5	-3.5	754	.307	5	4.2	15.2
7	6	-3.7	763	.253	30	4.5	15.1
7	7	-3.6	765	.134	40	4.3	14.7

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = ECON WEST
FILE IDENITY = IP6_26EWA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-43
AO = 1.04096E+00
A1 = 1.03261E-05
A2 = -3.72379E-10
A3 = 6.20123E-15
A4 = -3.92264E-20
DUCT AREA = 425.0

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	1481	3.7	15.5	.48/ .49	1.8	7.4	357
1	2	1492	4.6	14.8	.48/ .49	2.2	7.2	365
1	3	1483	3.7	15.6	.48/ .49	1.8	7.5	360
1	4	4018	4.4	15.0	1.30/1.32	5.7	19.5	964
1	5	3555	4.0	15.2	1.15/1.17	4.6	17.5	857
1	6	3531	4.1	15.4	1.14/1.16	4.7	17.6	855
1	7	2689	3.6	15.3	.87/ .88	3.1	13.3	648

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	1541	7.5	12.5	.50/ .51	0.0	0.0	349
2	2	1521	3.8	16.0	.49/ .50	0.0	0.0	375
2	3	1389	3.0	15.3	.45/ .46	0.0	0.0	342
2	4	3778	3.8	15.6	1.22/1.24	4.7	19.1	926
2	5	2062	3.7	15.5	.67/ .68	2.5	10.4	506
2	6	3209	3.0	16.3	1.04/1.06	3.1	17.0	787
2	7	3885	3.6	15.4	1.26/1.28	4.5	19.4	954

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	1483	4.9	14.7	.48/ .49	2.4	7.1	355
3	2	1610	4.0	15.0	.52/ .53	2.1	7.8	403
3	3	3773	4.0	15.4	1.22/1.24	4.9	18.8	951
3	4	4272	3.9	15.4	1.39/1.41	5.4	21.3	1062
3	5	3548	3.1	16.1	1.15/1.17	3.6	18.5	886
3	6	3107	4.1	15.4	1.01/1.02	4.1	15.5	769
3	7	4166	3.7	15.0	1.35/1.37	0.0	0.0	1027

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TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	1652	4.1	15.2	.54/ .54	2.2	8.1	411
4	2	2211	3.6	15.4	.72/ .73	2.6	11.0	559
4	3	4601	4.2	15.2	1.49/1.51	6.3	22.7	1169
4	4	4428	3.6	15.8	1.44/1.46	5.2	22.7	1116
4	5	3504	3.5	15.5	1.14/1.15	4.0	17.6	867
4	6	3492	3.3	15.6	1.13/1.15	3.7	17.7	862
4	7	4262	3.6	15.2	1.38/1.40	0.0	0.0	1051

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	1650	3.8	15.2	.53/ .54	2.0	8.1	403
5	2	2178	3.9	15.4	.71/ .72	2.8	10.9	551
5	3	4780	4.0	15.4	1.55/1.57	6.2	23.9	1213
5	4	4319	3.6	15.6	1.40/1.42	5.0	21.8	1085
5	5	3622	3.9	15.4	1.17/1.19	4.6	18.1	893
5	6	4051	3.5	15.4	1.31/1.33	4.6	20.2	1003
5	7	4708	3.8	15.0	1.53/1.55	0.0	0.0	1164

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	1687	4.2	15.2	.55/ .56	2.3	8.3	423
6	2	2149	3.8	15.6	.70/ .71	2.6	10.9	542
6	3	3210	3.7	15.6	1.04/1.06	3.9	16.2	810
6	4	4404	4.0	15.0	1.43/1.45	5.7	21.4	1100
6	5	3217	4.0	15.2	1.04/1.06	4.2	15.9	796
6	6	2901	4.2	15.4	.94/ .95	4.0	14.5	721
6	7	3715	3.6	15.4	1.20/1.22	4.3	18.5	917

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	1787	4.8	15.0	.58/ .59	0.0	0.0	419
7	2	2258	4.0	15.2	.73/ .74	2.9	11.1	570
7	3	2704	4.4	15.1	.88/ .89	3.9	13.2	682
7	4	4716	3.8	15.4	1.53/1.55	5.8	23.5	1177
7	5	3976	4.2	15.2	1.29/1.31	5.4	19.6	986
7	6	3136	4.5	15.1	1.02/1.03	4.6	15.4	787
7	7	1998	4.3	14.7	.65/ .66	2.8	9.5	503

REV 10/20/87

LOCATION = ECON WEST
FILE IDENITY = IP6_26EWA

AVERAGE VELOCITY = 3039 FPM

AVERAGE (WEIGHTED) % O2 = 3.87 *
AVERAGE (WEIGHTED) % CO2 = 15.38 *
AVERAGE (WEIGHTED) TEMPERATURE = 753

AVERAGE (ARITHMETIC) % O2 = 3.90 *
AVERAGE (ARITHMETIC) % CO2 = 15.35 *
AVERAGE (ARITHMETIC) TEMPERATURE = 751

AVERAGE STATIC PRESSURE (in. H2O) = -3.6
AVERAGE DENSITY (LBM/FT^3) = .02823

ACFM (ACTUAL FT^3/MIN) = 1291541
LB/HR (WET) = 2187910

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 7 OUT OF 49

REV 10/20/87

LOCATION = ECON WEST
FILE IDENITY = IP6_26EWA

AVERAGE VELOCITY = 3039 FPM

AVERAGE (WEIGHTED) % O2 = 3.90
AVERAGE (WEIGHTED) % CO2 = 15.33
AVERAGE (WEIGHTED) TEMPERATURE = 753

AVERAGE (ARITHMETIC) % O2 = 3.96
AVERAGE (ARITHMETIC) % CO2 = 15.28
AVERAGE (ARITHMETIC) TEMPERATURE = 751

AVERAGE STATIC PRESSURE (in. H2O) = -3.6
AVERAGE DENSITY (LBM/FT^3) = .02823

ACFM (ACTUAL FT^3/MIN) = 1291541
LB/HR (WET) = 2187910

REV 10/20/87

DATE = 6-26-87
LOCATION = ECON WEST
FILE IDENITY = IP6_26EWH
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-6
DUCT HEIGHT = 21.2
DUCT WIDTH = 20.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-3.1	722	0.000	0	* 5.1	*13.7
1	2	-2.8	767	.673	60	5.1	14.1
1	3	-2.8	761	.050	20	4.9	14.1
1	4	-2.7	760	.476	65	5.0	14.2
1	5	-2.8	755	.417	56	4.6	14.4
1	6	-2.7	748	.402	54	4.8	14.4
1	7	-2.9	722	.371	45	4.8	14.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-2.7	763	0.000	0	5.2	14.0
2	2	-2.8	765	0.000	0	5.2	14.0
2	3	-2.8	751	.998	10	5.2	14.0
2	4	-2.7	765	.024	25	5.2	14.0
2	5	-2.7	760	.014	15	5.0	14.2
2	6	-2.7	756	.112	30	4.9	14.3
2	7	-2.8	752	.183	35	4.4	14.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-2.8	737	0.000	0	6.1	13.5
3	2	-3.0	765	0.000	0	5.2	13.8
3	3	-3.1	763	.590	40	4.8	14.4
3	4	-2.9	765	.532	60	5.2	14.0
3	5	-3.0	763	.432	50	4.6	14.5
3	6	-3.0	761	.416	45	4.4	14.6
3	7	-2.9	756	.190	10	4.6	14.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-2.8	710	0.000	0	7.1	12.4
4	2	-2.9	767	0.000	0	4.9	14.4
4	3	-2.9	760	.854	0	4.4	14.8
4	4	-2.8	760	.419	5	4.7	14.6
4	5	-3.0	767	.417	40	5.0	14.4
4	6	-2.9	763	.407	50	4.7	14.5
4	7	-2.8	766	.286	40	4.4	14.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-2.7	738	0.000	0	7.4	12.2
5	2	-2.7	764	0.000	0	4.4	14.8
5	3	-2.9	773	.034	0	5.2	14.2
5	4	-3.0	766	.422	0	4.5	14.7
5	5	-2.9	768	.424	40	4.4	14.8
5	6	-2.9	766	.401	45	3.9	15.5
5	7	-2.8	768	.034	10	4.2	15.1

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-2.8	676	0.000	0	7.1	12.5
6	2	-2.9	771	0.000	0	4.4	14.8
6	3	-3.1	773	.576	45	4.7	14.5
6	4	-3.1	770	.505	35	4.0	15.0
6	5	-3.0	766	.397	40	4.2	14.8
6	6	-3.1	762	.351	50	4.4	14.8
6	7	-3.0	760	.401	75	5.2	13.9

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-2.8	709	0.000	0	7.4	12.0
7	2	-2.9	771	0.000	0	4.6	14.4
7	3	-3.0	778	.710	0	4.7	14.5
7	4	-2.9	769	.241	0	4.0	15.2
7	5	-3.0	753	.439	25	3.6	15.4
7	6	-3.0	758	.307	20	4.4	14.8
7	7	-2.9	763	.124	35	4.2	14.8

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = ECON WEST
FILE IDENITY = IP6_26EWH
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-6
AO = 1.03371E+00
A1 = 7.08594E-06
A2 = -3.17015E-10
A3 = 6.53622E-15
A4 = -4.99241E-20
DUCT AREA = 425.0

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	0	5.1	13.7	0.00/0.00	0.0	0.0	0
1	2	2917	5.1	14.1	1.25/1.27	6.4	17.6	975
1	3	1450	4.9	14.1	.62/ .63	3.0	8.7	481
1	4	2059	5.0	14.2	.88/ .90	4.4	12.5	682
1	5	2542	4.6	14.4	1.08/1.11	5.0	15.6	836
1	6	2614	4.8	14.4	1.12/1.14	5.4	16.1	852
1	7	2988	4.8	14.4	1.28/1.30	6.1	18.4	940

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	0	5.2	14.0	0.00/0.00	0.0	0.0	0
2	2	0	5.2	14.0	0.00/0.00	0.0	0.0	0
2	3	6983	5.2	14.0	2.98/3.04	15.5	41.7	2284
2	4	966	5.2	14.0	.41/ .42	2.1	5.8	322
2	5	782	5.0	14.2	.33/ .34	1.7	4.7	259
2	6	2010	4.9	14.3	.86/ .88	4.2	12.3	662
2	7	2439	4.4	14.8	1.04/1.06	4.6	15.4	800

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	0	6.1	13.5	0.00/0.00	0.0	0.0	0
3	2	0	5.2	13.8	0.00/0.00	0.0	0.0	0
3	3	4172	4.8	14.4	1.78/1.82	8.5	25.6	1387
3	4	2585	5.2	14.0	1.10/1.13	5.7	15.4	862
3	5	2984	4.6	14.5	1.27/1.30	5.9	18.5	991
3	6	3218	4.4	14.6	1.37/1.40	6.0	20.1	1068
3	7	2995	4.6	14.4	1.28/1.30	5.9	18.4	987

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TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	0	7.1	12.4	0.00/0.00	0.0	0.0	0
4	2	0	4.9	14.4	0.00/0.00	0.0	0.0	0
4	3	6570	4.4	14.8	2.80/2.86	12.3	41.5	2176
4	4	4546	4.7	14.6	1.94/1.98	9.1	28.3	1506
4	5	3498	5.0	14.4	1.49/1.52	7.5	21.5	1169
4	6	2894	4.7	14.5	1.24/1.26	5.8	17.9	962
4	7	2881	4.4	14.8	1.23/1.26	5.4	18.2	961

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	0	7.4	12.2	0.00/0.00	0.0	0.0	0
5	2	0	4.4	14.8	0.00/0.00	0.0	0.0	0
5	3	1275	5.2	14.2	.54/ .56	2.8	7.7	430
5	4	4593	4.5	14.7	1.96/2.00	8.8	28.8	1534
5	5	3528	4.4	14.8	1.51/1.54	6.6	22.3	1181
5	6	3161	3.9	15.5	1.35/1.38	5.3	20.9	1055
5	7	1252	4.2	15.1	.53/ .55	2.2	8.1	419

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	0	7.1	12.5	0.00/0.00	0.0	0.0	0
6	2	0	4.4	14.8	0.00/0.00	0.0	0.0	0
6	3	3818	4.7	14.5	1.63/1.66	7.7	23.6	1286
6	4	4131	4.0	15.0	1.76/1.80	7.1	26.4	1387
6	5	3410	4.2	14.8	1.46/1.49	6.1	21.5	1138
6	6	2682	4.4	14.8	1.14/1.17	5.0	16.9	890
6	7	1156	5.2	13.9	.49/ .50	2.6	6.9	383

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	0	7.4	12.0	0.00/0.00	0.0	0.0	0
7	2	0	4.6	14.4	0.00/0.00	0.0	0.0	0
7	3	6022	4.7	14.5	2.57/2.62	12.1	37.3	2042
7	4	3449	4.0	15.2	1.47/1.50	5.9	22.4	1155
7	5	4224	3.6	15.4	1.80/1.84	6.5	27.8	1386
7	6	3655	4.4	14.8	1.56/1.59	6.9	23.1	1207
7	7	2008	4.2	14.8	.86/ .88	3.6	12.7	668

REV 10/20/87

LOCATION = ECON WEST
FILE IDENITY = IP6_26EWH

AVERAGE VELOCITY = 2295 FPM

AVERAGE (WEIGHTED) % O2 = 4.58 *
AVERAGE (WEIGHTED) % CO2 = 14.60 *
AVERAGE (WEIGHTED) TEMPERATURE = 762

AVERAGE (ARITHMETIC) % O2 = 4.90 *
AVERAGE (ARITHMETIC) % CO2 = 14.31 *
AVERAGE (ARITHMETIC) TEMPERATURE = 757

AVERAGE STATIC PRESSURE (in. H2O) = -2.9
AVERAGE DENSITY (LBM/FT^3) = .02811

ACFM (ACTUAL FT^3/MIN) = 975407
LB/HR (WET) = 1644871

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 1 OUT OF 49

REV 10/20/87

LOCATION = ECON WEST
FILE IDENITY = IP6_26EWH

AVERAGE VELOCITY = 2295 FPM

AVERAGE (WEIGHTED) % O2 = 4.58
AVERAGE (WEIGHTED) % CO2 = 14.60
AVERAGE (WEIGHTED) TEMPERATURE = 762

AVERAGE (ARITHMETIC) % O2 = 4.91
AVERAGE (ARITHMETIC) % CO2 = 14.29
AVERAGE (ARITHMETIC) TEMPERATURE = 757

AVERAGE STATIC PRESSURE (in. H2O) = -2.9
AVERAGE DENSITY (LBM/FT^3) = .02811

ACFM (ACTUAL FT^3/MIN) = 975407
LB/HR (WET) = 1644871

REV 10/20/87

DATE = 6-26-87
LOCATION = ECON EAST
FILE IDENITY = IP6_26EEA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = 28
DUCT HEIGHT = 21.2
DUCT WIDTH = 20.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-3.2	753	.874	30	4.7	14.3
1	2	-3.3	743	.380	20	4.6	14.4
1	3	-3.1	744	.300	20	4.5	14.5
1	4	-3.2	743	.349	25	4.8	14.2
1	5	-3.2	736	.400	30	4.5	14.7
1	6	-3.1	724	.334	20	4.6	14.6
1	7	-3.2	718	.588	10	* 4.4	*14.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-3.1	748	.737	30	4.7	14.5
2	2	-3.1	744	.454	25	4.7	14.5
2	3	-3.0	739	.200	15	4.0	15.0
2	4	-3.0	742	.202	35	4.8	14.2
2	5	-2.9	734	.539	25	4.4	14.6
2	6	-2.9	733	1.269	30	4.5	14.8
2	7	-3.0	734	1.816	70	4.7	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-3.4	751	.810	5	* 4.6	*14.2
3	2	-3.6	760	.734	10	4.8	14.2
3	3	-3.3	749	.461	10	4.3	14.7
3	4	-3.2	753	.317	15	* 4.1	*14.6
3	5	-3.2	743	.104	15	4.3	15.0
3	6	-3.5	738	.314	5	4.2	15.2
3	7	-3.3	737	.229	5	* 4.4	*14.3

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-3.5	756	1.269	0	5.0	14.2
4	2	-3.3	771	.664	0	4.4	14.9
4	3	-3.4	763	.385	0	4.4	14.9
4	4	-3.2	764	.136	5	4.3	15.0
4	5	-3.3	756	.109	10	4.6	14.6
4	6	-3.4	752	.307	5	4.5	14.5
4	7	-3.2	755	.344	5	* 4.1	*14.5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-3.1	778	.986	0	4.0	15.2
5	2	-3.2	778	.827	0	4.4	15.0
5	3	-3.2	771	.617	0	4.2	15.2
5	4	-3.2	776	.129	5	4.2	15.0
5	5	-3.1	772	.144	5	4.2	15.0
5	6	-3.1	766	.253	0	4.2	15.0
5	7	-3.2	751	.341	5	4.7	14.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-3.5	716	1.079	0	4.4	14.8
6	2	-3.6	779	.839	0	4.2	15.2
6	3	-3.5	787	.202	0	3.9	15.4
6	4	-3.3	785	.316	0	* 4.5	*15.5
6	5	-3.2	782	.380	0	3.4	15.4
6	6	-3.3	777	.339	0	3.4	15.4
6	7	-3.2	778	.317	0	4.0	14.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-3.4	77	.985	5	4.2	14.8
7	2	-3.4	772	.314	5	4.1	15.2
7	3	-3.4	780	.151	5	3.8	15.6
7	4	-3.3	777	.134	5	* 3.5	*16.0
7	5	-3.3	784	.185	5	* 3.2	*16.2
7	6	-3.4	756	.362	10	3.8	15.4
7	7	-3.3	781	.290	10	3.8	15.4

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = ECON EAST
FILE IDENITY = IP6_26EEA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-28
AO = 1.03215E+00
A1 = 2.95347E-06
A2 = -1.05871E-10
A3 = 2.33758E-15
A4 = -2.00933E-20
DUCT AREA = 425.0

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	5597	4.7	14.3	1.31/1.33	6.1	18.7	999
1	2	3966	4.6	14.4	.92/ .94	4.3	13.3	699
1	3	3519	4.5	14.5	.82/ .83	3.7	11.9	621
1	4	3664	4.8	14.2	.85/ .87	4.1	12.1	646
1	5	3739	4.5	14.7	.87/ .89	3.9	12.8	652
1	6	3684	4.6	14.6	.86/ .87	4.0	12.5	632
1	7	5132	4.4	14.4	1.20/1.22	5.3	17.2	873

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	5122	4.7	14.5	1.19/1.21	5.6	17.3	909
2	2	4185	4.7	14.5	.98/ .99	4.6	14.1	738
2	3	2939	4.0	15.0	.69/ .70	2.7	10.3	515
2	4	2509	4.8	14.2	.59/ .59	2.8	8.3	441
2	5	4547	4.4	14.6	1.06/1.08	4.7	15.5	791
2	6	6702	4.5	14.8	1.56/1.59	7.0	23.1	1164
2	7	3180	4.7	14.2	.74/ .75	3.5	10.5	553

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	6192	4.6	14.2	1.44/1.47	0.0	0.0	1102
3	2	5845	4.8	14.2	1.36/1.39	6.5	19.4	1053
3	3	4594	4.3	14.7	1.07/1.09	4.6	15.7	816
3	4	3733	4.1	14.6	.87/ .89	0.0	0.0	666
3	5	2116	4.3	15.0	.49/ .50	2.1	7.4	373
3	6	3807	4.2	15.2	.89/ .90	3.7	13.5	666
3	7	3246	4.4	14.3	.76/ .77	0.0	0.0	567

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TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	7822	5.0	14.2	1.82/1.85	9.1	25.9	1402
4	2	5658	4.4	14.9	1.32/1.34	5.8	19.7	1034
4	3	4280	4.4	14.9	1.00/1.01	4.4	14.9	774
4	4	2519	4.3	15.0	.59/ .60	2.5	8.8	456
4	5	2222	4.6	14.6	.52/ .53	2.4	7.6	398
4	6	3788	4.5	14.5	.88/ .90	4.0	12.8	676
4	7	4017	4.1	14.5	.94/ .95	0.0	0.0	718

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	6933	4.0	15.2	1.62/1.64	6.5	24.6	1279
5	2	6342	4.4	15.0	1.48/1.50	6.5	22.2	1170
5	3	5449	4.2	15.2	1.27/1.29	5.3	19.3	995
5	4	2466	4.2	15.0	.57/ .58	2.4	8.6	454
5	5	2602	4.2	15.0	.61/ .62	2.5	9.1	476
5	6	3464	4.2	15.0	.81/ .82	3.4	12.1	629
5	7	3993	4.7	14.2	.93/ .95	4.4	13.2	711

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	7087	4.4	14.8	1.65/1.68	7.3	24.5	1203
6	2	6392	4.2	15.2	1.49/1.52	6.3	22.7	1180
6	3	3117	3.9	15.4	.73/ .74	2.8	11.2	582
6	4	3903	4.5	15.5	.91/ .93	0.0	0.0	726
6	5	4283	3.4	15.4	1.00/1.02	3.4	15.4	794
6	6	4035	3.4	15.4	.94/ .96	3.2	14.5	743
6	7	3904	4.0	14.8	.91/ .93	3.6	13.5	720

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	4650	4.2	14.8	1.08/1.10	4.6	16.0	85
7	2	3859	4.1	15.2	.90/ .91	3.7	13.7	706
7	3	2672	3.8	15.6	.62/ .63	2.4	9.7	494
7	4	2512	3.5	16.0	.59/ .60	0.0	0.0	463
7	5	2964	3.2	16.2	.69/ .70	0.0	0.0	551
7	6	4073	3.8	15.4	.95/ .97	3.6	14.6	730
7	7	3676	3.8	15.4	.86/ .87	3.3	13.2	680

REV 10/20/87

LOCATION = ECON EAST
FILE IDENITY = IP6_26EEA

AVERAGE VELOCITY = 4218 FPM

AVERAGE (WEIGHTED) % O2 = 4.35 *
AVERAGE (WEIGHTED) % CO2 = 14.80 *
AVERAGE (WEIGHTED) TEMPERATURE = 741

AVERAGE (ARITHMETIC) % O2 = 4.32 *
AVERAGE (ARITHMETIC) % CO2 = 14.81 *
AVERAGE (ARITHMETIC) TEMPERATURE = 743

AVERAGE STATIC PRESSURE (in. H2O) = -3.3
AVERAGE DENSITY (LBM/FT^3) = .02882

ACFM (ACTUAL FT^3/MIN) = 1792814
LB/HR (WET) = 3099993

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 7 OUT OF 49

REV 10/20/87

LOCATION = ECON EAST
FILE IDENITY = IP6_26EEA

AVERAGE VELOCITY = 4218 FPM

AVERAGE (WEIGHTED) % O2 = 4.32
AVERAGE (WEIGHTED) % CO2 = 14.81
AVERAGE (WEIGHTED) TEMPERATURE = 741

AVERAGE (ARITHMETIC) % O2 = 4.29
AVERAGE (ARITHMETIC) % CO2 = 14.84
AVERAGE (ARITHMETIC) TEMPERATURE = 743

AVERAGE STATIC PRESSURE (in. H2O) = -3.3
AVERAGE DENSITY (LBM/FT^3) = .02882

ACFM (ACTUAL FT^3/MIN) = 1792814
LB/HR (WET) = 3099993

REV 10/20/87

DATE = 6-26-87
LOCATION = ECON EAST
FILE IDENITY = IP6_26EEH
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-8
DUCT HEIGHT = 21.2
DUCT WIDTH = 20.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-3.4	748	.041	40	* 4.2	*14.6
1	2	-3.5	776	.046	50	3.0	16.0
1	3	-3.1	776	.634	60	3.8	15.4
1	4	-2.8	778	.595	60	3.2	15.8
1	5	-3.1	770	.432	60	2.8	16.4
1	6	-3.2	778	.356	50	3.6	15.6
1	7	-3.4	773	.197	35	4.0	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-3.6	752	.043	40	3.2	15.8
2	2	-3.7	764	.053	30	2.8	16.2
2	3	-3.8	771	.217	30	2.8	16.2
2	4	-3.7	785	.241	40	2.8	16.4
2	5	-3.5	760	.166	40	3.6	15.6
2	6	-3.4	760	.119	60	3.6	15.4
2	7	-3.5	760	.124	50	4.0	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-3.4	723	.043	40	2.8	16.0
3	2	-3.4	772	.139	40	3.4	15.8
3	3	-3.5	779	.390	30	2.6	16.4
3	4	-3.5	774	.517	40	2.6	16.4
3	5	-3.5	747	.461	30	3.4	15.6
3	6	-3.3	749	.368	50	4.0	15.4
3	7	-3.3	751	.151	40	3.8	15.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-3.4	734	.039	40	3.2	15.8
4	2	-3.4	765	.087	0	3.0	16.0
4	3	-3.7	771	.732	40	2.0	17.0
4	4	-3.7	775	.388	40	2.2	16.8
4	5	-3.5	750	.444	30	3.4	15.8
4	6	-3.1	739	.310	50	3.6	15.8
4	7	-3.1	734	.209	60	3.2	15.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-3.5	690	1.181	60	5.0	14.2
5	2	-3.5	764	.815	60	3.2	16.0
5	3	-3.6	775	.395	60	2.2	16.6
5	4	-3.7	762	.026	30	2.2	16.6
5	5	-3.6	759	.502	30	2.8	16.2
5	6	-3.6	744	.471	30	3.2	16.0
5	7	-3.4	739	.312	30	2.8	16.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-3.3	715	.004	0	3.6	15.2
6	2	-3.2	746	.004	0	3.0	15.8
6	3	-3.2	749	.075	30	2.6	16.4
6	4	-2.8	746	.744	30	2.0	17.0
6	5	-2.8	752	.627	30	3.0	16.0
6	6	-2.7	749	.505	30	2.8	16.2
6	7	-2.8	751	.441	40	3.4	15.6

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-3.4	711	.029	50	3.8	15.4
7	2	-3.2	738	.034	60	3.0	16.0
7	3	-3.4	730	.131	50	3.4	15.6
7	4	-3.0	728	.705	50	2.6	16.4
7	5	-3.0	741	.578	40	2.6	16.2
7	6	-3.0	746	.505	50	2.6	16.4
7	7	-3.0	749	.376	40	2.8	16.0

* - 02/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = ECON EAST
FILE IDENITY = IP6_26EEH
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-8
A0 = 1.10640E+00
A1 = 4.40463E-06
A2 = -9.96281E-11
A3 = 1.87291E-15
A4 = -1.81710E-20
DUCT AREA = 425.0

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	1133	4.2	14.6	.41/ .41	0.0	0.0	308
1	2	1018	3.0	16.0	.37/ .37	1.1	5.8	287
1	3	3010	3.8	15.4	1.08/1.09	4.1	16.6	849
1	4	2913	3.2	15.8	1.05/1.06	3.3	16.5	824
1	5	2465	2.8	16.4	.89/ .90	2.5	14.5	690
1	6	2880	3.6	15.6	1.03/1.05	3.7	16.1	815
1	7	2711	4.0	15.0	.97/ .99	3.9	14.6	762

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	1161	3.2	15.8	.42/ .42	1.3	6.6	318
2	2	1466	2.8	16.2	.53/ .53	1.5	8.5	408
2	3	3007	2.8	16.2	1.08/1.09	3.0	17.5	843
2	4	2820	2.8	16.4	1.01/1.03	2.8	16.6	805
2	5	2310	3.6	15.6	.83/ .84	3.0	12.9	638
2	6	1274	3.6	15.4	.46/ .46	1.6	7.0	352
2	7	1673	4.0	15.0	.60/ .61	2.4	9.0	462

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	1147	2.8	16.0	.41/ .42	1.2	6.6	301
3	2	2120	3.4	15.8	.76/ .77	2.6	12.0	595
3	3	4068	2.6	16.4	1.46/1.48	3.8	24.0	1153
3	4	4149	2.6	16.4	1.49/1.51	3.9	24.4	1167
3	5	4379	3.4	15.6	1.57/1.59	5.3	24.5	1189
3	6	2898	4.0	15.4	1.04/1.05	4.2	16.0	790
3	7	2194	3.8	15.2	.79/ .80	3.0	12.0	599

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TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	1097	3.2	15.8	.39/ .40	1.3	6.2	293
4	2	2176	3.0	16.0	.78/ .79	2.3	12.5	605
4	3	4955	2.0	17.0	1.78/1.80	3.6	30.3	1388
4	4	3583	2.2	16.8	1.29/1.30	2.8	21.6	1010
4	5	4300	3.4	15.8	1.54/1.56	5.3	24.4	1173
4	6	2643	3.6	15.8	.95/ .96	3.4	15.0	710
4	7	1678	3.2	15.8	.60/ .61	1.9	9.5	448

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	4017	5.0	14.2	1.44/1.46	7.2	20.5	1008
5	2	3410	3.2	16.0	1.22/1.24	3.9	19.6	948
5	3	2360	2.2	16.6	.85/ .86	1.9	14.1	665
5	4	1022	2.2	16.6	.37/ .37	.8	6.1	283
5	5	4596	2.8	16.2	1.65/1.67	4.6	26.7	1269
5	6	4423	3.2	16.0	1.59/1.61	5.1	25.4	1197
5	7	3574	2.8	16.2	1.28/1.30	3.6	20.8	961

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	452	3.6	15.2	.16/ .16	.6	2.5	117
6	2	458	3.0	15.8	.16/ .17	.5	2.6	124
6	3	1736	2.6	16.4	.62/ .63	1.6	10.2	473
6	4	5589	2.0	17.0	2.01/2.03	4.0	34.1	1516
6	5	5134	3.0	16.0	1.84/1.87	5.5	29.5	1404
6	6	4586	2.8	16.2	1.65/1.67	4.6	26.7	1248
6	7	3789	3.4	15.6	1.36/1.38	4.6	21.2	1035

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	785	3.8	15.4	.28/ .29	1.1	4.3	203
7	2	669	3.0	16.0	.24/ .24	.7	3.8	180
7	3	1698	3.4	15.6	.61/ .62	2.1	9.5	451
7	4	4010	2.6	16.4	1.44/1.46	3.7	23.6	1062
7	5	4338	2.6	16.2	1.56/1.58	4.1	25.2	1169
7	6	3401	2.6	16.4	1.22/1.24	3.2	20.0	922
7	7	3490	2.8	16.0	1.25/1.27	3.5	20.1	950

REV 10/20/87

LOCATION = ECON EAST
FILE IDENITY = IP6_26EEH

AVERAGE VELOCITY = 2750 FPM

AVERAGE (WEIGHTED) % O2 = 3.04 *
AVERAGE (WEIGHTED) % CO2 = 16.01 *
AVERAGE (WEIGHTED) TEMPERATURE = 754

AVERAGE (ARITHMETIC) % O2 = 3.10 *
AVERAGE (ARITHMETIC) % CO2 = 15.93 *
AVERAGE (ARITHMETIC) TEMPERATURE = 753

AVERAGE STATIC PRESSURE (in. H2O) = -3.3
AVERAGE DENSITY (LBM/FT^3) = .02823

ACFM (ACTUAL FT^3/MIN) = 1168921
LB/HR (WET) = 1979677

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 1 OUT OF 49

REV 10/20/87

LOCATION = ECON EAST
FILE IDENITY = IP6_26EEH

AVERAGE VELOCITY = 2750 FPM

AVERAGE (WEIGHTED) % O2 = 3.05
AVERAGE (WEIGHTED) % CO2 = 16.00
AVERAGE (WEIGHTED) TEMPERATURE = 754

AVERAGE (ARITHMETIC) % O2 = 3.13
AVERAGE (ARITHMETIC) % CO2 = 15.90
AVERAGE (ARITHMETIC) TEMPERATURE = 753

AVERAGE STATIC PRESSURE (in. H2O) = -3.3
AVERAGE DENSITY (LBM/FT^3) = .02823

ACFM (ACTUAL FT^3/MIN) = 1168921
LB/HR (WET) = 1979677

REV 10/20/87

DATE = 6-26-87
LOCATION = WPAH GAS IN
FILE IDENITY = IP6_26WPGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-11
DUCT HEIGHT = 9.0
DUCT WIDTH = 18.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-4.0	740	.097	10	3.7	15.6
1	2	-4.0	742	.090	0	4.0	15.3
1	3	-4.0	740	.100	8	3.6	15.6

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-4.0	745	.075	30	4.1	15.1
2	2	-4.0	745	.095	20	4.1	15.2
2	3	-4.0	741	.102	7	3.9	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-4.0	745	.068	20	3.8	15.3
3	2	-4.0	743	.087	11	3.9	15.2
3	3	-4.0	741	.068	4	3.5	15.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-4.0	744	.043	7	3.8	15.4
4	2	-4.0	744	.007	25	3.6	15.6
4	3	-4.0	741	.056	7	3.6	15.5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-4.0	741	.029	0	3.6	15.5
5	2	-4.0	742	.026	0	3.6	15.6
5	3	-4.0	741	.039	0	3.4	15.8

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-4.0	739	.031	0	3.6	15.5
6	2	-4.0	738	.031	0	3.9	15.3
6	3	-4.0	737	.014	0	3.6	15.6

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = WPAH GAS IN
FILE IDENITY = IP6_26WPGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-11
AO = 1.24866E+00
A1 = -1.40421E-05
A2 = 5.84233E-10
A3 = -9.17920E-15
A4 = 4.78536E-20
DUCT AREA = 162.0

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	2384	3.7	15.6	1.34/1.34	5.0	21.0	994
1	2	2337	4.0	15.3	1.32/1.32	5.3	20.2	978
1	3	2432	3.6	15.6	1.37/1.37	4.9	21.4	1015

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	1857	4.1	15.1	1.05/1.05	4.3	15.8	780
2	2	2258	4.1	15.2	1.27/1.27	5.2	19.3	948
2	3	2463	3.9	15.4	1.39/1.39	5.4	21.4	1029

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	1921	3.8	15.3	1.08/1.08	4.1	16.6	807
3	2	2259	3.9	15.2	1.27/1.27	5.0	19.4	946
3	3	2034	3.5	15.7	1.15/1.15	4.0	18.0	850

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	1623	3.8	15.4	.92/ .92	3.5	14.1	681
4	2	609	3.6	15.6	.34/ .34	1.2	5.4	255
4	3	1843	3.6	15.5	1.04/1.04	3.7	16.1	770

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	1348	3.6	15.5	.76/ .76	2.7	11.8	563
5	2	1278	3.6	15.6	.72/ .72	2.6	11.2	535
5	3	1557	3.4	15.8	.88/ .88	3.0	13.9	650

REV 10/20/87

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	1391	3.6	15.5	.78/ .78	2.8	12.2	580
6	2	1391	3.9	15.3	.78/ .78	3.1	12.0	579
6	3	942	3.6	15.6	.53/ .53	1.9	8.3	391

REV 10/20/87

LOCATION = WPAH GAS IN
FILE IDENITY = IP6_26WPGI

AVERAGE VELOCITY = 1774 FPM

AVERAGE (WEIGHTED) % O2 = 3.76 *
AVERAGE (WEIGHTED) % CO2 = 15.44 *
AVERAGE (WEIGHTED) TEMPERATURE = 742

AVERAGE (ARITHMETIC) % O2 = 3.74 *
AVERAGE (ARITHMETIC) % CO2 = 15.46 *
AVERAGE (ARITHMETIC) TEMPERATURE = 742

AVERAGE STATIC PRESSURE (in. H2O) = -4.0
AVERAGE DENSITY (LBM/FT^3) = .02842

ACFM (ACTUAL FT^3/MIN) = 287326
LB/HR (WET) = 489876

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 18

REV 10/20/87

LOCATION = WPAH GAS IN
FILE IDENITY = IP6_26WPGI

AVERAGE VELOCITY = 1774 FPM

AVERAGE (WEIGHTED) % O2 = 3.76
AVERAGE (WEIGHTED) % CO2 = 15.44
AVERAGE (WEIGHTED) TEMPERATURE = 742

AVERAGE (ARITHMETIC) % O2 = 3.74
AVERAGE (ARITHMETIC) % CO2 = 15.46
AVERAGE (ARITHMETIC) TEMPERATURE = 742

AVERAGE STATIC PRESSURE (in. H2O) = -4.0
AVERAGE DENSITY (LBM/FT^3) = .02842

ACFM (ACTUAL FT^3/MIN) = 287326
LB/HR (WET) = 489876

REV 10/20/87

DATE = 6-26-87
LOCATION = WPAH GAS OUT
FILE IDENITY = IP6_26WPGO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
DUCT HEIGHT = 10.5
DUCT WIDTH = 8.6

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-8.5	269	0.000	10	8.8	10.6
1	2	-8.5	311	.102	6	4.1	14.7
1	3	-8.5	302	.114	0	5.5	13.6
1	4	-8.5	283	.075	0	10.1	9.5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-8.5	279	0.000	4	8.7	10.7
2	2	-8.5	308	.112	0	4.6	14.4
2	3	-8.5	298	.109	4	5.5	13.7
2	4	-8.5	278	.073	8	10.9	9.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-8.5	276	0.000	10	8.1	11.3
3	2	-8.5	301	.112	6	5.5	13.6
3	3	-8.5	296	.083	0	6.8	12.6
3	4	-8.5	266	.070	2	11.2	8.6

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = WPAH GAS OUT
FILE IDENITY = IP6_26WPGO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
AO = 1.17088E+00
A1 = -4.30409E-06
A2 = 1.54069E-10
A3 = -1.65099E-15
A4 = 2.82564E-21
DUCT AREA = 90.3

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	0	8.8	10.6	0.00/0.00	0.0	0.0	0
1	2	1911	4.1	14.7	1.40/1.40	5.7	20.6	435
1	3	2020	5.5	13.6	1.48/1.48	8.1	20.1	447
1	4	1630	10.1	9.5	1.19/1.19	12.0	11.3	338

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	0	8.7	10.7	0.00/0.00	0.0	0.0	0
2	2	2009	4.6	14.4	1.47/1.47	6.8	21.2	453
2	3	1965	5.5	13.7	1.44/1.44	7.9	19.7	429
2	4	1587	10.9	9.2	1.16/1.16	12.7	10.7	323

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	0	8.1	11.3	0.00/0.00	0.0	0.0	0
3	2	1990	5.5	13.6	1.46/1.46	8.0	19.8	439
3	3	1722	6.8	12.6	1.26/1.26	8.6	15.9	373
3	4	1557	11.2	8.6	1.14/1.14	12.8	9.8	303

REV 10/20/87

LOCATION = WPAH GAS OUT
FILE IDENITY = IP6_26WPGO

AVERAGE VELOCITY = 1366 FPM

AVERAGE (WEIGHTED) % O2 = 6.88 *
AVERAGE (WEIGHTED) % CO2 = 12.42 *
AVERAGE (WEIGHTED) TEMPERATURE = 295

AVERAGE (ARITHMETIC) % O2 = 7.48 *
AVERAGE (ARITHMETIC) % CO2 = 11.88 *
AVERAGE (ARITHMETIC) TEMPERATURE = 289

AVERAGE STATIC PRESSURE (in. H2O) = -8.5
AVERAGE DENSITY (LBM/FT^3) = .04472

ACFM (ACTUAL FT^3/MIN) = 123347
LB/HR (WET) = 330985

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 12

REV 10/20/87

LOCATION = WPAH GAS OUT
FILE IDENITY = IP6_26WPGO

AVERAGE VELOCITY = 1366 FPM

AVERAGE (WEIGHTED) % O2 = 6.88
AVERAGE (WEIGHTED) % CO2 = 12.42
AVERAGE (WEIGHTED) TEMPERATURE = 295

AVERAGE (ARITHMETIC) % O2 = 7.48
AVERAGE (ARITHMETIC) % CO2 = 11.88
AVERAGE (ARITHMETIC) TEMPERATURE = 289

AVERAGE STATIC PRESSURE (in. H2O) = -8.5
AVERAGE DENSITY (LBM/FT^3) = .04472

ACFM (ACTUAL FT^3/MIN) = 123347
LB/HR (WET) = 330985

REV 10/20/87

DATE = 6-26-87
LOCATION = EPAH GAS IN
FILE IDENITY = IP6_26EPGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-11
DUCT HEIGHT = 9.0
DUCT WIDTH = 18.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-4.0	738	.002	0	3.3	15.6
1	2	-4.0	742	.002	0	3.2	15.8
1	3	-4.0	740	.029	0	3.2	15.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-4.0	734	.021	0	3.5	15.6
2	2	-4.0	738	.007	0	3.3	15.8
2	3	-4.0	739	.070	0	3.2	15.9

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-4.0	739	.100	0	3.1	15.8
3	2	-4.0	741	.039	5	3.1	15.9
3	3	-4.0	738	.065	3	3.1	16.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-4.0	731	.070	3	3.3	15.7
4	2	-4.0	743	.119	20	3.0	16.1
4	3	-4.0	739	.092	5	3.0	16.1

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-4.0	735	.078	10	3.0	15.9
5	2	-4.0	744	.136	30	3.1	15.8
5	3	-4.0	737	.102	0	3.0	16.1

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-4.0	735	.112	5	3.3	15.7
6	2	-4.0	741	.107	14	3.1	15.9
6	3	-4.0	737	.117	2	3.1	15.9

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = EPAH GAS IN
FILE IDENITY = IP6_26EPGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-11
AO = 1.24866E+00
A1 = -1.40421E-05
A2 = 5.84233E-10
A3 = -9.17920E-15
A4 = 4.78536E-20
DUCT AREA = 162.0

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	360	3.3	15.6	.19/ .19	.6	3.0	142
1	2	361	3.2	15.8	.19/ .19	.6	3.1	143
1	3	1347	3.2	15.7	.72/ .72	2.3	11.3	534

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	1147	3.5	15.6	.61/ .61	2.1	9.6	451
2	2	670	3.3	15.8	.36/ .36	1.2	5.7	265
2	3	2066	3.2	15.9	1.11/1.11	3.5	17.6	817

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	2455	3.1	15.8	1.31/1.31	4.1	20.8	971
3	2	1551	3.1	15.9	.83/ .83	2.6	13.2	615
3	3	1989	3.1	16.0	1.06/1.06	3.3	17.0	786

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	2056	3.3	15.7	1.10/1.10	3.6	17.3	804
4	2	2512	3.0	16.1	1.34/1.34	4.0	21.6	999
4	3	2348	3.0	16.1	1.26/1.26	3.8	20.2	929

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	2140	3.0	15.9	1.15/1.15	3.4	18.2	842
5	2	2471	3.1	15.8	1.32/1.32	4.1	20.9	984
5	3	2475	3.0	16.1	1.32/1.32	4.0	21.3	976

REV 10/20/87

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	2578	3.3	15.7	1.38/1.38	4.6	21.7	1014
6	2	2463	3.1	15.9	1.32/1.32	4.1	21.0	977
6	3	2643	3.1	15.9	1.41/1.41	4.4	22.5	1043

REV 10/20/87

LOCATION = EPAH GAS IN
FILE IDENITY = IP6_26EPGI

AVERAGE VELOCITY = 1868 FPM

AVERAGE (WEIGHTED) % O2 = 3.13 *
AVERAGE (WEIGHTED) % CO2 = 15.88 *
AVERAGE (WEIGHTED) TEMPERATURE = 738

AVERAGE (ARITHMETIC) % O2 = 3.16 *
AVERAGE (ARITHMETIC) % CO2 = 15.85 *
AVERAGE (ARITHMETIC) TEMPERATURE = 738

AVERAGE STATIC PRESSURE (in. H2O) = -4.0
AVERAGE DENSITY (LBM/FT^3) = .02851

ACFM (ACTUAL FT^3/MIN) = 302673
LB/HR (WET) = 517674

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 18

REV 10/20/87

LOCATION = EPAH GAS IN
FILE IDENITY = IP6_26EPGI

AVERAGE VELOCITY = 1868 FPM

AVERAGE (WEIGHTED) % O2 = 3.13
AVERAGE (WEIGHTED) % CO2 = 15.88
AVERAGE (WEIGHTED) TEMPERATURE = 738

AVERAGE (ARITHMETIC) % O2 = 3.16
AVERAGE (ARITHMETIC) % CO2 = 15.85
AVERAGE (ARITHMETIC) TEMPERATURE = 738

AVERAGE STATIC PRESSURE (in. H2O) = -4.0
AVERAGE DENSITY (LBM/FT^3) = .02851

ACFM (ACTUAL FT^3/MIN) = 302673
LB/HR (WET) = 517674

REV 10/20/87

DATE = 6-26-87
LOCATION = EPAH GAS OUT
FILE IDENITY = IP6_26EPGO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
DUCT HEIGHT = 10.5
DUCT WIDTH = 8.6

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-8.5	251	0.000	10	10.9	8.9
1	2	-8.5	307	.029	6	4.9	14.2
1	3	-8.5	318	.178	2	4.1	14.8
1	4	-8.5	301	.123	6	7.2	12.2

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-8.5	240	0.000	10	10.9	8.7
2	2	-8.5	305	.177	2	3.9	15.2
2	3	-8.5	312	.143	7	3.7	15.3
2	4	-8.5	301	.123	6	7.5	12.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-8.5	262	0.000	6	10.6	9.2
3	2	-8.5	308	0.000	8	4.4	14.8
3	3	-8.5	314	.161	5	4.3	14.7
3	4	-8.5	292	.158	0	8.4	11.0

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED

DATE = 6-26-87
LOCATION = EPAH GAS OUT
FILE IDENITY = IP6_26EPGO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
AO = 1.17088E+00
A1 = -4.30409E-06
A2 = 1.54069E-10
A3 = -1.65099E-15
A4 = 2.82564E-21
DUCT AREA = 90.3

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	0	10.9	8.9	0.00/0.00	0.0	0.0	0
1	2	1026	4.9	14.2	.71/ .71	3.5	10.1	219
1	3	2538	4.1	14.8	1.76/1.76	7.2	26.1	561
1	4	2087	7.2	12.2	1.45/1.45	10.4	17.7	437

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	0	10.9	8.7	0.00/0.00	0.0	0.0	0
2	2	2508	3.9	15.2	1.74/1.74	6.8	26.5	532
2	3	2253	3.7	15.3	1.57/1.57	5.8	24.0	489
2	4	2088	7.5	12.0	1.45/1.45	10.9	17.4	437

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	0	10.6	9.2	0.00/0.00	0.0	0.0	0
3	2	0	4.4	14.8	0.00/0.00	0.0	0.0	0
3	3	2402	4.3	14.7	1.67/1.67	7.2	24.5	524
3	4	2363	8.4	11.0	1.64/1.64	13.8	18.1	480

REV 10/20/87

LOCATION = EPAH GAS OUT
FILE IDENITY = IP6_26EPGO

AVERAGE VELOCITY = 1439 FPM

AVERAGE (WEIGHTED) % O2 = 5.47 *
AVERAGE (WEIGHTED) % CO2 = 13.70 *
AVERAGE (WEIGHTED) TEMPERATURE = 306

AVERAGE (ARITHMETIC) % O2 = 6.73 *
AVERAGE (ARITHMETIC) % CO2 = 12.58 *
AVERAGE (ARITHMETIC) TEMPERATURE = 293

AVERAGE STATIC PRESSURE (in. H2O) = -8.5
AVERAGE DENSITY (LBM/FT^3) = .04459

ACFM (ACTUAL FT^3/MIN) = 129914
LB/HR (WET) = 347584

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 12

REV 10/20/87

LOCATION = EPAH GAS OUT
FILE IDENITY = IP6_26EPGO

AVERAGE VELOCITY = 1439 FPM

AVERAGE (WEIGHTED) % O2 = 5.47
AVERAGE (WEIGHTED) % CO2 = 13.70
AVERAGE (WEIGHTED) TEMPERATURE = 306

AVERAGE (ARITHMETIC) % O2 = 6.73
AVERAGE (ARITHMETIC) % CO2 = 12.58
AVERAGE (ARITHMETIC) TEMPERATURE = 293

AVERAGE STATIC PRESSURE (in. H2O) = -8.5
AVERAGE DENSITY (LBM/FT^3) = .04459

ACFM (ACTUAL FT^3/MIN) = 129914
LB/HR (WET) = 347584

REV 10/20/87

DATE = 6/26/87
LOCATION = WEST SEC GAS IN
FILE IDENITY = IP6_26WSGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-27
DUCT HEIGHT = 19.7
DUCT WIDTH = 40.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-3.8	734	.272	10	4.2	15.0
1	2	-3.9	735	.249	10	4.2	15.0
1	3	-4.0	729	.156	10	4.2	15.0
1	4	-4.0	727	.114	3	4.2	15.0
1	5	-4.1	718	.180	12	4.2	15.0
1	6	-4.0	720	.185	15	4.2	15.0
1	7	-4.1	715	.126	25	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-3.7	731	.288	17	4.2	15.0
2	2	-3.9	746	.173	20	4.2	15.0
2	3	-4.0	745	.170	20	4.2	15.0
2	4	-4.0	740	.131	10	4.2	15.0
2	5	-4.0	730	.190	17	4.2	15.0
2	6	-4.0	726	.205	25	4.2	15.0
2	7	-4.0	714	.104	35	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-3.8	730	.295	10	4.2	15.0
3	2	-3.8	749	.234	10	4.2	15.0
3	3	-3.9	748	.205	10	4.2	15.0
3	4	-3.9	745	.156	5	4.2	15.0
3	5	-4.1	741	.197	20	4.2	15.0
3	6	-3.9	737	.104	30	4.2	15.0
3	7	-4.0	730	.058	50	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-3.5	740	.307	8	4.2	15.0
4	2	-3.5	753	.258	5	4.2	15.0
4	3	-3.6	751	.249	5	4.2	15.0
4	4	-3.8	751	.190	0	4.2	15.0
4	5	-3.8	745	.102	10	4.2	15.0
4	6	-3.9	746	.019	30	4.2	15.0
4	7	-3.9	747	.009	20	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-3.4	755	.334	15	4.2	15.0
5	2	-3.6	757	.244	0	4.2	15.0
5	3	-3.6	755	.251	0	4.2	15.0
5	4	-3.7	753	.209	0	4.2	15.0
5	5	-3.8	750	.048	0	4.2	15.0
5	6	-3.8	749	.007	0	4.2	15.0
5	7	-3.8	749	.043	20	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-3.6	761	.036	23	4.2	15.0
6	2	-3.5	759	.236	0	4.2	15.0
6	3	-3.7	751	.271	0	4.2	15.0
6	4	-3.7	752	.216	0	4.2	15.0
6	5	-3.8	748	.056	17	4.2	15.0
6	6	-3.9	744	.019	30	4.2	15.0
6	7	-3.8	740	.012	18	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-3.6	720	.244	13	4.2	15.0
7	2	-3.8	754	.256	10	4.2	15.0
7	3	-3.9	745	.275	5	4.2	15.0
7	4	-4.0	744	.222	5	4.2	15.0
7	5	-4.0	740	.122	20	4.2	15.0
7	6	-4.1	740	.046	20	4.2	15.0
7	7	-4.1	743	.051	60	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
8	1	-3.9	746	.146	5	4.2	15.0
8	2	-3.8	756	.351	35	4.2	15.0
8	3	-3.9	738	.202	15	4.2	15.0
8	4	-3.8	736	.178	10	4.2	15.0
8	5	-4.0	725	.163	5	4.2	15.0
8	6	-4.0	712	.070	10	4.2	15.0
8	7	-3.9	706	.029	35	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
9	1	-3.9	733	.268	8	4.2	15.0
9	2	-3.8	749	.246	20	4.2	15.0
9	3	-3.9	745	.268	15	4.2	15.0
9	4	-3.8	744	.249	10	4.2	15.0
9	5	-4.0	739	.227	10	4.2	15.0
9	6	-4.1	734	.126	10	4.2	15.0
9	7	-4.2	730	.058	40	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
10	1	-3.5	740	.241	15	4.2	15.0
10	2	-3.7	755	.290	20	4.2	15.0
10	3	-3.6	748	.266	17	4.2	15.0
10	4	-3.6	746	.222	12	4.2	15.0
10	5	-3.8	745	.209	5	4.2	15.0
10	6	-3.8	741	.192	12	4.2	15.0
10	7	-3.9	740	.065	30	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
11	1	-3.7	749	.209	5	4.2	15.0
11	2	-3.6	756	.288	20	4.2	15.0
11	3	-3.6	749	.236	15	4.2	15.0
11	4	-3.7	750	.241	10	4.2	15.0
11	5	-3.7	750	.188	0	4.2	15.0
11	6	-3.7	750	.141	15	4.2	15.0
11	7	-3.7	740	.051	20	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
12	1	-3.6	747	.156	15	4.2	15.0
12	2	-3.6	747	.163	10	4.2	15.0
12	3	-3.6	747	.217	20	4.2	15.0
12	4	-3.5	747	.197	16	4.2	15.0
12	5	-3.7	746	.178	5	4.2	15.0
12	6	-3.6	745	.126	0	4.2	15.0
12	7	-3.7	740	.056	0	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
13	1	-3.6	751	.166	40	4.2	15.0
13	2	-3.7	754	.139	20	4.2	15.0
13	3	-3.7	754	.199	15	4.2	15.0
13	4	-3.8	755	.192	10	4.2	15.0
13	5	-3.7	754	.214	10	4.2	15.0
13	6	-3.8	753	.153	10	4.2	15.0
13	7	-3.7	749	.036	15	4.2	15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
14	1	-3.6	750	.205	30	4.2	15.0
14	2	-3.5	753	.175	20	4.2	15.0
14	3	-3.6	752	.158	15	4.2	15.0
14	4	-3.6	752	.129	15	4.2	15.0
14	5	-3.7	751	.141	10	4.2	15.0
14	6	-3.7	750	.039	15	4.2	15.0
14	7	-3.6	750	.029	20	4.2	15.0

DATE = 6/26/87
LOCATION = WEST SEC GAS IN
FILE IDENITY = IP6_26WSGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-27
AO = 1.14355E+00
A1 = -3.76441E-06
A2 = 2.34373E-10
A3 = -4.63214E-15
A4 = 3.02600E-20
DUCT AREA = 789.2

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	3756	4.5	15.1	1.35/1.35	6.1	20.5	994
1	2	3597	4.5	15.1	1.30/1.30	5.8	19.6	953
1	3	2845	4.5	15.1	1.03/1.03	4.6	15.5	748
1	4	2467	4.5	15.1	.89/ .89	4.0	13.4	647
1	5	3020	4.5	15.1	1.09/1.09	4.9	16.4	782
1	6	3025	4.5	15.1	1.09/1.09	4.9	16.5	786
1	7	2341	4.5	15.1	.84/ .84	3.8	12.7	604

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	3747	4.5	15.1	1.35/1.35	6.1	20.4	988
2	2	2878	4.5	15.1	1.04/1.04	4.7	15.7	774
2	3	2852	4.5	15.1	1.03/1.03	4.6	15.5	766
2	4	2621	4.5	15.1	.95/ .95	4.3	14.3	700
2	5	3048	4.5	15.1	1.10/1.10	4.9	16.6	802
2	6	2995	4.5	15.1	1.08/1.08	4.9	16.3	784
2	7	1923	4.5	15.1	.69/ .69	3.1	10.5	495

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	3904	4.5	15.1	1.41/1.41	6.3	21.3	1028
3	2	3508	4.5	15.1	1.27/1.27	5.7	19.1	948
3	3	3284	4.5	15.1	1.18/1.18	5.3	17.9	886
3	4	2897	4.5	15.1	1.04/1.04	4.7	15.8	778
3	5	3064	4.5	15.1	1.11/1.11	5.0	16.7	819
3	6	2053	4.5	15.1	.74/ .74	3.3	11.2	546
3	7	1137	4.5	15.1	.41/ .41	1.8	6.2	299

REV 10/20/87

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	4020	4.5	15.1	1.45/1.45	6.5	21.9	1073
4	2	3730	4.5	15.1	1.35/1.35	6.1	20.3	1013
4	3	3662	4.5	15.1	1.32/1.32	5.9	19.9	992
4	4	3215	4.5	15.1	1.16/1.16	5.2	17.5	871
4	5	2319	4.5	15.1	.84/ .84	3.8	12.6	623
4	6	886	4.5	15.1	.32/ .32	1.4	4.8	238
4	7	663	4.5	15.1	.24/ .24	1.1	3.6	179

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	4114	4.5	15.1	1.48/1.48	6.7	22.4	1120
5	2	3648	4.5	15.1	1.32/1.32	5.9	19.9	996
5	3	3697	4.5	15.1	1.33/1.33	6.0	20.1	1007
5	4	3373	4.5	15.1	1.22/1.22	5.5	18.4	916
5	5	1623	4.5	15.1	.59/ .59	2.6	8.8	439
5	6	623	4.5	15.1	.22/ .22	1.0	3.4	168
5	7	1444	4.5	15.1	.52/ .52	2.3	7.9	390

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	1303	4.5	15.1	.47/ .47	2.1	7.1	358
6	2	3591	4.5	15.1	1.29/1.29	5.8	19.6	983
6	3	3834	4.5	15.1	1.38/1.38	6.2	20.9	1038
6	4	3427	4.5	15.1	1.24/1.24	5.6	18.7	929
6	5	1675	4.5	15.1	.60/ .60	2.7	9.1	452
6	6	885	4.5	15.1	.32/ .32	1.4	4.8	237
6	7	772	4.5	15.1	.28/ .28	1.3	4.2	206

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	3499	4.5	15.1	1.26/1.26	5.7	19.1	909
7	2	3676	4.5	15.1	1.33/1.33	6.0	20.0	1000
7	3	3839	4.5	15.1	1.38/1.38	6.2	20.9	1031
7	4	3451	4.5	15.1	1.24/1.24	5.6	18.8	926
7	5	2414	4.5	15.1	.87/ .87	3.9	13.1	644
7	6	1488	4.5	15.1	.54/ .54	2.4	8.1	397
7	7	834	4.5	15.1	.30/ .30	1.4	4.5	224

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
8	1	2805	4.5	15.1	1.01/1.01	4.6	15.3	755
8	2	3580	4.5	15.1	1.29/1.29	5.8	19.5	976
8	3	3184	4.5	15.1	1.15/1.15	5.2	17.3	847
8	4	3046	4.5	15.1	1.10/1.10	4.9	16.6	808
8	5	2936	4.5	15.1	1.06/1.06	4.8	16.0	768
8	6	1898	4.5	15.1	.68/ .68	3.1	10.3	487
8	7	1016	4.5	15.1	.37/ .37	1.6	5.5	259

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TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
9	1	3748	4.5	15.1	1.35/1.35	6.1	20.4	991
9	2	3432	4.5	15.1	1.24/1.24	5.6	18.7	927
9	3	3675	4.5	15.1	1.33/1.33	6.0	20.0	987
9	4	3610	4.5	15.1	1.30/1.30	5.9	19.7	969
9	5	3442	4.5	15.1	1.24/1.24	5.6	18.7	917
9	6	2565	4.5	15.1	.93/ .93	4.2	14.0	679
9	7	1355	4.5	15.1	.49/ .49	2.2	7.4	357

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
10	1	3477	4.5	15.1	1.25/1.25	5.6	18.9	928
10	2	3733	4.5	15.1	1.35/1.35	6.1	20.3	1016
10	3	3628	4.5	15.1	1.31/1.31	5.9	19.8	979
10	4	3389	4.5	15.1	1.22/1.22	5.5	18.5	912
10	5	3349	4.5	15.1	1.21/1.21	5.4	18.2	900
10	6	3148	4.5	15.1	1.14/1.14	5.1	17.1	841
10	7	1628	4.5	15.1	.59/ .59	2.6	8.9	434

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
11	1	3355	4.5	15.1	1.21/1.21	5.4	18.3	906
11	2	3721	4.5	15.1	1.34/1.34	6.0	20.3	1014
11	3	3454	4.5	15.1	1.25/1.25	5.6	18.8	933
11	4	3561	4.5	15.1	1.28/1.28	5.8	19.4	963
11	5	3196	4.5	15.1	1.15/1.15	5.2	17.4	865
11	6	2677	4.5	15.1	.97/ .97	4.3	14.6	724
11	7	1565	4.5	15.1	.56/ .56	2.5	8.5	418

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
12	1	2810	4.5	15.1	1.01/1.01	4.6	15.3	757
12	2	2928	4.5	15.1	1.06/1.06	4.8	15.9	789
12	3	3221	4.5	15.1	1.16/1.16	5.2	17.5	868
12	4	3140	4.5	15.1	1.13/1.13	5.1	17.1	846
12	5	3094	4.5	15.1	1.12/1.12	5.0	16.8	832
12	6	2615	4.5	15.1	.94/ .94	4.2	14.2	703
12	7	1745	4.5	15.1	.63/ .63	2.8	9.5	466

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
13	1	2303	4.5	15.1	.83/ .83	3.7	12.5	624
13	2	2590	4.5	15.1	.93/ .93	4.2	14.1	704
13	3	3181	4.5	15.1	1.15/1.15	5.2	17.3	865
13	4	3188	4.5	15.1	1.15/1.15	5.2	17.4	868
13	5	3362	4.5	15.1	1.21/1.21	5.5	18.3	914
13	6	2846	4.5	15.1	1.03/1.03	4.6	15.5	773
13	7	1359	4.5	15.1	.49/ .49	2.2	7.4	367

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TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
14	1	2889	4.5	15.1	1.04/1.04	4.7	15.7	781
14	2	2901	4.5	15.1	1.05/1.05	4.7	15.8	788
14	3	2834	4.5	15.1	1.02/1.02	4.6	15.4	769
14	4	2563	4.5	15.1	.92/ .92	4.2	14.0	695
14	5	2730	4.5	15.1	.98/ .98	4.4	14.9	739
14	6	1414	4.5	15.1	.51/ .51	2.3	7.7	383
14	7	1187	4.5	15.1	.43/ .43	1.9	6.5	321

REV 10/20/87

LOCATION - WEST SEC GAS IN
FILE IDENITY - IP6_26WSGI

AVERAGE VELOCITY = 2773 FPM

AVERAGE (WEIGHTED) % O2 = 4.50 *
AVERAGE (WEIGHTED) % CO2 = 15.10 *
AVERAGE (WEIGHTED) TEMPERATURE = 744

AVERAGE (ARITHMETIC) % O2 = 4.50 *
AVERAGE (ARITHMETIC) % CO2 = 15.10 *
AVERAGE (ARITHMETIC) TEMPERATURE = 743

AVERAGE STATIC PRESSURE (in. H2O) = -3.8
AVERAGE DENSITY (LBM/FT^3) = .02840

ACFM (ACTUAL FT^3/MIN) = 2188360
LB/HR (WET) = 3728327

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 98

REV 10/20/87

DATE = 6/26/87
LOCATION = EAST SEC GAS IN
FILE IDENITY = IP6_26ESGI
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-27
DUCT HEIGHT = 19.7
DUCT WIDTH = 40.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
1	1	-3.9	737	.397	7	3.7	15.4
1	2	-4.0	741	.415	10	3.7	15.4
1	3	-4.0	740	.432	10	3.7	15.4
1	4	-3.9	739	.383	15	3.7	15.4
1	5	-4.0	735	.236	10	3.7	15.4
1	6	-3.9	723	.141	5	3.7	15.4
1	7	-3.9	714	.043	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
2	1	-3.9	738	.378	0	3.7	15.4
2	2	-3.9	747	.363	15	3.7	15.4
2	3	-3.9	747	.400	20	3.7	15.4
2	4	-4.0	746	.378	20	3.7	15.4
2	5	-3.9	743	.307	15	3.7	15.4
2	6	-3.9	741	.178	18	3.7	15.4
2	7	-4.0	737	.021	25	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
3	1	-3.9	739	.378	10	3.7	15.4
3	2	-3.9	751	.368	20	3.7	15.4
3	3	-3.8	752	.412	25	3.7	15.4
3	4	-4.0	750	.356	22	3.7	15.4
3	5	-3.9	749	.324	15	3.7	15.4
3	6	-3.8	746	.253	20	3.7	15.4
3	7	-3.9	740	.024	18	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
4	1	-3.9	737	.361	15	3.7	15.4
4	2	-4.0	753	.419	25	3.7	15.4
4	3	-4.0	752	.371	25	3.7	15.4
4	4	-3.9	750	.339	15	3.7	15.4
4	5	-4.0	749	.297	10	3.7	15.4
4	6	-4.0	743	.185	15	3.7	15.4
4	7	-3.9	742	.009	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
5	1	-3.9	740	.434	15	3.7	15.4
5	2	-3.9	752	.432	25	3.7	15.4
5	3	-4.0	750	.400	30	3.7	15.4
5	4	-4.0	749	.317	10	3.7	15.4
5	5	-4.0	746	.302	5	3.7	15.4
5	6	-3.9	740	.200	5	3.7	15.4
5	7	-4.0	735	.083	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
6	1	-4.0	744	.466	15	3.7	15.4
6	2	-4.0	753	.405	25	3.7	15.4
6	3	-4.1	751	.415	22	3.7	15.4
6	4	-4.0	749	.324	10	3.7	15.4
6	5	-4.0	746	.310	0	3.7	15.4
6	6	-4.0	744	.212	0	3.7	15.4
6	7	-4.0	740	.056	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
7	1	-3.7	737	.231	15	3.7	15.4
7	2	-3.8	755	.434	35	3.7	15.4
7	3	-3.8	758	.297	25	3.7	15.4
7	4	-3.8	757	.222	5	3.7	15.4
7	5	-3.8	753	.280	0	3.7	15.4
7	6	-3.8	752	.122	7	3.7	15.4
7	7	-3.8	750	.053	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
8	1	-3.5	742	.327	15	3.7	15.4
8	2	-3.6	756	.395	15	3.7	15.4
8	3	-3.7	758	.461	10	3.7	15.4
8	4	-3.7	757	.244	0	3.7	15.4
8	5	-3.8	755	.126	10	3.7	15.4
8	6	-3.9	751	.056	30	3.7	15.4
8	7	-3.9	749	.009	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
9	1	-3.6	747	.534	20	3.7	15.4
9	2	-3.8	757	.473	15	3.7	15.4
9	3	-3.8	759	.439	10	3.7	15.4
9	4	-3.8	759	.197	0	3.7	15.4
9	5	-3.8	756	.090	0	3.7	15.4
9	6	-3.9	754	.051	15	3.7	15.4
9	7	-3.8	753	.007	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
10	1	-3.9	742	.561	15	3.7	15.4
10	2	-4.0	752	.549	15	3.7	15.4
10	3	-4.0	755	.483	5	3.7	15.4
10	4	-4.1	752	.236	0	3.7	15.4
10	5	-4.0	751	.058	0	3.7	15.4
10	6	-4.0	752	.012	0	3.7	15.4
10	7	-4.0	752	.004	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
11	1	-3.9	744	.515	15	3.7	15.4
11	2	-4.0	752	.515	15	3.7	15.4
11	3	-3.7	752	.468	5	3.7	15.4
11	4	-3.9	751	.307	0	3.7	15.4
11	5	-4.0	751	.100	0	3.7	15.4
11	6	-4.0	751	.090	0	3.7	15.4
11	7	-4.0	751	.017	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
12	1	-3.9	740	.537	15	3.7	15.4
12	2	-3.8	750	.495	15	3.7	15.4
12	3	-4.0	750	.363	3	3.7	15.4
12	4	-4.0	749	.175	0	3.7	15.4
12	5	-4.1	751	.046	0	3.7	15.4
12	6	-4.1	752	.004	0	3.7	15.4
12	7	-4.1	751	.007	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
13	1	-3.7	740	.456	10	3.7	15.4
13	2	-3.6	747	.481	10	3.7	15.4
13	3	-3.8	746	.273	15	3.7	15.4
13	4	-4.0	744	.080	15	3.7	15.4
13	5	-4.0	739	.012	0	3.7	15.4
13	6	-3.9	740	.007	0	3.7	15.4
13	7	-3.9	735	.019	0	3.7	15.4

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL	%02	% CO2
14	1	-3.5	741	.031	8	3.7	15.4
14	2	-3.6	747	.029	5	3.7	15.4
14	3	-3.7	746	.205	10	3.7	15.4
14	4	-3.9	744	.180	17	3.7	15.4
14	5	-4.0	739	.188	15	3.7	15.4
14	6	-3.9	737	.029	0	3.7	15.4
14	7	-3.9	735	.112	0	3.7	15.4

DATE - 6/26/87
LOCATION - EAST SEC GAS IN
FILE IDENITY - IP6_26ESGI
BAROMETRIC PRESSURE - 25.49
PROBE IDENTY - E-27
AO - 1.14355E+00
A1 - -3.76441E-06
A2 - 2.34373E-10
A3 - -4.63214E-15
A4 - 3.02600E-20
DUCT AREA - 789.2

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
1	1	4575	3.7	15.4	1.39/1.39	5.1	21.4	1023
1	2	4650	3.7	15.4	1.41/1.41	5.2	21.7	1045
1	3	4742	3.7	15.4	1.44/1.44	5.3	22.2	1064
1	4	4378	3.7	15.4	1.33/1.33	4.9	20.5	981
1	5	3503	3.7	15.4	1.06/1.06	3.9	16.4	781
1	6	2730	3.7	15.4	.83/ .83	3.1	12.8	599
1	7	1514	3.7	15.4	.46/ .46	1.7	7.1	328

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
2	1	4501	3.7	15.4	1.37/1.37	5.1	21.0	1008
2	2	4277	3.7	15.4	1.30/1.30	4.8	20.0	969
2	3	4366	3.7	15.4	1.32/1.32	4.9	20.4	989
2	4	4244	3.7	15.4	1.29/1.29	4.8	19.8	960
2	5	3928	3.7	15.4	1.19/1.19	4.4	18.4	885
2	6	2948	3.7	15.4	.89/ .89	3.3	13.8	663
2	7	971	3.7	15.4	.29/ .29	1.1	4.5	217

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
3	1	4434	3.7	15.4	1.35/1.35	5.0	20.7	994
3	2	4196	3.7	15.4	1.27/1.27	4.7	19.6	956
3	3	4282	3.7	15.4	1.30/1.30	4.8	20.0	977
3	4	4071	3.7	15.4	1.24/1.24	4.6	19.0	926
3	5	4045	3.7	15.4	1.23/1.23	4.5	18.9	919
3	6	3475	3.7	15.4	1.05/1.05	3.9	16.2	786
3	7	1090	3.7	15.4	.33/ .33	1.2	5.1	245

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TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
4	1	4247	3.7	15.4	1.29/1.29	4.8	19.8	950
4	2	4321	3.7	15.4	1.31/1.31	4.9	20.2	987
4	3	4066	3.7	15.4	1.23/1.23	4.6	19.0	927
4	4	4139	3.7	15.4	1.26/1.26	4.6	19.3	942
4	5	3950	3.7	15.4	1.20/1.20	4.4	18.5	898
4	6	3055	3.7	15.4	.93/ .93	3.4	14.3	689
4	7	704	3.7	15.4	.21/ .21	.8	3.3	158

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
5	1	4661	3.7	15.4	1.41/1.41	5.2	21.8	1046
5	2	4385	3.7	15.4	1.33/1.33	4.9	20.5	1000
5	3	4030	3.7	15.4	1.22/1.22	4.5	18.8	917
5	4	4080	3.7	15.4	1.24/1.24	4.6	19.1	927
5	5	4024	3.7	15.4	1.22/1.22	4.5	18.8	911
5	6	3271	3.7	15.4	.99/ .99	3.7	15.3	734
5	7	2118	3.7	15.4	.64/ .64	2.4	9.9	472

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
6	1	4838	3.7	15.4	1.47/1.47	5.4	22.6	1092
6	2	4249	3.7	15.4	1.29/1.29	4.8	19.8	971
6	3	4397	3.7	15.4	1.33/1.33	4.9	20.5	1002
6	4	4125	3.7	15.4	1.25/1.25	4.6	19.3	937
6	5	4092	3.7	15.4	1.24/1.24	4.6	19.1	926
6	6	3386	3.7	15.4	1.03/1.03	3.8	15.8	764
6	7	1746	3.7	15.4	.53/ .53	2.0	8.2	392

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
7	1	3401	3.7	15.4	1.03/1.03	3.8	15.9	760
7	2	3977	3.7	15.4	1.21/1.21	4.5	18.6	911
7	3	3648	3.7	15.4	1.11/1.11	4.1	17.0	839
7	4	3469	3.7	15.4	1.05/1.05	3.9	16.2	797
7	5	3901	3.7	15.4	1.18/1.18	4.4	18.2	891
7	6	2562	3.7	15.4	.78/ .78	2.9	12.0	585
7	7	1705	3.7	15.4	.52/ .52	1.9	8.0	388

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
8	1	4049	3.7	15.4	1.23/1.23	4.5	18.9	911
8	2	4475	3.7	15.4	1.36/1.36	5.0	20.9	1026
8	3	4932	3.7	15.4	1.50/1.50	5.5	23.0	1134
8	4	3649	3.7	15.4	1.11/1.11	4.1	17.0	838
8	5	2587	3.7	15.4	.78/ .78	2.9	12.1	592
8	6	1519	3.7	15.4	.46/ .46	1.7	7.1	346
8	7	706	3.7	15.4	.21/ .21	.8	3.3	160

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TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
9	1	5040	3.7	15.4	1.53/1.53	5.7	23.5	1142
9	2	4899	3.7	15.4	1.49/1.49	5.5	22.9	1125
9	3	4816	3.7	15.4	1.46/1.46	5.4	22.5	1109
9	4	3284	3.7	15.4	1.00/1.00	3.7	15.3	756
9	5	2224	3.7	15.4	.67/ .67	2.5	10.4	510
9	6	1619	3.7	15.4	.49/ .49	1.8	7.6	370
9	7	624	3.7	15.4	.19/ .19	.7	2.9	142

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
10	1	5301	3.7	15.4	1.61/1.61	6.0	24.8	1193
10	2	5267	3.7	15.4	1.60/1.60	5.9	24.6	1202
10	3	5102	3.7	15.4	1.55/1.55	5.7	23.8	1169
10	4	3583	3.7	15.4	1.09/1.09	4.0	16.7	817
10	5	1785	3.7	15.4	.54/ .54	2.0	8.3	407
10	6	816	3.7	15.4	.25/ .25	.9	3.8	186
10	7	472	3.7	15.4	.14/ .14	.5	2.2	108

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
11	1	5084	3.7	15.4	1.54/1.54	5.7	23.8	1147
11	2	5102	3.7	15.4	1.55/1.55	5.7	23.8	1164
11	3	5014	3.7	15.4	1.52/1.52	5.6	23.4	1144
11	4	4081	3.7	15.4	1.24/1.24	4.6	19.1	930
11	5	2339	3.7	15.4	.71/ .71	2.6	10.9	533
11	6	2220	3.7	15.4	.67/ .67	2.5	10.4	506
11	7	970	3.7	15.4	.29/ .29	1.1	4.5	221

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
12	1	5183	3.7	15.4	1.57/1.57	5.8	24.2	1163
12	2	4996	3.7	15.4	1.52/1.52	5.6	23.3	1137
12	3	4428	3.7	15.4	1.34/1.34	5.0	20.7	1007
12	4	3085	3.7	15.4	.94/ .94	3.5	14.4	701
12	5	1591	3.7	15.4	.48/ .48	1.8	7.4	362
12	6	472	3.7	15.4	.14/ .14	.5	2.2	108
12	7	623	3.7	15.4	.19/ .19	.7	2.9	142

TAP	POINT	CORR V	%02	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
13	1	4869	3.7	15.4	1.48/1.48	5.5	22.7	1093
13	2	5014	3.7	15.4	1.52/1.52	5.6	23.4	1136
13	3	3710	3.7	15.4	1.13/1.13	4.2	17.3	840
13	4	2016	3.7	15.4	.61/ .61	2.3	9.4	455
13	5	811	3.7	15.4	.25/ .25	.9	3.8	182
13	6	620	3.7	15.4	.19/ .19	.7	2.9	139
13	7	1018	3.7	15.4	.31/ .31	1.1	4.8	227

REV 10/20/87

TAP	POINT	CORR V	%O2	% CO2	V LOC/AVG	WTD % O2	WTD %CO2	WTD TEMP
14	1	1288	3.7	15.4	.39/ .39	1.4	6.0	290
14	2	1257	3.7	15.4	.38/ .38	1.4	5.9	285
14	3	3280	3.7	15.4	1.00/1.00	3.7	15.3	742
14	4	2985	3.7	15.4	.91/ .91	3.4	13.9	674
14	5	3074	3.7	15.4	.93/ .93	3.5	14.4	689
14	6	1257	3.7	15.4	.38/ .38	1.4	5.9	281
14	7	2457	3.7	15.4	.75/ .75	2.8	11.5	548

REV 10/20/87

LOCATION = EAST SEC GAS IN
FILE IDENITY = IP6_26ESGI

AVERAGE VELOCITY = 3297 FPM

AVERAGE (WEIGHTED) % O2 = 3.70 *
AVERAGE (WEIGHTED) % CO2 = 15.40 *
AVERAGE (WEIGHTED) TEMPERATURE = 747

AVERAGE (ARITHMETIC) % O2 = 3.70 *
AVERAGE (ARITHMETIC) % CO2 = 15.40 *
AVERAGE (ARITHMETIC) TEMPERATURE = 747

AVERAGE STATIC PRESSURE (in. H2O) = -3.9
AVERAGE DENSITY (LBM/FT^3) = .02830

ACFM (ACTUAL FT^3/MIN) = 2601599
LB/HR (WET) = 4417818

* - O2/CO2 DATA WITH ERROR GREATER THAN .35 NOT USED
NO. OF POINTS NOT USED = 0 OUT OF 98

REV 10/20/87

DATE = 6-26-87
LOCATION = WPAH AIR OUT
FILE IDENITY = IP6_26WPAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
DUCT HEIGHT = 8.6
DUCT WIDTH = 15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	31.0	479	.031	15
1	2	31.0	483	.047	5
1	3	31.0	482	.070	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	31.0	475	.070	10
2	2	31.0	468	.056	0
2	3	31.0	459	.100	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	31.0	480	.004	10
3	2	31.0	472	.036	0
3	3	31.0	465	.002	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	31.0	483	.056	5
4	2	31.0	464	.058	10
4	3	31.0	445	.117	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	31.0	474	.041	0
5	2	31.0	456	.063	5
5	3	31.0	449	.087	5

DATE = 6-26-87
LOCATION = WPAH AIR OUT
FILE IDENITY = IP6_26WPAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
AO = 1.17088E+00
A1 = -4.30409E-06
A2 = 1.54069E-10
A3 = -1.65099E-15
A4 = 2.82564E-21
DUCT AREA = 129.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1092	.78/ .78	372
1	2	1387	.99/ .99	476
1	3	1694	1.20/1.20	580

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1662	1.18/1.18	561
2	2	1505	1.07/1.07	501
2	3	1987	1.41/1.41	648

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	403	.29/ .29	137
3	2	1213	.86/ .86	407
3	3	286	.20/ .20	95

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1512	1.07/1.07	519
4	2	1505	1.07/1.07	496
4	3	2138	1.52/1.52	676

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1295	.92/ .92	436
5	2	1579	1.12/1.12	512
5	3	1844	1.31/1.31	589

REV 10/20/87

LOCATION = WPAH AIR OUT
FILE IDENITY = IP6_26WPAO

AVERAGE VELOCITY = 1407 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 467

AVERAGE (ARITHMETIC) TEMPERATURE = 469

AVERAGE STATIC PRESSURE (in. H2O) = 31.0
AVERAGE DENSITY (LBM/FT^3) = .03967

ACFM (ACTUAL FT^3/MIN) = 181469
LB/HR (WET) = 431883

REV 10/20/87

DATE = 6-26-87
LOCATION = EPAH AIR OUT
FILE IDENITY = IP6_26EPAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
DUCT HEIGHT = 8.6
DUCT WIDTH = 15.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	31.0	469	.061	5
1	2	31.0	458	.073	5
1	3	31.0	423	.053	10

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	31.0	493	.034	20
2	2	31.0	482	.058	10
2	3	31.0	458	.056	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	31.0	494	.024	5
3	2	31.0	487	.031	15
3	3	31.0	475	.021	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	31.0	507	0.000	15
4	2	31.0	492	.080	10
4	3	31.0	472	.051	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	31.0	507	.061	0
5	2	31.0	499	.092	0
5	3	31.0	479	.097	0

DATE = 6-26-87
LOCATION = EPAH AIR OUT
FILE IDENITY = IP6_26EPAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-1
AO = 1.17088E+00
A1 = -4.30409E-06
A2 = 1.54069E-10
A3 = -1.65099E-15
A4 = 2.82564E-21
DUCT AREA = 129.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1565	1.14/1.14	536
1	2	1700	1.24/1.24	568
1	3	1406	1.03/1.03	434

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1120	.82/ .82	403
2	2	1520	1.11/1.11	535
2	3	1491	1.09/1.09	498

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	1000	.73/ .73	360
3	2	1097	.80/ .80	390
3	3	930	.68/ .68	322

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	0	0.00/0.00	0
4	2	1792	1.31/1.31	643
4	3	1392	1.02/1.02	479

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1604	1.17/1.17	593
5	2	1956	1.43/1.43	712
5	3	1987	1.45/1.45	694

REV 10/20/87

LOCATION = EPAH AIR OUT
FILE IDENITY = IP6_26EPAO

AVERAGE VELOCITY = 1371 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 478

AVERAGE (ARITHMETIC) TEMPERATURE = 480

AVERAGE STATIC PRESSURE (in. H2O) = 31.0
AVERAGE DENSITY (LBM/FT^3) = .03923

ACFM (ACTUAL FT^3/MIN) = 176820
LB/HR (WET) = 416162

REV 10/20/87

DATE = 6-26-87
LOCATION = TEMP AIR WEST
FILE IDENITY = IP6_26WTA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
DUCT HEIGHT = 10.0
DUCT WIDTH = 12.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	32.0	111	.156	0
1	2	32.0	112	.041	5
1	3	32.0	112	.004	0
1	4	32.0	111	.004	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	32.0	112	.136	0
2	2	32.0	112	.053	15
2	3	32.0	113	.007	0
2	4	32.0	113	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	32.0	114	.163	3
3	2	32.0	114	.056	20
3	3	32.0	113	.004	0
3	4	32.0	113	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	32.0	113	.168	5
4	2	32.0	113	.043	10
4	3	32.0	113	.002	5
4	4	32.0	112	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	32.0	111	.136	5
5	2	32.0	111	.056	15
5	3	32.0	110	.004	0
5	4	32.0	110	.004	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	32.0	110	.144	2
6	2	32.0	111	.104	10
6	3	32.0	110	.036	15
6	4	32.0	110	.002	0

DATE = 6-26-87
LOCATION = TEMP AIR WEST
FILE IDENITY = IP6_26WTA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
AO = 1.21044E+00
A1 = -1.21369E-05
A2 = 5.52116E-10
A3 = -9.31289E-15
A4 = 5.20267E-20
DUCT AREA = 120.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1921	2.07/2.07	229
1	2	1002	1.08/1.08	121
1	3	324	.35/ .35	39
1	4	324	.35/ .35	39

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1798	1.93/1.93	217
2	2	1100	1.18/1.18	133
2	3	427	.46/ .46	52
2	4	231	.25/ .25	28

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	1965	2.11/2.11	241
3	2	1101	1.18/1.18	135
3	3	324	.35/ .35	39
3	4	231	.25/ .25	28

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1988	2.14/2.14	242
4	2	1015	1.09/1.09	123
4	3	230	.25/ .25	28
4	4	230	.25/ .25	28

REV 10/20/87

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1789	1.92/1.92	214
5	2	1128	1.21/1.21	135
5	3	323	.35/ .35	38
5	4	323	.35/ .35	38

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1844	1.98/1.98	218
6	2	1552	1.67/1.67	185
6	3	911	.98/ .98	108
6	4	230	.25/ .25	27

LOCATION = TEMP AIR WEST
FILE IDENITY = IP6_26WTA

AVERAGE VELOCITY = 930 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 112

AVERAGE (ARITHMETIC) TEMPERATURE = 112

AVERAGE STATIC PRESSURE (in. H2O) = 32.0
AVERAGE DENSITY (LBM/FT^3) = .06460

ACFM (ACTUAL FT^3/MIN) = 111551
LB/HR (WET) = 432345

REV 10/20/87

DATE = 6-26-87
LOCATION = TEMP AIR EAST
FILE IDENITY = IP6_26ETA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
DUCT HEIGHT = 10.0
DUCT WIDTH = 12.0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	32.0	126	.095	10
1	2	32.0	127	.014	0
1	3	32.0	127	.004	0
1	4	32.0	127	.014	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	32.0	125	.065	10
2	2	32.0	125	.029	10
2	3	32.0	125	.004	0
2	4	32.0	124	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	32.0	122	.109	5
3	2	32.0	123	.036	10
3	3	32.0	121	.004	0
3	4	32.0	120	.002	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	32.0	120	.080	5
4	2	32.0	120	.029	15
4	3	32.0	119	.014	0
4	4	32.0	118	.036	7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	32.0	116	.073	5
5	2	32.0	115	.014	20
5	3	32.0	114	.017	0
5	4	32.0	114	.036	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	32.0	115	.068	5
6	2	32.0	115	.053	10
6	3	32.0	114	.019	0
6	4	32.0	114	.007	0

DATE = 6-26-87
LOCATION = TEMP AIR EAST
FILE IDENITY = IP6_26ETA
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-9
AO = 1.21044E+00
A1 = -1.21369E-05
A2 = 5.52116E-10
A3 = -9.31289E-15
A4 = 5.20267E-20
DUCT AREA = 120.0

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
1	1	1921	2.07/2.07	229
1	2	1002	1.08/1.08	121
1	3	324	.35/ .35	39
1	4	324	.35/ .35	39

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
2	1	1798	1.93/1.93	217
2	2	1100	1.18/1.18	133
2	3	427	.46/ .46	52
2	4	231	.25/ .25	28

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
3	1	1965	2.11/2.11	241
3	2	1101	1.18/1.18	135
3	3	324	.35/ .35	39
3	4	231	.25/ .25	28

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1988	2.14/2.14	242
4	2	1015	1.09/1.09	123
4	3	230	.25/ .25	28
4	4	230	.25/ .25	28

REV 10/20/87

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1789	1.92/1.92	214
5	2	1128	1.21/1.21	135
5	3	323	.35/ .35	38
5	4	323	.35/ .35	38

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1844	1.98/1.98	218
6	2	1552	1.67/1.67	185
6	3	911	.98/ .98	108
6	4	230	.25/ .25	27

LOCATION = TEMP AIR EAST
FILE IDENITY = IP6_26ETA

AVERAGE VELOCITY = 930 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 112

AVERAGE (ARITHMETIC) TEMPERATURE = 112

AVERAGE STATIC PRESSURE (in. H2O) = 32.0
AVERAGE DENSITY (LBM/FT^3) = .06460

ACFM (ACTUAL FT^3/MIN) = 111551
LB/HR (WET) = 432345

REV 10/20/87

DATE = 6-26-87
LOCATION = WSAH AIR OUT
FILE IDENITY = IP6_26WSAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
DUCT HEIGHT = 27.7
DUCT WIDTH = 21.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	2.2	636	.065	0
1	2	2.0	635	.363	10
1	3	2.3	641	.068	20
1	4	2.3	642	.034	20
1	5	2.4	647	.019	20
1	6	2.4	645	.116	0
1	7	2.2	637	.036	0
1	8	2.3	631	.039	0
1	9	2.5	629	.034	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	2.3	642	.061	0
2	2	2.4	639	.170	5
2	3	2.5	647	.087	5
2	4	2.5	656	.129	10
2	5	2.2	656	.029	5
2	6	2.4	656	.288	15
2	7	2.6	657	.126	20
2	8	2.8	654	.417	15
2	9	2.3	654	.031	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	2.4	643	.070	0
3	2	2.5	640	.029	25
3	3	2.4	643	.217	0
3	4	2.5	652	.583	5
3	5	2.7	656	.300	0
3	6	2.7	656	.490	0
3	7	3.0	660	.520	0
3	8	2.9	663	.507	10
3	9	3.5	663	.590	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	2.0	647	.026	0
4	2	2.2	640	.048	0
4	3	2.3	639	.107	15
4	4	2.5	649	.429	35
4	5	2.9	654	.397	5
4	6	2.9	657	.356	15
4	7	2.9	660	.327	0
4	8	2.8	667	.417	5
4	9	3.0	651	.456	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	2.3	640	.305	35
5	2	2.1	640	.035	0
5	3	2.4	647	.122	20
5	4	2.6	645	.455	15
5	5	2.8	655	.400	5
5	6	2.9	657	.318	0
5	7	2.9	661	.434	5
5	8	2.8	669	.114	10
5	9	2.6	661	.188	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	2.0	640	.080	0
6	2	2.3	638	.058	0
6	3	2.4	638	.083	5
6	4	3.2	645	.197	35
6	5	3.0	649	.290	10
6	6	2.8	655	.119	20
6	7	3.0	660	.341	15
6	8	3.0	667	.405	25
6	9	2.7	652	.021	45

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
7	1	2.0	640	.014	20
7	2	2.2	638	.021	35
7	3	2.4	639	.126	0
7	4	2.4	645	.236	10
7	5	2.6	648	.170	0
7	6	2.8	652	.202	5
7	7	3.0	653	.268	0
7	8	3.0	668	.468	0
7	9	3.3	663	.188	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
8	1	2.5	645	.478	10
8	2	2.7	642	.209	15
8	3	2.5	642	.039	15
8	4	2.7	646	.263	0
8	5	2.9	647	.225	0
8	6	2.9	652	.185	10
8	7	3.0	653	.205	5
8	8	3.2	661	.227	10
8	9	3.1	661	.190	10

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
9	1	2.7	651	.275	5
9	2	2.7	646	.217	5
9	3	2.9	646	.146	5
9	4	2.7	650	.278	0
9	5	2.7	650	.092	25
9	6	2.7	650	.100	30
9	7	2.9	654	.241	20
9	8	2.9	658	.200	20
9	9	2.9	655	.307	10

DATE = 6-26-87
LOCATION = WSAH AIR OUT
FILE IDENITY = IP6_26WSAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
AO = 1.31748E+00
A1 = -2.48691E-05
A2 = 1.06673E-09
A3 = -1.84181E-14
A4 = 1.11149E-19
DUCT AREA = 602.5

TAP	POINT	CORR V	V LOC/AVG	WTD TEMP
1	1	1957	.63/ .63	401
1	2	4307	1.39/1.39	880
1	3	1883	.61/ .61	388
1	4	1355	.44/ .44	280
1	5	1027	.33/ .33	214
1	6	2582	.83/ .83	536
1	7	1479	.48/ .48	303
1	8	1531	.49/ .49	311
1	9	1432	.46/ .46	290

TAP	POINT	CORR V	V LOC/AVG	WTD TEMP
2	1	1905	.61/ .61	394
2	2	3066	.99/ .99	631
2	3	2249	.72/ .72	468
2	4	2688	.87/ .87	568
2	5	1340	.43/ .43	283
2	6	3834	1.23/1.23	810
2	7	2537	.82/ .82	536
2	8	4545	1.46/1.46	956
2	9	1388	.45/ .45	292

TAP	POINT	CORR V	V LOC/AVG	WTD TEMP
3	1	2033	.65/ .65	421
3	2	1209	.39/ .39	249
3	3	3455	1.11/1.11	715
3	4	5478	1.76/1.76	1150
3	5	4042	1.30/1.30	853
3	6	5079	1.63/1.63	1073
3	7	5230	1.68/1.68	1111
3	8	5100	1.64/1.64	1089
3	9	5552	1.79/1.79	1185

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TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	1272	.41/ .41	265
4	2	1698	.55/ .55	350
4	3	2395	.77/ .77	493
4	4	3897	1.25/1.25	814
4	5	4582	1.47/1.47	965
4	6	4229	1.36/1.36	894
4	7	4215	1.36/1.36	895
4	8	4721	1.52/1.52	1014
4	9	4878	1.57/1.57	1022

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	3312	1.07/1.07	683
5	2	1461	.47/ .47	301
5	3	2487	.80/ .80	518
5	4	4713	1.52/1.52	979
5	5	4600	1.48/1.48	969
5	6	4155	1.34/1.34	879
5	7	4792	1.54/1.54	1019
5	8	2552	.82/ .82	549
5	9	3261	1.05/1.05	693

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	2164	.70/ .70	446
6	2	1856	.60/ .60	381
6	3	2190	.70/ .70	450
6	4	2706	.87/ .87	562
6	5	3904	1.26/1.26	816
6	6	2466	.79/ .79	520
6	7	4152	1.34/1.34	882
6	8	4235	1.36/1.36	910
6	9	813	.26/ .26	171

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
7	1	883	.28/ .28	182
7	2	936	.30/ .30	192
7	3	2676	.86/ .86	551
7	4	3542	1.14/1.14	735
7	5	3091	.99/ .99	644
7	6	3343	1.08/1.08	702
7	7	3829	1.23/1.23	805
7	8	5000	1.61/1.61	1075
7	9	3261	1.05/1.05	696

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TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
8	1	4918	1.58/1.58	1021
8	2	3277	1.05/1.05	677
8	3	1487	.48/ .48	307
8	4	3783	1.22/1.22	787
8	5	3519	1.13/1.13	733
8	6	3172	1.02/1.02	666
8	7	3366	1.08/1.08	707
8	8	3503	1.13/1.13	745
8	9	3226	1.04/1.04	686

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
9	1	3858	1.24/1.24	808
9	2	3446	1.11/1.11	717
9	3	2864	.92/ .92	595
9	4	3890	1.25/1.25	814
9	5	2103	.68/ .68	440
9	6	2090	.67/ .67	437
9	7	3427	1.10/1.10	721
9	8	3148	1.01/1.01	667
9	9	4021	1.29/1.29	848

LOCATION = WSAH AIR OUT
FILE IDENITY = IP6_26WSAO

AVERAGE VELOCITY = 3107 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 652

AVERAGE (ARITHMETIC) TEMPERATURE = 650

AVERAGE STATIC PRESSURE (in. H20) = 2.6
AVERAGE DENSITY (LBM/FT^3) = .03071

ACFM (ACTUAL FT^3/MIN) = 1871758
LB/HR (WET) = 3448815

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DATE = 6-26-87
LOCATION = ESAH AIR OUT
FILE IDENITY = IP6_26ESAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
DUCT HEIGHT = 27.7
DUCT WIDTH = 21.7

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
1	1	2.3	656	.537	0
1	2	2.6	657	.087	0
1	3	2.8	655	.075	20
1	4	2.7	653	.083	10
1	5	2.7	653	.356	15
1	6	3.0	649	.117	0
1	7	3.3	668	.170	0
1	8	3.2	675	.222	15
1	9	3.2	658	.195	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
2	1	2.1	657	.036	45
2	2	2.6	655	.117	0
2	3	2.8	655	.219	30
2	4	3.0	660	.292	20
2	5	3.3	661	.053	10
2	6	3.3	664	.278	5
2	7	3.3	667	.221	0
2	8	3.3	672	.258	0
2	9	3.2	664	.256	5

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
3	1	2.5	655	.354	0
3	2	2.2	654	.039	0
3	3	2.5	655	.117	45
3	4	2.7	658	.344	30
3	5	2.9	665	.234	30
3	6	2.8	666	.336	15
3	7	2.9	668	.317	20
3	8	3.1	672	.295	20
3	9	3.2	657	.266	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
4	1	2.5	657	.429	10
4	2	2.4	656	.061	0
4	3	2.4	657	.048	45
4	4	2.6	661	.236	40
4	5	2.5	668	.290	35
4	6	2.7	667	.366	25
4	7	2.8	672	.397	30
4	8	3.0	673	.366	20
4	9	3.2	673	.197	20

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
5	1	2.0	657	.031	0
5	2	2.3	657	.039	0
5	3	2.2	655	.039	45
5	4	2.5	660	.454	25
5	5	2.7	665	.300	25
5	6	2.7	670	.424	20
5	7	3.0	673	.424	20
5	8	3.0	672	.371	25
5	9	2.7	660	.493	15

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
6	1	2.0	659	.056	35
6	2	2.1	658	.065	0
6	3	2.5	656	.148	25
6	4	2.5	668	.517	30
6	5	2.3	669	.241	20
6	6	2.5	669	.483	30
6	7	2.3	670	.488	10
6	8	2.7	674	.214	30
6	9	2.8	679	.515	10

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
7	1	2.4	662	.415	20
7	2	2.3	661	.285	0
7	3	2.3	657	.188	0
7	4	2.3	670	.068	10
7	5	2.1	672	.373	0
7	6	2.0	675	.451	15
7	7	2.3	688	.544	10
7	8	2.4	678	.515	10
7	9	2.9	657	.546	0

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
8	1	2.7	642	.380	15
8	2	2.7	609	.317	0
8	3	2.5	634	.383	10
8	4	2.3	645	.324	10
8	5	2.3	643	.156	25
8	6	2.0	639	.048	35
8	7	2.5	631	.029	30
8	8	2.5	634	.031	30
8	9	2.3	636	.510	30

TAP	POINT	STAT P	TEMP	DELTA P	YAW ANGL
9	1	1.9	591	.087	20
9	2	2.2	602	.112	20
9	3	2.2	632	.014	0
9	4	2.0	549	.014	0
9	5	2.2	524	.029	0
9	6	2.2	581	.031	0
9	7	2.2	574	.029	0
9	8	2.3	570	.031	0
9	9	2.3	575	.041	0

DATE = 6-26-87
LOCATION = ESAH AIR OUT
FILE IDENITY = IP6_26ESAO
BAROMETRIC PRESSURE = 25.49
PROBE IDENTY = E-4
AO = 1.31748E+00
A1 = -2.48691E-05
A2 = 1.06673E-09
A3 = -1.84181E-14
A4 = 1.11149E-19
DUCT AREA = 602.5

TAP	POINT	CORR V	V LOC/AVG	WTD TEMP
1	1	5304	1.68/1.68	1099
1	2	2268	.72/ .72	470
1	3	1985	.63/ .63	411
1	4	2181	.69/ .69	450
1	5	4222	1.33/1.33	871
1	6	2595	.82/ .82	532
1	7	3119	.99/ .99	658
1	8	3425	1.08/1.08	730
1	9	3197	1.01/1.01	665

TAP	POINT	CORR V	V LOC/AVG	WTD TEMP
2	1	1056	.33/ .33	219
2	2	2604	.82/ .82	539
2	3	3023	.96/ .96	626
2	4	3757	1.19/1.19	783
2	5	1768	.56/ .56	369
2	6	3900	1.23/1.23	818
2	7	3524	1.11/1.11	743
2	8	3797	1.20/1.20	806
2	9	3754	1.19/1.19	787

TAP	POINT	CORR V	V LOC/AVG	WTD TEMP
3	1	4365	1.38/1.38	903
3	2	1549	.49/ .49	320
3	3	1842	.58/ .58	381
3	4	3735	1.18/1.18	776
3	5	3133	.99/ .99	658
3	6	4138	1.31/1.31	871
3	7	3920	1.24/1.24	827
3	8	3799	1.20/1.20	807
3	9	3693	1.17/1.17	767

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TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
4	1	4705	1.49/1.49	976
4	2	1917	.61/ .61	397
4	3	1211	.38/ .38	251
4	4	2778	.88/ .88	581
4	5	3282	1.04/1.04	693
4	6	4042	1.28/1.28	852
4	7	4022	1.27/1.27	854
4	8	4203	1.33/1.33	894
4	9	3150	1.00/1.00	670

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
5	1	1390	.44/ .44	288
5	2	1551	.49/ .49	322
5	3	1096	.35/ .35	227
5	4	4452	1.41/1.41	928
5	5	3682	1.16/1.16	774
5	6	4494	1.42/1.42	951
5	7	4498	1.42/1.42	956
5	8	4076	1.29/1.29	865
5	9	4931	1.56/1.56	1028

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
6	1	1511	.48/ .48	314
6	2	1979	.63/ .63	412
6	3	2637	.83/ .83	546
6	4	4539	1.43/1.43	958
6	5	3456	1.09/1.09	730
6	6	4400	1.39/1.39	930
6	7	5032	1.59/1.59	1065
6	8	3020	.95/ .95	643
6	9	5179	1.64/1.64	1111

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
7	1	4434	1.40/1.40	927
7	2	3961	1.25/1.25	828
7	3	3256	1.03/1.03	676
7	4	2003	.63/ .63	424
7	5	4515	1.43/1.43	958
7	6	4771	1.51/1.51	1017
7	7	5342	1.69/1.69	1161
7	8	5181	1.64/1.64	1110
7	9	5343	1.69/1.69	1109

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TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
8	1	4326	1.37/1.37	877
8	2	4045	1.28/1.28	778
8	3	4409	1.39/1.39	883
8	4	4105	1.30/1.30	837
8	5	2686	.85/ .85	546
8	6	1391	.44/ .44	281
8	7	1151	.36/ .36	229
8	8	1190	.38/ .38	238
8	9	4438	1.40/1.40	892

TAP	POINT	CORR V V	LOC/AVG	WTD TEMP
9	1	2062	.65/ .65	385
9	2	2333	.74/ .74	444
9	3	936	.30/ .30	187
9	4	897	.28/ .28	156
9	5	1256	.40/ .40	208
9	6	1337	.42/ .42	245
9	7	1291	.41/ .41	234
9	8	1329	.42/ .42	239
9	9	1523	.48/ .48	277

LOCATION = ESAH AIR OUT
FILE IDENITY = IP6_26ESAO

AVERAGE VELOCITY = 3165 FPM

AVERAGE (WEIGHTED) TEMPERATURE = 657

AVERAGE (ARITHMETIC) TEMPERATURE = 651

AVERAGE STATIC PRESSURE (in. H2O) = 2.6
AVERAGE DENSITY (LBM/FT^3) = .03069

ACFM (ACTUAL FT^3/MIN) = 1907104
LB/HR (WET) = 3512223

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INTERMOUNTAIN POWER PROJECT
UNIT NO. 1 - RB-614

AIR HEATER/EFFICIENCY TEST - JUNE 1987

OVERVIEW

Boiler performance tests were conducted on Unit No. 1 from June 22 through June 27, 1987. The purpose of the tests was to was to determine boiler efficiency, air heater leakage and air heater performance. The test method was specified by Air Preheater Co. and consisted of point by point traverses for velocity, temperature, and orsat (where applicable) at the economizer gas outlet, bag house inlet, primary and secondary air heater gas inlets and air outlets, primary air heater gas outlet, and tempering air. Denver Service was contracted by IPP to conduct the tests. The tests were witnessed by Air Preheater Co.

On Saturday, June 27, performance tests were conducted to obtain quality data with an upper mill out of service. Data was collected with balanced firing, normal high cooling air to the idle burner compartment, pulverizers biased up with normal cooling air and pulverizers biased up with reduced cooling air.

The test results are summarized on Table I. The conclusions are:

1. The average efficiency the 6/25 and 6/26 tests was 88.61 % when corrected to contract conditions versus the guarantee value of 88.57 %.

2. The average total air heater leakage for the 6/24, 6/25 and 6/26 tests was 461 Klb/hr versus a guarantee of 477 Klb/hr.

3. The calculated gas temperature leaving the secondary air heaters was 6 to 7 F more than expected for the test conditions which is within APCO's guarantee margin when considering test uncertainty.

4. The gas temperature leaving the primary air heaters was on the order of 65 F more than expected for the test conditions. This translates to approximately 6 to 7 F on final end temperature since only 10 % of the gas weight passes through the primary air heaters.

5. The composite gas temperature leaving the air heaters (excluding leakage) when corrected to contract conditions is 20 F higher than expected. Two thirds of this is due to poorer than expected air heater performance and one third due to higher than expected economizer gas outlet temperature. The addition of economizer sootblowers is expected to reduce economizer gas outlet temperature to expected.

6. Steam Temperature - With the upper rear wall burners out of service, pulverizers biased toward the upper burners and reduced cooling air to the idle compartment, superheat and reheat temperatures were 1008 and 1013 respectively with 22 % excess air. Steam temperature would be expected to be within guarantee with 17 % excess air (contract).

IP14_002337

INTERMOUNTAIN POWER PROJECT
AIR HEATER/EFFICIENCY TEST SUMMARY

	EXPECTED	6/24/87	6/25/87	6/26/87	AVE
EFFICIENCY, %					
TEST	---	---	88.53	88.51	88.52
CORRECTED	* 88.57	---	88.60	88.62	88.61
AH LEAKAGE, KLB/HR					
TOTAL	477	446	430	508	461
PRIMARY	* 163	212	176	120	169
SECONDARY (BY DIFFERENCE)	* 314	234	254	388	292
AIR TEMP ENT AIR HEATERS, F					
PRIMARY TEST	---	---	114	114	---
PRIMARY CORRECTED	77	---	77	77	77
SECONDARY TEST	---	---	90	91	---
SECONDARY CORRECTED	64	---	64	64	64
GAS TEMP LVG AH'S (EXCL LKG), F					
EXPECTED (TEST CONDITIONS)	---	---	321	318	320
TEST	---	---	333	331	332
CORRECTED	295	---	315	314	315
GAS TEMP LVG PRI AH (EXCL LKG), F					
EXPECTED (TEST CONDITIONS)	---	---	264	269	267
TEST	---	---	334	330	332
CORRECTED	313	---	310	306	308
GAS TEMP LVG SEC AH (EXCL LKG), F					
EXPECTED (TEST CONDITIONS)	---	---	326	324	325
TEST	---	---	332	331	332
CORRECTED	292	---	316	314	315

* Guaranteed
Calculations based on O2 and measured primary air flow from plant computer.

TEMPERATURES, F	SH	RH
BALANCED FIRING - NORM COOLING	968	965
BIAS UP - NORM COOLING	986	977
BIAS UP - MIN COOLING	1008	1013

TABLE I

IP14_002338

INSTRUMENTATION AND TEST PROCEDURE

The test procedure used was essentially in accordance with Air Preheater Co's requirements for an acceptance. The only exception was that the conditions at the secondary air heater gas outlets could not be measured directly. For air and gas side measurements, APCO requires a point by point traverse (with the exception of the air heater air inlets where a thermocouple grid was installed). The number of points per flue or duct was determined by dividing the flue or duct into equal areas not to exceed 3 ft. by 3 ft. A table showing the test locations, measurements required at each location and the number of points per location is contained in Appendix C. A sketch showing the physical dimensions of each location is also included. One complete traverse constituted one test. The economizer gas outlet, bag house inlet (air heater gas outlets), secondary air heater gas in and air out were coordinated such that the start and stop times coincided. Since these locations had the most points, they governed the length of a test. The primary air heaters were measured individually during the test period. The gas inlet and gas outlet of each primary air heater were traversed simultaneously and the primary air outlet and tempering air were traversed either immediately before or after the gas side traverses.

Water manometers were installed at the air heater air inlets and gas outlets to measure static pressure and air to gas pressure differential.

Coal and ash samples were obtained by IPP personnel. The ash and fuel analysis results are contained in Appendix I. IPP personnel also obtained local barometric pressure and wet and dry bulb temperatures to calculate moisture in air.

The remaining data necessary to determine output and efficiency were obtained from the plant computer. Data was obtained at five (5) minute intervals and later downloaded to an HP-9816 computer for averaging and reporting.

DATA REDUCTION AND CALCULATION METHODOLOGY

Static pressure and velocity head was measured at each traverse point with a Fechheimer probe and B&W's Velocity Pressure Averaging System (VPAS). Velocities were calculated for each point in accordance with PTC-11 Fans. Flue gas density was calculated in accordance with PTC-4.1 Steam Generators. All temperatures and O_2/CO_2 readings were weight averaged based on velocity as well as arithmetically averaged. A linear regression analysis was used to determine the combustion line (with respect to the flue gas volumetric combustion chart) for each orsat station. The combustion line relationship was then used to eliminate obviously bad orsat points; points with a CO_2 deviation greater than 0.35 from expected for the measured O_2. The point by point data listing, calculated velocity and weight average calculations are contained in appendices D, E and F. The orsat points that were eliminated are indicated as well as the weighted and arithmetic averages for each test station.

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A comparison of the arithmetic versus weighted average is summarized in Appendix K. It will be observed that there is virtually no difference between the weighted average results and the arithmetic average results. Thus, for future testing, B&W recommends that multi-point grids and the composite sampling method be employed. This has the benefit of reducing uncertainty by virtue of more samples.

For the test, there were eleven orsat stations. All orsat results were to the left of the flue gas combustion line. Refer to Appendix J for a tabulation of the combustion line results (maximum CO_2 at zero O_2) for each test station for each of the test days. It will be observed that the results for each test station are very consistent between the test days. The average combustion line based on the orsat results was 18.6 % CO_2 +/- 0.25 % at 0 % O_2. This order of variation is typically as good as one can achieve with an orsat. For the final fuel analysis, the expected CO_2 at zero O_2 is 18.3 %. If the O_2/CO_2 data is not on the combustion line, the CO_2 method (PTC 4.1 paragraphs 9.1 and 9.2) for calculating excess air and air and gas weights can be erroneous, especially when comparing differentials as when calculating air heater leakage. For this reason, B&W has more confidence in the calculations based on O_2 than CO_2, however, both are reported for comparison.

Unit efficiency was calculated in accordance with ASME PTC 4.1 Heat Loss Method, Abbreviated Efficiency Form. The key measurement points for determining efficiency by the heat loss method are average air temperature entering the unit and average gas temperature and excess air leaving the unit. The average air inlet temperature is a weighted average of the air temperature entering the primary and secondary air heaters. The alternate methods for determining the primary/secondary air flow split are described below. The average gas temperature/excess air leaving the air heaters (unit) is a composite sample of the gas entering the bag house which is a mix of the gas leaving the primary and secondary air heaters. This is the most accurate measurement location for determining unit efficiency. Flue gas sampling at the economizer gas outlet in conjunction with the bag house inlet enables calculation of total air heater leakage with a high confidence level.

Problems were encountered with measuring the air temperature at the air heater air inlets on 6/24. For purposes of evaluating air heater leakage, the difference between the plant and test averages on 6/25 and 6/26 was used to adjust the plant air heater air inlet temperature in order to calculate efficiency and gas flow. These results were not used for evaluation of unit efficiency and/or air heater performance, however, any error in the efficiency calculation has negligible impact on calculated air heater leakage mass flows.

In order to evaluate individual air heater performance and leakage, it is desirable to measure the conditions at the gas and air inlets and outlets of each air heater. On this unit, it was not possible to measure the secondary air heater gas outlet temperature and flue gas analysis directly due to the flue arrangement. Therefore, it was necessary to calculate the secondary air heater gas outlet conditions based on the primary air heater gas outlet and bag house gas inlet conditions. The following describes this calculation as well as the alternate methods used to determine air and gas mass flow splits.

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Total gas mass flow leaving the economizer and air heaters (entering the bag house) was calculated stoichiometrically based on the gas analysis data and fuel input. Fuel input was calculated from measured unit output and efficiency determined as described above.

Gas mass flow splits - B&W preferred method - Based on measured primary air flow to the pulverizers, mill inlet temperature, hot and cold primary air temperature; calculate air flow through the primary air heater by heat balance. Calculate the gas flow through the primary air heater by heat balance from the primary air heater gas side data and heat added to the primary air as measured and calculated above. It is noted that the pulverizers and primary air flow pressure transducers had been recently calibrated. The plant indication of percent primary air flow was converted to primary element pressure differential based on the latest calibration data. Primary air flow to each pulverizer was then calculated from this pressure differential, mill inlet temperature, and calibration ('K') factors for each mill. The gas mass flow entering the secondary air heaters is the difference between total gas mass flow leaving the economizer and the gas mass flow entering the primary air heaters.

Gas mass flow splits - APCO method - The measured gas flows entering the primary and secondary air heaters are adjusted proportionally by the ratio of calculated gas mass flow leaving the economizer divided by the sum of the measured gas mass flows entering the air heaters. These calculations are contained in Appendix H. It will be observed that the gas flow correction factors are reasonable.

Secondary air heater gas outlet conditions - Total leakage between the economizer gas outlet and bag house gas inlet (composite leaving all air heaters) was calculated as described above. The primary air heater leakage was calculated from the primary air heater gas inlet and outlet orsat data and gas mass flow entering as determined by either of the methods above. The secondary air heater leakage is the difference between the total air heater leakage and primary air heater leakage. Knowing the secodary air heater leakage, gas temperature leaving the primary air heater, average gas temperature leaving all the air heaters and gas mass flows, it is possible to calculate the average gas temperature leaving the secondary air heaters. A detailed description of this calculation procedure and calculations are contained in Appendix H.

For air heater evaluation and efficiency calculations using measured gas flows, the air flow through the air heaters was determined by heat balance. For efficiency calculated by the B&W method for calculating gas flow splits, the total air flow was calculated stoichiometrically assuming 2 % setting infiltration. Secondary air flow is the difference between total air flow and the measured air flow entering the pulverizers. The primary/secondary air flow split is required to determine the average entering air temperature for the efficiency calculations, and is not critical.

IP14_002341

TEST RESULTS

For the final analysis of the results, B&W considers the following methods for reducing the data and calculating the results to be the most accurate:

1. O2 method for calculating excess air and efficiency.

2. Utilizing the primary air flow measured by the plant instrumentation for calculating air/gas flow splits.

In this section, the results of the different calculation methods are presented and discussed. For simplicity of presentation in the tables and discussion, the following nomenclature is used:

1. O2 - O2 method for calculating excess air.

2. CO2 - CO2 method for calculating excess air.

3. MPAF - Calculated air/gas flow splits based on primary air flow to the pulverizers measured by the plant control system. In the text, this is referred to as the 'heat balance method'.

4. TRAV - Calculated air/gas flow splits based on the point by point velocity measurements. In the text, 'measured air/gas flow' refers to directly measured or calculated flows based upon the traverse data.

A summary of the air and gas flow results are shown in Table II. The calculations are contained in Appendix _H. Items of note are:

1. The measured primary air heater gas flow is higher than the gas flow calculated by heat balance. Since the primary air heater gas flow is only about 10 % of the total gas weight, this has no significant impact on the calculations except primary air heater versus secondary air heater leakage. The differences in secondary air heater gas flow follow the primary air heater gas flow, but the percent error is significantly less by virtue of the higher gas flow for the same error.

2. For the 6/25 and 6/26 tests, there is resonable agreement between the calculation methods for air flow to the pulverizers and secondary air heaters. The plant instrumentation is repeatable and thus more believable. Differences would have a slight impact on the weighted average entering air temperature and thus efficiency.

IP14_002342

	6/24/87 AVE		6/25/87 AVE		6/26/87 AVE	
	WEST	EAST	WEST	EAST	WEST	EAST
PRI AH GAS FLOW, KLB/HR						
MPAF / O2	372		349		360	
MPAF / CO2	370		348		362	
TRAV / O2	428	553	393	436	416	440
TRAV / CO2	415	537	383	425	407	430
PRI AH AIR FLOW, KLB/HR						
TO MILLS, TOTAL						
MPAF	1441		1451		1455	
TRAV / O2	1799		1478		1597	
TRAV / CO2	1709		1430		1555	
THRU AH, AVE PER HTR						
MPAF	453		411		443	
TRAV / O2	579		482	499	532	529
TRAV / CO2	581		471	490	516	513
PULV TEMP AIR, TOTAL						
MPAF	536		629		569	
TRAV / O2	642		498		536	
TRAV / CO2	547		470		527	
SEC AH GAS FLOW, KLB/HR						
MPAF / O2	6824		6827		7056	
MPAF / CO2	6610		6634		6846	
TRAV / O2	6599		6708		6924	
TRAV / CO2	6413		6541		6747	
SEC AH AIR FLOW, KLB/HR						
MPAF / O2	5425		5380		5623	
MPAF / CO2	5168		5148		5380	
TRAV / O2	5083		5364		5484	
TRAV / CO2	4917		5192		5297	

TABLE II
AIR & GAS FLOW CALCULATION SUMMARY

IP14_002343

A summary of the air heater leakage results is shown in Table III. The calculations are contained in Appendix H.

1. The composite air heater leakage was very repeatable for all three tests. The maximum deviation from the average is 10 % (0.6 % of total gas weight).

2. The total air heater leakage using the CO_2 method is higher than that calculated using the O_2 method, approximately 1.0 % of total gas weight. Due to the average O_2/CO_2 relationship being above the combustion line, B&W considers the O_2 method to be more believable.

3. The west primary air heater leakage is out of line (high) on 6/24 versus 6/25 and 6/26. The east primary air heater leakage is out of line (low) on 6/26 versus 6/24 and 6/25. The average air heater leakage column reflects deleting these two points from the average.

4. There is no significant difference in the primary air heater leakage calculated by either the O_2 or CO_2 method.

5. The primary air heater leakage is higher utilizing the measured gas flow data than the heat balance method since the traverse data indicates a higher primary air heater gas flow.

6. Based on the O_2 method and gas flow calculated by heat balance, the primary air heater leakage guarantee of 163 Klb/hr and secondary air heater leakage guarantee of 314 Klb/hr are met.

	6/24/87		6/25/87		6/26/87		AVERAGE *	
AH LEAKAGE, KLB/HR	TRAV	MPAF	TRAV	MPAF	TRAV	MPAF	TRAV	MPAF
COMPOSITE OF ALL AH'S								
O_2	446		430		509		462	
CO_2	518		525		616		553	
WEST PRI AH								
O_2	159	138	94	84	84	72	89	78
CO_2	147	131	91	82	89	78	90	80
EAST PRI AH								
O_2	116	78	115	92	60	49	116	85
CO_2	110	76	105	86	61	51	108	81
AVE PRI AH								
O_2	272	216	210	176	142	120	205	163
CO_2	254	207	197	169	148	129	198	161
AVE SEC AH								
O_2	173	234	215	254	356	389	257	299
CO_2	263	310	315	356	452	488	355	392

* AVERAGE OMITS 6/24 WEST PAH AND 6/26 EAST PAH DATA

TABLE III - AIR HEATER LEAKAGE SUMMARY

IP14_002344

A comparison of the results of the gas temperature entering the bag house (composite leaving the air heaters) is shown on Table IV and discussed below. The results for the individual air heaters is discussed later.

1. The corrected gas temperature entering the bag house (temperature excluding leakage) is 2 F to 3 F higher using the CO2 method versus the O2 method. This is due to the higher calculated leakage. The difference translates to 0.07 % in calculated efficiency.

2. Some concern has been expressed about the high gas temperature (including AH leakage) entering the bag house. The design target value was 280 F. The average for the three tests was 319 F. However, the average entering air temperature during the tests was 95 F versus the average design value of 67 F (64 F entering the secondary and 77 F entering the primary air heaters). Correcting the exit gas temperature for entering air temperature yields an average exit gas temperature of 300 F. The air heater exit gas temperature is expected to decrease on the order of 5 F with the addition of economizer sootblowers.

		6/24/87	6/25/87	6/26/87
GAS ENT BAG HOUSE, F				
	(INCL LKG)	318	321	317
O2 BASIS	(EXCL LKG)	330	333	331
CO2 BASIS	(EXCL LKG)	332	336	334
AVE AIR IN TEMP		93	95	96
*ENT BAG HOUSE	(INCL LKG)	301	302	298
AVE ECON GAS OUT		752	747	753

* CORRECTED FOR CONTRACT AVERAGE ENTERING AIR TEMP OF 67 F

TABLE IV - GAS TEMPERATURE ENTERING BAG HOUSE SUMMARY

The efficiency results are shown on Table V. Efficiency was first calculated based on the composite gas temperature entering the bag house. These results were used to calculate total gas flow and total air heater leakage. The plant measured primary air flow was used for these calculations. From these results, the measured gas flow data entering the air heaters was adjusted to agree with the total leaving the economizer calculated stoichiometrically. Also the gas conditions leaving the secondary air heater were calculated. A summary of the composite efficiency calculations is contained in Appendix H.

Efficiency was then re-calculated based on the separate primary and secondary air heater data and calculated results. These efficiency calculation results were also corrected to contract conditions (identified by CORR). The correction to contract conditions are for entering air temperature, fuel analysis and excess air. A summary of the composite efficiency calculations is contained in Appendix G.

IP14_002345

It will be observed that the test efficiencies are the same for both the composite and individual air heater basis. Other items of note are:

1. The efficiency for the test conditions is higher using the CO2 method than the O2 method because the calculated excess air and thus dry gas weight is lower even though the gas temperature leaving (excluding leakage) is higher.

2. The method for determining gas and air splits has no impact on the calculated or corrected efficiency.

3. The corrected efficiency is 0.07 % to 0.09 % lower using the CO2 method than the O2 method. This is due to the higher calculated exit gas temperature (excluding leakage) using the CO2 method.

	6/24/87		6/25/87		6/26/87	
EXCESS AIR MEAS BASIS	O2	CO2	O2	CO2	O2	CO2
EXCESS AIR LVG ECON, %	21	16	21	17	23	19
EFFICIENCY, %						
COMPOSITE ANALYSIS						
TEST - MPAF	88.40	88.50	88.53	88.61	88.51	88.59
INDIVIDUAL PRI/SEC AH						
TEST - MPAF	---	---	88.53	---	88.51	---
CORR - MPAF	---	---	88.60	---	88.62	---
TEST - TRAV	---	---	88.56	88.63	88.57	88.63
CORR - TRAV	---	---	88.63	88.56	88.70	88.61

TABLE V - EFFICIENCY SUMMARY

Table VI shows actual versus expected exit gas temperature for the air heaters. This table shows the air heater exit gas temperature as measured (including leakage) and corrected for no leakage for both the O2 and CO2 methods for calculating leakage. Also shown is the expected air heater exit gas temperature for the test conditions for both the measured flow (TRAV) and heat balance (MPAF) methods for determining air and gas flows. B&W's first principle air heater model was used to determine expected air heater performance based on the original predicted performance for the air heaters.

1. The secondary air heater exit gas temperature is 5 to 12 F higher than expected depending upon the test and calculation method. This is well within Air Preheater's guarantee considering test uncertainty.

IP14_002346

2. The primary air heater exit gas temperature is 54 to 70 F higher than expected. The performance of the east and west primary air heaters is similar and repeatable for the two tests. The expected exit gas temperature is approximately the same for the alternate calculation methods.

		6/25/87	6/26/87
SEC AH EXIT GAS TEMPERATURE, F			
TST	(INCL LKG)	324	319
TST - O2	(EXCL LKG)	332	331
EXP - O2 - MPAF	(EXCL LKG)	326	324
EXP - O2 - TRAV	(EXCL LKG)	323	326
TST - CO2	(EXCL LKG)	336	335
EXP - CO2 - TRAV	(EXCL LKG)	324	327

		AVE		AVE	
PRI AH EXIT GAS TEMPERATURE, F		WEST	EAST	WEST	EAST
TST	(INCL LKG)	289	293	295	306
TST - O2	(EXCL LKG)	329	338	329	331
EXP - O2 - MPAF	(EXCL LKG)	264		269	
EXP - O2 - TRAV	(EXCL LKG)	269	285	266	277
TST - CO2	(EXCL LKG)	328	336	332	333
EXP - CO2 - TRAV	(EXCL LKG)	267	282	267	276

TABLE VI - ACTUAL VS EXPECTED AH PERFORMANCE

SUMMARY AND CONCLUSIONS

1. The average efficiency corrected to contract conditions was 88.61 % by the O2 method and 88.59 % by the CO2 method. This meets the guarantee of 88.57 %.

2. The total air heater leakage was 462 Klb/hr by the O2 method and 553 Klb/hr by the CO2 method. The guarantee is 477 Klb/hr. The calculated primary air heater leakage varies between 161 and 205 Klb/hr depending upon the calculation method versus a guarantee of 163 Klb/hr. The calculated secondary air heater leakage varies between 257 and 392 Klb/hr depending upon the calculation method versus a guarantee of 314 Klb/hr. Note that the secondary air heater leakage is the difference between the measured total air heater leakage and the measured primary air heater leakage, thus the high secondary air heater leakage corresponds to the low primary air heater leakage and vice versa.

IP14_002347

3. The secondary air heater exit gas temperature (excluding leakage) is 6 to 7 F higher than expected which is within normal design tolerances when considering test uncertainty.

4. The primary air heaters are not performing as well as expected. The exit gas temperature is on the order of 55 to 65 F higher than expected. This conclusion is independent of the test calculation procedure. The primary air heaters only handle approximately 10 % of the gas flow, thus, the impact of primary air heater performance on average exit temperature is on the order of 6 F.

5. The average gas temperature entering the bag house (including air heater leakage) was 319 F with an entering air temperature of 95 F. Correcting for the contract average entering air temperature of 67 F, the gas temperature entering the bag house would be 300 F, or 20 F higher than expected. Two thirds of this is attributed to air heater performance and one third due to higher than expected gas temperature leaving the boiler. The addition of economizer sootblowers is expected to reduce the boiler gas outlet temperature.

6. Excessive cooling air to upper burner compartments was demonstrated to have a significant impact on steam temperature. Steam temperatures can be maintained by minimizing cooling air and bias firing.

7. While the test results utilizing point by point traverses were repeatable, there is concern on the part of B&W about the uncertainty introduced due to variations with time and coordination between test locations. The test results demonstrated that the arithmetic average of the individual traverse points agreed with the weighted average. For future testing, it is recommended that temperature grids and composite flue gas analysis be utilized. This would have the advantage of reducing test uncertainty by virtue of more samples as well as eliminate the uncertainty due to time and coordination between test locations in that all test locations are measured simultaneously.

IP14_002348

			CONTRACT SUMMARY SHEET	TEST 5A CORRECTED FOR CONTR. CONDITIONS	TEST 5A WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5087	1455/5622
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.5
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Temp Ent AH	PRI/SEC	F	736/ 736	740/ 746	740/ 746
Gas Temp Lvg AH (Incl Lkg)	PRI/SEC	F	279/ 282	-/ -	300/ 319
Gas Temp Lvg AH (Excl Lkg)	PRI/SEC	F	313/ 292	306/ 314	330/ 331
Gas Flow Ent AH	PRI/SEC	MLB/HR	924/6286	720/6521	720/7055
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	313.5	331.1
Excess Air Lvg Econ		%	17.0	17.0	22.6
Excess Air Ent Pri AH		%	---	17.0	19.1
Excess Air Ent Sec AH		%	---	17.0	22.6
Excess Air Lvg Sec AH		%	---	---	29.9
Excess Air Lvg Pri AH		%	---	---	40.6
Excess Air to Burners		%	15.0	15.0	20.5
Sec AH Leakage		MLB/HR	315	---	388
Pri AH Leakage		MLB/HR	169	---	120
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.848
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.287
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.458
Losses		%			
Dry Gas			4.84	5.38	5.49
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.38	11.49
Efficiency		%	88.57	88.62	88.51
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7550.8	7608.9
Fuel Rate		MLB/HR	686.2	685.8	624.1

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : O2/PRI-SEC TCH-080487

			CONTRACT SUMMARY SHEET	TEST 5MO CORRECTED FOR CONTR. CONDITIONS	TEST 5MO WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	472/ 654
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1597/4939	1597/5484
AH Air By-Pass Flow		MLB/HR	497.8	535.7	535.7
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	67.2	96.0
Gas Temp Lvg Econ		F	736.0	750.7	750.7
Gas Temp Ent AH	PRI/SEC	F	736/ 736	740/ 746	740/ 746
Gas Temp Lvg AH (Incl Lkg)	PRI/SEC	F	0/ 282	-/ -	301/ 318
Gas Temp Lvg AH (Excl Lkg)	PRI/SEC	F	0/ 295	306/ 312	330/ 329
Gas Flow Ent AH	PRI/SEC	MLB/HR	0/7210	856/6378	856/6922
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	311.2	329.1
Excess Air Lvg Econ		%	17.0	17.0	22.8
Excess Air Ent Pri AH		%	---	17.0	19.1
Excess Air Ent Sec AH		%	---	17.0	22.8
Excess Air Lvg Sec AH		%	---	---	29.6
Excess Air Lvg Pri AH		%	---	---	40.5
Excess Air to Burners		%	15.0	15.0	20.7
Sec AH Leakage		MLB/HR	484	---	355
Pri AH Leakage		MLB/HR	0	---	142
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.863
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.302
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.473
Losses		%			
Dry Gas			4.84	5.32	5.44
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.31	4.53
Moisture in Air			.07	.06	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.30	11.43
Efficiency		%	88.57	88.70	88.57
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7544.0	7603.7
Fuel Rate		MLB/HR	686.2	685.2	623.7

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : O2 PRI / SEC JMJr-102387

			CONTRACT SUMMARY SHEET	TEST 5MC CORRECTED FOR CONTR. CONDITIONS	TEST 5MC WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1555/4988	1555/5296
AH Air By-Pass Flow		MLB/HR	497.8	526.6	526.6
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	67.1	96.0
Gas Temp Lvg Econ		F	736.0	750.7	750.7
Gas Temp Ent AH	PRI/SEC	F	736/ 736	740/ 746	740/ 746
Gas Temp Lvg AH (Incl Lkg)	PRI/SEC	F	0/ 282	-/ -	301/ 318
Gas Temp Lvg AH (Excl Lkg)	PRI/SEC	F	0/ 295	308/ 315	332/ 332
Gas Flow Ent AH	PRI/SEC	MLB/HR	0/7210	837/6405	837/6746
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	314.3	332.0
Excess Air Lvg Econ		%	17.0	17.0	18.9
Excess Air Ent Pri AH		%	---	17.0	15.1
Excess Air Ent Sec AH		%	---	17.0	18.9
Excess Air Lvg Sec AH		%	---	---	28.3
Excess Air Lvg Pri AH		%	---	---	37.7
Excess Air to Burners		%	15.0	15.0	16.8
Sec AH Leakage		MLB/HR	484	---	443
Pri AH Leakage		MLB/HR	0	---	148
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.559
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	10.941
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.167
Losses		%			
Dry Gas			4.84	5.39	5.37
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.39	11.37
Efficiency		%	88.57	88.61	88.63
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7551.6	7598.6
Fuel Rate		MLB/HR	686.2	685.9	623.2

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : CO2 PRI / SEC JMJr-102287

			CONTRACT SUMMARY SHEET	TEST 5A CORRECTED FOR CONTR. CONDITIONS	TEST 5A WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5086	1455/5622
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.5
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Flow Ent AH		MLB/HR	7210	7239	7775
Ave Gas Temp Lvg AH (Incl Lkg)		F	281.6	---	317.3
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	312.7	330.9
Excess Air Lvg Econ		%	17.0	17.0	22.6
Excess Air Lvg AH		%	---	---	31.3
Excess Air to Burners		%	15.0	15.0	20.5
AH Leakage		MLB/HR	484	---	509
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.848
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.287
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.458
Losses		%			
Dry Gas			4.84	5.36	5.40
H2O in Fuel			(2) 5.15	.88	.60
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.36	11.49
Efficiency		%	88.57	88.64	88.51
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7549.1	7608.9
Fuel Rate		MLB/HR	686.2	685.7	624.1

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/ O2 TCH-102387

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/ O2 TCH-102387

EXCESS AIR = 22.62 O2 % = 3.96 CO % = 0.00 CO2 % = 14.71 SO2 % = .05
DRY AIR = 11.49 MOIS AIR = .053 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.848 WET GAS = 12.458 LB/LB FUEL MOIS GAS, % = 4.89

EXCESS AIR = 31.29 O2 % = 5.10 CO % = 0.00 CO2 % = 13.72 SO2 % = .04
DRY AIR = 12.30 MOIS AIR = .057 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.661 WET GAS = 13.274 LB/LB FUEL MOIS GAS, % = 4.62
Cpa = .242 Cpg = .254 AH LKG, % = 6.55 GAS LVG AH (EXCL LKG) = 330.9
AIR TEMP ENT = 100.0 GAS TEMP LVG (INCL LKG) = 317.3

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080287

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.96*	3.45*	6.18*	3.96*	4.94	5.10*
CO2,	%	14.71	15.15	12.79	14.71	13.86	13.72
EXCESS AIR,	%	22.6	19.1	40.6	22.6	29.9	31.3
H2O IN GAS,	%	4.89	5.01	4.36	4.89	4.65	4.62
T AIR,	F		114.1*	472.5*	90.7*	655.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			472.8		645.7	
T GAS,	F	752.8*	740.0*	300.5*	745.5*	319.2	317.3*
H GAS,	BTU/LB			54.7		59.6	59.1
H GASC,	BTU/LB			62.5		62.8	62.7
T GAS (W/O LKG),	F			329.8		331.1	331.0
WT AIR,	KLB/HR			885.7		5623.0	0.0
WT GAS,	KLB/HR	7776.0	719.9	839.9	7056.1	7445.6	8285.5
AH LKG,	KLB/HR			120.0*		389.5	509.5*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 568.9
MOIS IN AIR, LB/LB DA = .0046

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080387

EXCESS AIR = 21.31 O2 % = 3.77 CO % = 0.00 CO2 % = 14.88 SO2 % = .05
DRY AIR = 11.36 MOIS AIR = .053 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.726 WET GAS = 12.335 LB/LB FUEL MOIS GAS, % = 4.94

EXCESS AIR = 47.53 O2 % = 6.88 CO % = 0.00 CO2 % = 12.17 SO2 % = .04
DRY AIR = 13.82 MOIS AIR = .064 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 14.183 WET GAS = 14.804 LB/LB FUEL MOIS GAS, % = 4.19
Cpa = .242 Cpg = .254 AH LKG, % = 20.02 GAS LVG AH (EXCL LKG) = 329.0

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : USING O2 TCH-080387

EXCESS AIR = 17.06 O2 % = 3.13 CO % = 0.00 CO2 % = 15.43 SO2 % = .05
DRY AIR = 10.96 MOIS AIR = .051 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.327 WET GAS = 11.934 LB/LB FUEL MOIS GAS, % = 5.09

EXCESS AIR = 34.34 O2 % = 5.47 CO % = 0.00 CO2 % = 13.40 SO2 % = .04
DRY AIR = 12.58 MOIS AIR = .058 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.946 WET GAS = 13.561 LB/LB FUEL MOIS GAS, % = 4.53
Cpa = .242 Cpg = .254 AH LKG, % = 13.63 GAS LVG AH (EXCL LKG) = 331.4

			CONTRACT SUMMARY SHEET	TEST 5AC CORRECTED FOR CONTR. CONDITIONS	TEST 5AC WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5091	1455/5379
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.7
Gas Temp Lvg Econ		F	736.0	752.8	752.8
Gas Flow Ent AH		MLB/HR	7210	7245	7568
Ave Gas Temp Lvg AH (Incl Lkg)		F	281.6	---	317.3
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	316.0	334.2
Excess Air Lvg Econ		%	17.0	17.0	18.6
Excess Air Lvg AH		%	---	---	29.6
Excess Air to Burners		%	15.0	15.0	16.5
AH Leakage		MLB/HR	484	---	616
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.531
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	10.909
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.138
Losses		%			
Dry Gas			4.84	5.43	5.41
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.43	11.41
Efficiency		%	88.57	88.57	88.59
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7555.0	7602.0
Fuel Rate		MLB/HR	686.2	686.2	623.5

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 TCH-102387

TEST 5A : 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 TCH-102387

EXCESS AIR = 0.00 O2 % = 3.96 CO % = 0.00 CO2 % = 15.20 SO2 % = 0.00
DRY AIR = 11.09 MOIS AIR = .051 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.531 WET GAS = 12.138 LB/LB FUEL MOIS GAS, % = 5.00

EXCESS AIR = 0.00 O2 % = 5.10 CO % = 0.00 CO2 % = 13.93 SO2 % = 0.00
DRY AIR = 12.12 MOIS AIR = .056 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.514 WET GAS = 13.126 LB/LB FUEL MOIS GAS, % = 4.66
Cpa = .242 Cpg = .254 AH LKG, % = 8.14 GAS LVG AH (EXCL LKG) = 334.2
AIR TEMP ENT = 100.0 GAS TEMP LVG (INCL LKG) = 317.3

TEST 5AC: 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-080287

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.96*	3.45*	6.18*	3.96*	4.66	5.10*
CO2,	%	15.20*	15.66*	13.06*	15.20*	14.10	13.93*
EXCESS AIR,	%	18.6	15.2	37.9	18.6	27.8	29.6
H2O IN GAS,	%	5.01	5.13	4.42	5.01	4.69	4.66
T AIR,	F		114.1*	472.5*	90.7*	655.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			472.8		649.3	
T GAS,	F	752.8*	740.0*	300.5*	745.5*	319.3	317.3*
H GAS,	BTU/LB			54.8		59.7	59.2
H GASC,	BTU/LB			63.1		63.7	63.7
T GAS (W/O LKG),	F			331.8		334.6	334.4
WT AIR,	KLB/HR			885.7		5380.0	0.0
WT GAS,	KLB/HR	7569.0	722.6	851.1	6846.4	7334.3	8185.4
AH LKG,	KLB/HR			128.5*		487.9	616.4*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 568.9
MOIS IN AIR, LB/LB DA = .0046

TEST 5AC : 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-080387

EXCESS AIR = 0.00 O2 % = 3.77 CO % = 0.00 CO2 % = 15.44 SO2 % = 0.00
DRY AIR = 10.91 MOIS AIR = .051 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.363 WET GAS = 11.970 LB/LB FUEL MOIS GAS, % = 5.07

EXCESS AIR = 0.00 O2 % = 6.88 CO % = 0.00 CO2 % = 12.43 SO2 % = 0.00
DRY AIR = 13.54 MOIS AIR = .063 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.950 WET GAS = 14.569 LB/LB FUEL MOIS GAS, % = 4.25
Cpa = .242 Cpg = .254 AH LKG, % = 21.71 GAS LVG AH (EXCL LKG) = 331.8

TEST 5AC : 06/26/87 : 1045-1625 : 853 MW : USING CO2 TCH-080387

EXCESS AIR = 0.00 O2 % = 3.13 CO % = 0.00 CO2 % = 15.88 SO2 % = 0.00
DRY AIR = 10.63 MOIS AIR = .049 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.064 WET GAS = 11.670 LB/LB FUEL MOIS GAS, % = 5.19

EXCESS AIR = 0.00 O2 % = 5.47 CO % = 0.00 CO2 % = 13.70 SO2 % = 0.00
DRY AIR = 12.30 MOIS AIR = .057 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.718 WET GAS = 13.331 LB/LB FUEL MOIS GAS, % = 4.60
Cpa = .242 Cpg = .255 AH LKG, % = 14.24 GAS LVG AH (EXCL LKG) = 332.5

			CONTRACT SUMMARY SHEET	TEST 5MO CORRECTED FOR CONTR. CONDITIONS	TEST 5MO WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	472/ 654
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5080	1455/5627
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.5
Gas Temp Lvg Econ		F	736.0	750.7	750.7
Gas Flow Ent AH		MLB/HR	7210	7234	7780
Ave Gas Temp Lvg AH (Incl Lkg)		F	281.6	---	315.7
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	310.5	328.9
Excess Air Lvg Econ		%	17.0	17.0	22.8
Excess Air Lvg AH		%	---	---	31.3
Excess Air to Burners		%	15.0	15.0	20.7
AH Leakage		MLB/HR	484	---	498
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.863
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	11.302
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.473
Losses		%			
Dry Gas			4.84	5.31	5.45
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.31	4.53
Moisture in Air			.07	.06	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.29	11.44
Efficiency		%	88.57	88.71	88.56
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7543.1	7604.6
Fuel Rate		MLB/HR	686.2	685.1	623.7

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/ O2 MEAS FLOW JMJr-102387

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/ O2 MEAS FLOW JMJr-102387

EXCESS AIR = 22.78 O2 % = 3.98 CO % = 0.00 CO2 % = 14.69 SO2 % = .04
DRY AIR = 11.50 MOIS AIR = .053 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.863 WET GAS = 12.473 LB/LB FUEL MOIS GAS, % = 4.89

EXCESS AIR = 31.26 O2 % = 5.10 CO % = 0.00 CO2 % = 13.72 SO2 % = .04
DRY AIR = 12.29 MOIS AIR = .057 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.658 WET GAS = 13.271 LB/LB FUEL MOIS GAS, % = 4.62
Cpa = .242 Cpg = .254 AH LKG, % = 6.40 GAS LVG AH (EXCL LKG) = 328.9
AIR TEMP ENT = 100.1 GAS TEMP LVG (INCL LKG) = 315.7

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GENERAL CALCULATIONS

	WPAH	EPAH	WSAH	ESAH	TOTAL
MEAS GAS ENT	489.9	517.7	3729	4418	9154.6
CORR FACTOR/CALC TOTAL		Corr Fact	=.85		7780
ADJUSTED GAS FLOW	416.4	440		6925	
O2 ENT	3.76	3.44 3.13			
CO2 ENT	15.44	15.67 15.80			
O2 LVG	6.80	6.16 5.47			
CO2 LVG	12.42	13.08 13.70			
% LKG	20.07	13.63			
TAIR ENT	117.4	114.1 110.7	94.1	90.7 87.3	
TG LVG W/LKG	295	300.6 306		317.8	
TG LVG W/O LKG	329.1	331.4		328.8	
W LKG	83.6	60.0			
TAIR LVG	467	472.4 478	652	654 657	
TGAS ENT	742	739.9 738	744	745.6 747	
% MOIS	5.30				
HA ENT	8.47	8.0		2.58	
HA LVG	94.33	97.1		141.2	
HG ENT	171.2	170.1		172.16	
HG LVG	62.65	62.9		62.4	
W AIR LVG AH	531.9	529.4		548.5	7082
W AIR By-PASS By PULV HT BAL					535.7

CUSTOMER IPP TEST NO. 5MO FILE NO RB-614

SUBJECT CALC AIR/GAS FLOWS PREPARED BY JM/TCH DATE 10/22/87

IP14_002362

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : WEST PRI AH / O2 JMJr-102387

EXCESS AIR = 21.25 O2 % = 3.76 CO % = 0.00 CO2 % = 14.88 SO2 % = .05
DRY AIR = 11.36 MOIS AIR = .052 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.719 WET GAS = 12.328 LB/LB FUEL MOIS GAS, % = 4.94

EXCESS AIR = 47.53 O2 % = 6.88 CO % = 0.00 CO2 % = 12.17 SO2 % = .04
DRY AIR = 13.82 MOIS AIR = .064 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 14.183 WET GAS = 14.803 LB/LB FUEL MOIS GAS, % = 4.19
Cpa = .242 Cpg = .254 AH LKG, % = 20.08 GAS LVG AH (EXCL LKG) = 329.1
AIR TEMP ENT = 117.4 GAS TEMP LVG (INCL LKG) = 295.0

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : EAST PRI AH / O2 JMJr-10238[illegible]

EXCESS AIR = 17.06 O2 % = 3.13 CO % = 0.00 CO2 % = 15.43 SO2 % = .05
DRY AIR = 10.96 MOIS AIR = .050 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.327 WET GAS = 11.933 LB/LB FUEL MOIS GAS, % = 5.08

EXCESS AIR = 34.34 O2 % = 5.47 CO % = 0.00 CO2 % = 13.40 SO2 % = .04
DRY AIR = 12.58 MOIS AIR = .058 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.946 WET GAS = 13.560 LB/LB FUEL MOIS GAS, % = 4.53
Cpa = .242 Cpg = .254 AH LKG, % = 13.63 GAS LVG AH (EXCL LKG) = 331.4
AIR TEMP ENT = 110.7 GAS TEMP LVG (INCL LKG) = 306.0

TEST 5MO : 06/26/87 : 1045-1625 : 853 MW : O2 PRI / SEC JMJr102287

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.98*	3.44*	6.16*	3.98*	4.89	5.10*
CO2,	%	14.69	15.16	12.80	14.69	13.90	13.72
EXCESS AIR,	%	22.8	19.1	40.5	22.8	29.6	31.3
H2O IN GAS,	%	4.88	5.01	4.36	4.88	4.65	4.62
T AIR,	F		114.1*	472.4*	90.7*	654.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			470.2		652.0	
T GAS,	F	750.7*	739.9*	300.6*	745.6*	317.8	315.7*
H GAS,	BTU/LB			54.8		59.3	58.7
H GASC,	BTU/LB			62.5		62.2	62.2
T GAS (W/O LKG),	F			329.9		328.8	328.9
WT AIR,	KLB/HR			1061.3		5484.0	0.0
WT GAS,	KLB/HR	7780.0	856.4	998.7	6923.6	7279.5	8278.2
AH LKG,	KLB/HR			142.3*		355.9	498.2*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 535.7
MOIS IN AIR, LB/LB DA = .0046
WT AIR LVG SEC BY HT BAL = 5464.4

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : O2 PRI / SEC JMJr-102387

EXCESS AIR = 22.78 O2 % = 3.98 CO % = 0.00 CO2 % = 14.69 SO2 % = .04
DRY AIR = 11.50 MOIS AIR = .053 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.863 WET GAS = 12.473 LB/LB FUEL MOIS GAS, % = 4.89

EXCESS AIR = 29.58 O2 % = 4.89 CO % = 0.00 CO2 % = 13.90 SO2 % = .04
DRY AIR = 12.14 MOIS AIR = .056 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.501 WET GAS = 13.113 LB/LB FUEL MOIS GAS, % = 4.67
Cpa = .242 Cpg = .254 AH LKG, % = 5.13 GAS LVG AH (EXCL LKG) = 328.9
AIR TEMP ENT = 90.7 GAS TEMP LVG (INCL LKG) = 317.8

TEST 5MO: 06/26/87 : 1045-1625 : 853 MW : O2 PRI / SEC JMJr-102387

EXCESS AIR = 19.08 O2 % = 3.44 CO % = 0.00 CO2 % = 15.16 SO2 % = .05
DRY AIR = 11.15 MOIS AIR = .052 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.516 WET GAS = 12.124 LB/LB FUEL MOIS GAS, % = 5.01

EXCESS AIR = 40.48 O2 % = 6.16 CO % = 0.00 CO2 % = 12.80 SO2 % = .04
DRY AIR = 13.16 MOIS AIR = .061 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.522 WET GAS = 14.139 LB/LB FUEL MOIS GAS, % = 4.36
Cpa = .242 Cpg = .254 AH LKG, % = 16.62 GAS LVG AH (EXCL LKG) = 330.2
AIR TEMP ENT = 114.1 GAS TEMP LVG (INCL LKG) = 300.6

			CONTRACT SUMMARY SHEET	TEST 5MC CORRECTED FOR CONTR. CONDITIONS	TEST 5MC WITH TEST CONDITIONS
Fuel			CONTRACT	CONTRACT	TEST
Air Temp Ent AH	PRI/SEC	F	77/ 64	77/ 64	114/ 91
Air Temp Lvg AH	PRI/SEC	F	582/ 647	0/ 0	473/ 655
Air Flow Lvg AH (1)	PRI/SEC	MLB/HR	1335/5184	1455/5089	1455/5397
AH Air By-Pass Flow		MLB/HR	497.8	568.9	568.9
Mill Inlet Temp		F	397.2	0.0	333.5
Ave Air Temp Ent AH		F	66.7	66.9	95.7
Gas Temp Lvg Econ		F	736.0	750.7	750.7
Gas Flow Ent AH		MLB/HR	7210	7243	7584
Ave Gas Temp Lvg AH (Incl Lkg)		F	281.6	---	315.7
Ave Gas Temp Lvg AH (Excl Lkg)		F	294.7	314.3	332.7
Excess Air Lvg Econ		%	17.0	17.0	18.9
Excess Air Lvg AH		%	---	---	29.6
Excess Air to Burners		%	15.0	15.0	16.8
AH Leakage		MLB/HR	484	---	600
Moisture In Air		LB/LB DA	.0067	.0067	.0046
Dry Gas Wt Lvg Econ		LB/LB Fuel	---	10.003	11.559
Dry Air Wt to Burners		LB/LB Fuel	---	9.475	10.941
Wet Gas Wt Lvg Econ		LB/LB Fuel	---	10.558	12.167
Losses		%			
Dry Gas			4.84	5.40	5.39
H2O in Fuel			(2) 5.15	.88	.69
H2 in Fuel			---	4.32	4.54
Moisture in Air			.07	.07	.05
Unburned Combustible			.20	.06	.06
Radiation			.17	.17	.16
Unaccounted			(3) 1.00	.50	.50
Summation of Losses			11.43	11.40	11.39
Efficiency		%	88.57	88.60	88.61
Unit Output		MKB	6691.5	6691.5	6734.6
Fuel Input		MKB	7555.0	7552.5	7600.3
Fuel Rate		MLB/HR	686.2	686.0	623.4

(1) Includes By-Pass Flow (2) Includes H2 in Fuel Loss
(3) Includes Manufacturer's Margin of .5 %

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 MEAS FLOW JMJr-102287

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : COMPOSITE/CO2 MEAS FLOW JMJr-102087

EXCESS AIR = 0.00 O2 % = 3.98 CO % = 0.00 CO2 % = 15.16 SO2 % = 0.00
DRY AIR = 11.12 MOIS AIR = .052 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.559 WET GAS = 12.167 LB/LB FUEL MOIS GAS, % = 5.00

EXCESS AIR = 0.00 O2 % = 5.10 CO % = 0.00 CO2 % = 13.93 SO2 % = 0.00
DRY AIR = 12.12 MOIS AIR = .056 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.517 WET GAS = 13.129 LB/LB FUEL MOIS GAS, % = 4.66
Cpa = .242 Cpg = .254 AH LKG, % = 7.91 GAS LVG AH (EXCL LKG) = 332.7
AIR TEMP ENT = 90.7 GAS TEMP LVG (INCL LKG) = 315.7

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Babcock & Wilcox
GENERAL CALCULATIONS

	WPAH	EPAH	WSAH	ESAH	TOTAL
MEAS GAS ENT	489.9	517.7	3,729	4,416	9154.6
CORR FACTOR/CALC TOTAL		Corr Fact = .83			7584
ADJUSTED GAS FLOW	407	430	67	39	
		837			
O2 ENT	3.76	3.44 3.13			
CO2 ENT	15.44	15.67 15.88			
O2 LVG	6.88	6.16 5.47			
CO2 LVG	12.42	13.08 13.70			
% LKG	21.80%	14.24			
TAIR ENT	117.4	114.1 110.7	94.1	90.7 87.3	
TG LVG W/LKG	295	300.6 306		317.8	
TG LVG W/O LKG	331.9	332.5		332.1	
W LKG	88.7	61.2	449.6		599
TAIR LVG	467	472.4 478	652	654 657	
TGAS ENT	742	739.9 738	744	745.6 747	
% MOIS	5.43		.046		
HA ENT	9.02	2.40	2.41		
HA LVG	99.3	97.1	141.2		
HG ENT	171.4	170.3	172.4		
HG LVG	63.3	63.4	63.3		
	.137	.119	.79		
W AIR LVG AH	515.9	512.5	5297		6852
W AIR By-PASS By PULV HT BAL					526.6

CUSTOMER: IPP TEST NO. 5MC

FILE NO. RB-614

SUBJECT: CALC AIR/GAS FLOWS

PREPARED BY: JM/TCH

DATE: 10/22/87

IP14_002368

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : W PRI AH / CO2 MEAS FLOW JMJr-102287

EXCESS AIR = 0.00 O2 % = 3.76 CO % = 0.00 CO2 % = 15.44 SO2 % = 0.00
DRY AIR = 10.91 MOIS AIR = .050 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.364 WET GAS = 11.970 LB/LB FUEL MOIS GAS, % = 5.07

EXCESS AIR = 0.00 O2 % = 6.88 CO % = 0.00 CO2 % = 12.42 SO2 % = 0.00
DRY AIR = 13.55 MOIS AIR = .062 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.962 WET GAS = 14.580 LB/LB FUEL MOIS GAS, % = 4.24
Cpa = .242 Cpg = .254 AH LKG, % = 21.80 GAS LVG AH (EXCL LKG) = 331.9
AIR TEMP ENT = 117.4 GAS TEMP LVG (INCL LKG) = 295.0

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : E PRI AH / CO2 MEAS FLOW JMJr-102287

EXCESS AIR = 0.00 O2 % = 3.13 CO % = 0.00 CO2 % = 15.88 SO2 % = 0.00
DRY AIR = 10.64 MOIS AIR = .049 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.065 WET GAS = 11.670 LB/LB FUEL MOIS GAS, % = 5.18

EXCESS AIR = 0.00 O2 % = 5.47 CO % = 0.00 CO2 % = 13.70 SO2 % = 0.00
DRY AIR = 12.31 MOIS AIR = .057 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.719 WET GAS = 13.332 LB/LB FUEL MOIS GAS, % = 4.60
Cpa = .242 Cpg = .255 AH LKG, % = 14.24 GAS LVG AH (EXCL LKG) = 332.5
AIR TEMP ENT = 110.7 GAS TEMP LVG (INCL LKG) = 306.0

TEST 5MC : 06/26/87 : 1045-1625 : 853 MW : CO2 PRI / SEC JMJr102287

CALCULATED SECONDARY AH GAS OUTLET CONDITIONS

		LVG ECON	ENT PRI	LVG PRI	ENT SEC	LVG SEC	TOTAL LVG AH'S
O2,	%	3.98*	3.44*	6.16*	3.98*	4.63	5.10*
CO2,	%	15.16*	15.67*	13.08*	15.16*	14.12	13.93*
EXCESS AIR,	%	18.9	15.1	37.7	18.9	27.6	29.6
H2O IN GAS,	%	4.99	5.13	4.43	4.99	4.69	4.66
T AIR,	F		114.1*	472.4*	90.7*	654.0*	
H AIR,	BTU/LB		8.2		2.6		
T AIR CALC,	F			471.9		653.2	
T GAS,	F	750.7*	739.9*	300.6*	745.6*	317.8	315.7*
H GAS,	BTU/LB			54.8		59.3	58.7
H GASC,	BTU/LB			63.1		63.1	63.1
T GAS (W/O LKG),	F			331.8		332.1	332.1
WT AIR,	KLB/HR			1028.4		5297.0	0.0
WT GAS,	KLB/HR	7584.0	837.0	985.4	6747.0	7198.7	8184.1
AH LKG,	KLB/HR			148.4*		451.7	600.1*

* DENOTES MEASURED VALUES.

PRI AH AIR BY-PASS FLOW = 526.6
MOIS IN AIR, LB/LB DA = .0046
WT AIR LVG SEC BY HT BAL = 5288.8

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : CO2 PRI / SEC JMJr-102287

EXCESS AIR = 0.00 O2 % = 3.98 CO % = 0.00 CO2 % = 15.16 SO2 % = 0.00
DRY AIR = 11.12 MOIS AIR = .052 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.559 WET GAS = 12.167 LB/LB FUEL MOIS GAS, % = 5.00

EXCESS AIR = 0.00 O2 % = 4.63 CO % = 0.00 CO2 % = 14.12 SO2 % = 0.00
DRY AIR = 12.00 MOIS AIR = .056 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 12.353 WET GAS = 12.965 LB/LB FUEL MOIS GAS, % = 4.72
Cpa = .242 Cpg = .254 AH LKG, % = 6.56 GAS LVG AH (EXCL LKG) = 332.0
AIR TEMP ENT = 90.7 GAS TEMP LVG (INCL LKG) = 317.8

TEST 5MC: 06/26/87 : 1045-1625 : 853 MW : CO2 PRI / SEC JMJr-102287

EXCESS AIR = 0.00 O2 % = 3.44 CO % = 0.00 CO2 % = 15.67 SO2 % = 0.00
DRY AIR = 10.76 MOIS AIR = .050 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 11.205 WET GAS = 11.811 LB/LB FUEL MOIS GAS, % = 5.13

EXCESS AIR = 0.00 O2 % = 6.16 CO % = 0.00 CO2 % = 13.08 SO2 % = 0.00
DRY AIR = 12.88 MOIS AIR = .060 MOIS ADD = 0.000 H2O FUEL = .556 LB/LB FUEL
DRY GAS = 13.289 WET GAS = 13.905 LB/LB FUEL MOIS GAS, % = 4.43
Cpa = .242 Cpg = .254 AH LKG, % = 17.73 GAS LVG AH (EXCL LKG) = 332.1
AIR TEMP ENT = 114.1 GAS TEMP LVG (INCL LKG) = 300.6

TEST 5MO :06/26/87 : W PRI AH / CO2 / MEASURED AIR-GAS FLOW JMJr102287

	BASE	NEW		BASE	NEW		
GAS WT ENT =	462	416	AIR WT LVG =	418	532	MOIST = 6.0	5.3
GAS TEMP ENT =	736	742	GAS TEMP LVG =	313	266	EXCL. LKG	
AH LKG, %		20.02	GAS TEMP LVG =		242	INCL. LKG	
			AVE COLD END =	195	190		
AIR TEMP ENT =	77	115	AIR TEMP LVG =	583	517		

TEST 5MO :06/26/87 : E PRI AH / O2 / MEASURED AIR-GAS FLOW JMJr102287

	BASE	NEW		BASE	NEW		
GAS WT ENT =	462	440	AIR WT LVG =	418	529	MOIST = 6.0	5.3
GAS TEMP ENT =	736	738	GAS TEMP LVG =	313	277	EXCL. LKG	
AH LKG, %		13.59	GAS TEMP LVG =		258	INCL. LKG	
			AVE COLD END =	195	195		
AIR TEMP ENT =	77	113	AIR TEMP LVG =	583	527		

TEST 5MC :06/26/87 : W PRI AH / CO2 / MEASURED AIR-GAS FLOW JMJr102287

	BASE	NEW		BASE	NEW		
GAS WT ENT =	462	407	AIR WT LVG =	418	513	MOIST = 6.0	5.4
GAS TEMP ENT =	736	742	GAS TEMP LVG =	313	267	EXCL. LKG	
AH LKG, %		21.72	GAS TEMP LVG =		241	INCL. LKG	
			AVE COLD END =	195	191		
AIR TEMP ENT =	77	115	AIR TEMP LVG =	583	522		

TEST 5MC :06/26/87 : E PRI AH / CO2 / MEASURED AIR-GAS FLOW JMJr102287

	BASE	NEW		BASE	NEW		
GAS WT ENT =	462	430	AIR WT LVG =	418	516	MOIST = 6.0	5.4
GAS TEMP ENT =	736	738	GAS TEMP LVG =	313	276	EXCL. LKG	
AH LKG, %		14.19	GAS TEMP LVG =		257	INCL. LKG	
			AVE COLD END =	195	195		
AIR TEMP ENT =	77	113	AIR TEMP LVG =	583	528		

TEST 5A :06/26/87 : SEC AH / O2 / PLANT PA FLOW JMJr102287

	BASE	NEW		BASE	NEW			
GAS WT ENT =	6286	7055	AIR WT LVG =	5184	5622	MOIST =	6.6	4.9
GAS TEMP ENT =	736	746	GAS TEMP LVG =	292	324	EXCL. LKG		
AH LKG, %		5.50	GAS TEMP LVG =		313	INCL. LKG		
			AVE COLD END =	178	208			
AIR TEMP ENT =	64	91	AIR TEMP LVG =	647	664			

TEST 5MO :06/26/87 : SEC AH / O2 / MEASURED AIR-GAS FLOW JMJr102287

	BASE	NEW		BASE	NEW			
GAS WT ENT =	6286	6922	AIR WT LVG =	5184	5484	MOIST =	6.6	5.3
GAS TEMP ENT =	736	746	GAS TEMP LVG =	292	326	EXCL. LKG		
AH LKG, %		5.13	GAS TEMP LVG =		315	INCL. LKG		
			AVE COLD END =	178	208			
AIR TEMP ENT =	64	91	AIR TEMP LVG =	647	665			

TEST 5MC :06/26/87 : SEC AH / CO2 / MEASURED AIR-GAS FLOW JMJr102287

	BASE	NEW		BASE	NEW			
GAS WT ENT =	6286	6746	AIR WT LVG =	5184	5296	MOIST =	6.6	5.4
GAS TEMP ENT =	736	746	GAS TEMP LVG =	292	327	EXCL. LKG		
AH LKG, %		6.57	GAS TEMP LVG =		314	INCL. LKG		
			AVE COLD END =	178	209			
AIR TEMP ENT =	64	91	AIR TEMP LVG =	647	668			