Data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Totalizer Name**	**Node**	**Tagname**	**Field**	**Clear**	**Error**	**Message**	**Value**	**EGU**	**Copy**	**Shift**	**Day**	**Week**	**Month**	**Year**
2	Heating Degree Days	scada	qy000hdd	a_cv	1	0		0.610	hdd	0.610	7.100	18.350	15011.420	28.650	1001.680
3	Condensate Return Water Flow	scada	QYMU000	a_cv	1	0		7.900	gpm	7.900	119.990	454.310	9266581.610	597.180	15458.980
4	Transfer Pump #1 Run Time	scada	qytp1rt	a_cv	1	0		0.500	hrs	0.500	6.520	23.500	8277.930	30.520	278.970
5	Transfer Pump #2 Run Time	scada	qytp2rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	11532.850	0.000	167.480
6	Transfer Pump #3 Run Time	scada	qytp3rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	10623.910	0.000	327.810
7	Boiler Feed Pump #1 Run Time	scada	qybfp1rt	a_cv	1	0		0.500	hrs	0.500	6.520	23.500	8650.610	30.520	303.850
8	Boiler Feed Pump #2 Run Time	scada	qybfp2rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	9426.480	0.000	249.450
9	Boiler Feed Pump #3 Run Time	scada	qybfp3rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	7763.580	0.000	120.780
10	Boiler Feed Pump #4 Run Time	scada	qybfp4rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	6847.410	0.000	174.090
11	Fuel Oil Pump #1 Run Time	scada	qyfop1rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	565.620	0.000	0.000
12	Fuel Oil Pump #2 Run Time	scada	qyfop2rt	a_cv	1	0		0.000	hrs	0.000	0.000	0.000	882.710	0.000	0.000
13	Boiler 1 Steam Flow	scada	qys010	a_cv	1	0		0.000	klbs	0.000	0.000	0.000	104020.570	0.000	2571.850
14	Boiler 1 Gas Flow	scada	qyg010	a_cv	1	0		0.0000	kscf	0.000	0.2300	0.6800	113713.5700	0.9000	3284.8800
15	Boiler 1 Oil Flow	scada	qyo010	a_cv	1	0		0.0000	gals	0.000	0.0000	0.0000	54666.8200	0.0000	0.0000
16	Boiler 1 Run Time	scada	qy010rt	a_cv	1	0		0.0000	hrs	0.000	0.0390	0.1160	8508.9780	0.1530	158.3730
17	Boiler 1 Efficiency By Losses	scada	qy010el	a_cv	1	0		0.0000	%	0.000	3.2400	9.6600	700093.5300	12.7900	13061.6500
18	Boiler 2 Steam Flow	scada	qys020	a_cv	1	0		8.600	klbs	8.600	96.040	320.260	118090.170	441.400	4700.440
19	Boiler 2 Gas Flow	scada	qyg020	a_cv	1	0		9.5700	kscf	9.570	104.9000	352.6400	126575.3800	490.1000	5328.0900
20	Boiler 2 Oil Flow	scada	qyo020	a_cv	1	0		0.0000	gals	0.000	0.0000	0.0000	73709.1800	0.0000	0.0000
21	Boiler 2 Run Time	scada	qy020rt	a_cv	1	0		0.4990	hrs	0.499	6.5130	23.4930	9079.0300	30.5070	296.8790
22	Boiler 2 Efficiency By Losses	scada	qy020el	a_cv	1	0		40.7500	%	40.750	535.1200	1936.3200	745585.3600	2509.5800	24345.4800
23	Boiler 3 Steam Flow	scada	qys030	a_cv	1	0		0.000	klbs	0.000	0.000	0.000	101558.860	0.000	2719.790
24	Boiler 3 Gas Flow	scada	qyg030	a_cv	1	0		0.0000	kscf	0.000	0.2700	0.5100	96849.6300	0.5100	3150.7500
25	Boiler 3 Oil Flow	scada	qyo030	a_cv	1	0		0.0000	gals	0.000	0.0000	0.0000	72413.5000	0.0000	0.0000
26	Boiler 3 Run Time	scada	qy030rt	a_cv	1	0		0.0000	hrs	0.000	0.0530	0.1000	7492.2500	0.1000	175.2670
27	Boiler 3 Efficiency By Losses	scada	qy030el	a_cv	1	0		0.0000	%	0.000	4.3600	8.2500	617017.3500	8.2500	14379.8400
28	Boiler 4 Steam Flow	scada	qys040	a_cv	1	0		0.000	klbs	0.000	0.000	0.000	111465.340	0.000	2921.220
29	Boiler 4 Gas Flow	scada	qyg040	a_cv	1	0		0.0000	kscf	0.000	0.4600	0.9100	122747.0100	1.3800	3629.8300
30	Boiler 4 Oil Flow	scada	qyo040	a_cv	1	0		0.0000	gals	0.000	0.0000	0.0000	73943.2400	0.0000	0.0000
31	Boiler 4 Run Time	scada	qy040rt	a_cv	1	0		0.0000	hrs	0.000	0.0820	0.1620	9839.7720	0.2430	172.3740
32	Boiler 4 Efficiency By Losses	scada	qy040el	a_cv	1	0		0.0000	%	0.000	6.9300	13.7000	813558.0500	20.6000	14199.9300
33	Test Totalizers / Clear Totalizers / Create Templates										0.0000	0.0000	0.0000	0.0000	0.0000
34	**Fuel Calculations**														
35	**Boiler 1 Natural Gas Cost**								$	$0.00	$2.55	$7.52	$1,258,077.04	$9.95	$36,342.15
36	**Boiler 1 Oil Cost**								$	$0.00	$0.00	$0.00	$115,437.80	$0.00	$0.00
37	**Boiler 2 Natural Gas Cost**								$	$105.88	$1,160.56	$3,901.44	$1,400,378.76	$5,422.22	$58,947.13
38	**Boiler 2 Oil Cost**								$	$0.00	$0.00	$0.00	$154,772.68	$0.00	$0.00
39	**Boiler 3 Natural Gas Cost**								$	$0.00	$2.99	$5.65	$1,071,757.81	$5.65	$34,858.40
40	**Boiler 3 Oil Cost**								$	$0.00	$0.00	$0.00	$150,374.43	$0.00	$0.00
41	**Boiler 4 Natural Gas Cost**								$	$0.00	$5.08	$10.06	$1,358,020.79	$15.26	$40,158.53
42	**Boiler 4 Oil Cost**								$	$0.00	$0.00	$0.00	$155,034.38	$0.00	$0.00
43	**Calculations**														
44	**Total Plant Steam Flow**								klbs		96.04	320.26	435,134.94	441.40	12,913.30
45	**Steam Flow Per Heating Degree Day**								klbs/hdd		13.53	17.45	28.99	15.41	12.89
46	**Make-up Water Flow**								klbs		1.00	3.79	77,332.40	4.98	129.01
47	**Percent Make-up Water Flow**								%		1.04	1.18	17.77	1.13	1.00
48	**Total Plant Gas Flow**								kscf		105.86	354.74	459,885.59	492.89	15,393.55
49	**Total Plant Gas Cost**								$		$1,171.18	$3,924.67	$5,088,234.40	$5,453.08	$170,306.21
50	**Total Plant Oil Flow**								gals		0.0	0.0	274,732.7	0.0	0.0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
51	**Total Plant Oil Cost**								$		$0.00	$0.00	$575,619.29	$0.00	$0.00
52	**Total Plant Fuel Cost**								$		$1,171.18	$3,924.67	$5,663,853.69	$5,453.08	$170,306.21
53	**Fuel Cost Per Heating Degree Day**								$/hdd		$164.95	213.8784741	377.3029927	190.3343805	170.0205754
54	**Plant Average Steam Cost Per Degree Day**								$/klbs		$1.72	$0.67	$0.00	$0.43	$0.01
55	**Total Plant Efficiency By I/O**								%		88.8	88.4	85.6	87.7	82.2
56	**Boiler 1 Total Fuel Cost**								$		$2.55	$7.52	$1,373,514.84	$9.95	$36,342.15
57	**Boiler 1 Average Steam Cost**								$/klbs		#DIV/0!	#DIV/0!	$13.20	#DIV/0!	$14.13
58	**Boiler 1 Efficiency By Losses**								%		83.1	83.3	82.3	83.6	82.5
59	**Boiler 1 Efficiency By I/O**								%		0.00	0.00	84.01	0.00	76.67
60	**Boiler 2 Total Fuel Cost**								$		$1,160.56	$3,901.44	$1,555,151.44	$5,422.22	$58,947.13
61	**Boiler 2 Average Steam Cost**								$/klbs		12.08413161	12.18210204	13.16918622	12.28414137	12.54076852
62	**Boiler 2 Efficiency By Losses**								%		82.2	82.4	82.1	82.3	82.0
63	**Boiler 2 Efficiency By I/O**								%		89.66	88.94	84.57	88.20	86.39
64	**Boiler 3 Total Fuel Cost**								$		$2.99	$5.65	$1,222,132.24	$5.65	$34,858.40
65	**Boiler 3 Average Steam Cost**								$/klbs		#DIV/0!	#DIV/0!	12.03373334	#DIV/0!	12.81657775
66	**Boiler 3 Efficiency By Losses**								%		82.3	82.5	82.4	82.5	82.0
67	**Boiler 3 Efficiency By I/O**								%		0.00	0.00	93.09	0.00	84.54
68	**Boiler 4 Total Fuel Cost**								$		$5.08	$10.06	$1,513,055.17	$15.26	$40,158.53
69	**Boiler 4 Average Steam Cost**								$/klbs		#DIV/0!	#DIV/0!	$13.57	#DIV/0!	$13.75
70	**Boiler 4 Efficiency By Losses**								%		84.5	84.6	82.7	84.8	82.4
71	**Boiler 4 Efficiency By I/O**								%		0.00	0.00	82.11	0.00	78.81
72	Test Current Rpt **Current Values**														

Southside Virginia Training Center

Heating Plant Shift Operations Report

1/31/2009
10:50 AM
3rd Shift Report

Description

	Plant	Units
Heating Degree Days	7.10	hdd
Total Plant Steam Flow	96.04	klbs
Steam Flow Per Heating Degree Day	13.5	klbs/hdd
Total Condensate Return Water Flow	1.0	klbs
Total Plant Gas Flow	105.86	kscf
Total Plant Gas Cost	$1,171.18	$
Total Plant Oil Flow	0.0	gals
Total Plant Oil Cost	$0.00	$
Total Plant Fuel Cost	$1,171.18	$
Fuel Cost Per Heating Degree Day	$164.95	$/hdd
Plant Average Steam Cost Per Degree Day	$1.72	$/klbs
Total Plant Efficiency By I/O	88.8	%

Condensate Transfer Pump #1 Run Time	6.5	hrs
Condensate Transfer Pump #2 Run Time	0.0	hrs
Condensate Transfer Pump #3 Run Time	0.0	hrs
Boiler Feed Pump #1 Run Time	6.5	hrs
Boiler Feed Pump #2 Run Time	0.0	hrs
Boiler Feed Pump #3 Run Time	0.0	hrs
Boiler Feed Pump #4 Run Time	0.0	hrs
Fuel Oil Pump #1 Run Time	0.0	hrs
Fuel Oil Pump #2 Run Time	0.0	hrs

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Units
Run Time	0.0	6.5	0.1	0.1	hrs
Steam Flow	0.00	96.04	0.00	0.00	klbs
Gas Flow	0.23	104.90	0.27	0.46	kscf
Natural Gas Cost	$2.55	$1,160.56	$2.99	$5.08	$
Oil Flow	0.0	0.0	0.0	0.0	gals
Oil Cost	$0.00	$0.00	$0.00	$0.00	$
Total Fuel Cost	$2.55	$1,160.56	$2.99	$5.08	$
Average Steam Cost	---	$12.08	---	---	$/klbs
Efficiency By Losses	83.1	82.2	82.3	84.5	%
Efficiency By I/O	0.0	89.7	0.0	0.0	%

Southside Virginia Training Center

Heating Plant Day Operations Report

1/31/2009
10:50 AM
daily report

Description

	Plant	Units
Heating Degree Days	18.35	hdd
Total Plant Steam Flow	320.26	klbs
Steam Flow Per Heating Degree Day	17.5	klbs/hdd
Total Condensate Return Water Flow	3.8	klbs
Total Plant Gas Flow	354.74	kscf
Total Plant Gas Cost	$3,924.67	$
Total Plant Oil Flow	0.0	gals
Total Plant Oil Cost	$0.00	$
Total Plant Fuel Cost	$3,924.67	$
Fuel Cost Per Heating Degree Day	$213.88	$/hdd
Plant Average Steam Cost Per Degree Day	$0.67	$/klbs
Total Plant Efficiency By I/O	88.4	%

Condensate Transfer Pump #1 Run Time	23.5	hrs
Condensate Transfer Pump #2 Run Time	0.0	hrs
Condensate Transfer Pump #3 Run Time	0.0	hrs
Boiler Feed Pump #1 Run Time	23.5	hrs
Boiler Feed Pump #2 Run Time	0.0	hrs
Boiler Feed Pump #3 Run Time	0.0	hrs
Boiler Feed Pump #4 Run Time	0.0	hrs
Fuel Oil Pump #1 Run Time	0.0	hrs
Fuel Oil Pump #2 Run Time	0.0	hrs

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Units
Run Time	0.1	23.5	0.1	0.2	hrs
Steam Flow	0.00	320.26	0.00	0.00	klbs
Gas Flow	0.68	352.64	0.51	0.91	kscf
Natural Gas Cost	$7.52	$3,901.44	$5.65	$10.06	$
Oil Flow	0.0	0.0	0.0	0.0	gals
Oil Cost	$0.00	$0.00	$0.00	$0.00	$
Total Fuel Cost	$7.52	$3,901.44	$5.65	$10.06	$
Average Steam Cost	---	$12.18	---	---	$/klbs
Efficiency By Losses	83.3	82.4	82.5	84.6	%
Efficiency By I/O	0.0	88.9	0.0	0.0	%

Southside Virginia Training Center

Heating Plant Week Operations Report

1/31/2009
10:50 AM
Weekly Report

Description

	Plant	Units
Heating Degree Days	15,011.42	hdd
Total Plant Steam Flow	435,134.94	klbs
Steam Flow Per Heating Degree Day	29.0	klbs/hdd
Total Condensate Return Water Flow	77,332.4	klbs
Total Plant Gas Flow	459,885.59	kscf
Total Plant Gas Cost	$5,088,234.40	$
Total Plant Oil Flow	274,732.7	gals
Total Plant Oil Cost	$575,619.29	$
Total Plant Fuel Cost	$5,663,853.69	$
Fuel Cost Per Heating Degree Day	$377.30	$/hdd
Plant Average Steam Cost Per Degree Day	$0.00	$/klbs
Total Plant Efficiency By I/O	85.6	%

Condensate Transfer Pump #1 Run Time	8,277.9	hrs
Condensate Transfer Pump #2 Run Time	11,532.9	hrs
Condensate Transfer Pump #3 Run Time	10,623.9	hrs
Boiler Feed Pump #1 Run Time	8,650.6	hrs
Boiler Feed Pump #2 Run Time	9,426.5	hrs
Boiler Feed Pump #3 Run Time	7,763.6	hrs
Boiler Feed Pump #4 Run Time	6,847.4	hrs
Fuel Oil Pump #1 Run Time	565.6	hrs
Fuel Oil Pump #2 Run Time	882.7	hrs

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Units
Run Time	8509.0	9079.0	7492.3	9839.8	hrs
Steam Flow	104020.57	118090.17	101558.86	111465.34	klbs
Gas Flow	113713.57	126575.38	96849.63	122747.01	kscf
Natural Gas Cost	$1,258,077.04	$1,400,378.76	$1,071,757.81	$1,358,020.79	$
Oil Flow	54666.8	73709.2	72413.5	73943.2	gals
Oil Cost	$115,437.80	$154,772.68	$150,374.43	$155,034.38	$
Total Fuel Cost	$1,373,514.84	$1,555,151.44	$1,222,132.24	$1,513,055.17	$
Average Steam Cost	$13.20	$13.17	$12.03	$13.57	$/klbs
Efficiency By Losses	82.3	82.1	82.4	82.7	%
Efficiency By I/O	84.0	84.6	93.1	82.1	%

Southside Virginia Training Center

Heating Plant Month Operations Report

1/31/2009
10:50 AM
Monthly Report

Description

	Plant	Units
Heating Degree Days	28.65	hdd
Total Plant Steam Flow	441.40	klbs
Steam Flow Per Heating Degree Day	15.4	klbs/hdd
Total Condensate Return Water Flow	5.0	klbs
Total Plant Gas Flow	492.89	kscf
Total Plant Gas Cost	$5,453.08	$
Total Plant Oil Flow	0.0	gals
Total Plant Oil Cost	$0.00	$
Total Plant Fuel Cost	$5,453.08	$
Fuel Cost Per Heating Degree Day	$190.33	$/hdd
Plant Average Steam Cost Per Degree Day	$0.43	$/klbs
Total Plant Efficiency By I/O	87.7	%

Condensate Transfer Pump #1 Run Time	30.5	hrs
Condensate Transfer Pump #2 Run Time	0.0	hrs
Condensate Transfer Pump #3 Run Time	0.0	hrs
Boiler Feed Pump #1 Run Time	30.5	hrs
Boiler Feed Pump #2 Run Time	0.0	hrs
Boiler Feed Pump #3 Run Time	0.0	hrs
Boiler Feed Pump #4 Run Time	0.0	hrs
Fuel Oil Pump #1 Run Time	0.0	hrs
Fuel Oil Pump #2 Run Time	0.0	hrs

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Units
Run Time	0.2	30.5	0.1	0.2	hrs
Steam Flow	0.00	441.40	0.00	0.00	klbs
Gas Flow	0.90	490.10	0.51	1.38	kscf
Natural Gas Cost	$9.95	$5,422.22	$5.65	$15.26	$
Oil Flow	0.0	0.0	0.0	0.0	gals
Oil Cost	$0.00	$0.00	$0.00	$0.00	$
Total Fuel Cost	$9.95	$5,422.22	$5.65	$15.26	$
Average Steam Cost	---	$12.28	---	---	$/klbs
Efficiency By Losses	83.6	82.3	82.5	84.8	%
Efficiency By I/O	0.0	88.2	0.0	0.0	%

Southside Virginia Training Center

Heating Plant Year Operations Report

1/31/2009
10:50 AM
Monthly Report

Description

	Plant	Units
Heating Degree Days	1,001.68	hdd
Total Plant Steam Flow	12,913.30	klbs
Steam Flow Per Heating Degree Day	12.9	klbs/hdd
Total Condensate Return Water Flow	129.0	klbs
Total Plant Gas Flow	15,393.55	kscf
Total Plant Gas Cost	$170,306.21	$
Total Plant Oil Flow	0.0	gals
Total Plant Oil Cost	$0.00	$
Total Plant Fuel Cost	$170,306.21	$
Fuel Cost Per Heating Degree Day	$170.02	$/hdd
Plant Average Steam Cost Per Degree Day	$0.01	$/klbs
Total Plant Efficiency By I/O	82.2	%

Condensate Transfer Pump #1 Run Time	279.0	hrs
Condensate Transfer Pump #2 Run Time	167.5	hrs
Condensate Transfer Pump #3 Run Time	327.8	hrs
Boiler Feed Pump #1 Run Time	303.9	hrs
Boiler Feed Pump #2 Run Time	249.5	hrs
Boiler Feed Pump #3 Run Time	120.8	hrs
Boiler Feed Pump #4 Run Time	174.1	hrs
Fuel Oil Pump #1 Run Time	0.0	hrs
Fuel Oil Pump #2 Run Time	0.0	hrs

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Units
Run Time	158.4	296.9	175.3	172.4	hrs
Steam Flow	2571.85	4700.44	2719.79	2921.22	klbs
Gas Flow	3284.88	5328.09	3150.75	3629.83	kscf
Natural Gas Cost	$36,342.15	$58,947.13	$34,858.40	$40,158.53	$
Oil Flow	0.0	0.0	0.0	0.0	gals
Oil Cost	$0.00	$0.00	$0.00	$0.00	$
Total Fuel Cost	$36,342.15	$58,947.13	$34,858.40	$40,158.53	$
Average Steam Cost	$14.13	$12.54	$12.82	$13.75	$/klbs
Efficiency By Losses	82.5	82.0	82.0	82.4	%
Efficiency By I/O	76.7	86.4	84.5	78.8	%

Southside Virginia Training Center

Heating Plant Current Operations Report

1/31/2009
10:50 AM

Description

	Plant	Units
Outdoor Air Temperature	33	°F
Softwater Makup To Surge Tank Flow	0.56	gpm
Make-up Flow To Deaerator Tank	1.12	gpm
Condensate Transfer Pressure	39.4	psig
Condensate Transfer Presssure Setpoint	47	psig
Condensate Transfer Recirc. Valve	0	%
City Water Temperature	55	°F
Surge Tank Temperature	187	°F
Blowdown Tank Temperature	139	°F
Blowdown Tank Discharge Temperature	72	°F
Softener Total Flow	0	gpm
Campus Steam Flow	22.31	kpph
Laundry Steam Flow	2.39	kpph
Deaerator Steam Flow	1.86	kpph
Feedwater Header Pressure	230	psig
Deaerator Steam Pressure	7.7	psig
Natural Gas Temperature	50	°F
Natural Gas Pressure	29.0	psig
Fuel Oil Header Pressure	7.5	psig
Fuel Oil Main Tank Level	69975	gal.
Fuel Oil Flow	0	gpm
Fuel Oil Main Tank Temperature	48	°F
Steam Hdr Pressure	80	psig
Steam Hdr Pressure Setpoint	80	psig
Plant Demand Signal	22	%
Condensate Tank Level	46.9	"wc
Condensate Tank Level Setpoint	45.0	"wc
Condensate Tank LCV	0	%
Deaerator Tank Level	49.9	"wc
Deaerator Tank Level Setpoint	50.0	"wc
Deaerator Tank LCV	39	%

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	
Steam Drum Pressure	85	43	58	30	psig
Steam Drum Pressure Setpoint	114	115	115	115	psig
Plant Demand Bias	0	0	0	0	%
Firing Rate	22	0	0	0	%
Gas Flow	22.54	0.00	0.00	0.00	kscfh
Oil Flow	0	0	0	0	gph
Oxygen	4.6	21.2	20.5	20.4	%
Oxygen Setpoint	4.8	8.1	8.8	5.5	%
Oxygen Trim	2.2	0.0	0.0	0.0	%
Efficiency By Losses	83.2	0.0	0.0	0.0	%
Steam Flow	17.87	0.00	0.00	0.00	kpph
Feedwater Flow	24.37	0.00	0.00	0.00	kpph
Chemical Feeder Ratio	0.25	0.25	0.25	0.25	Ratio
Conductivity	1564	1327	571	1148	mmhos
Economizer Inlet Flue Gas Temp.	368	184	214	189	°F
Economizer Outlet Flue Gas Temp.	292	174	203	172	°F
Economizer Inlet Feedwater Temp.	230	84	76	96	°F
Economizer Outlet Feedwater Temp.	253	88	79	82	°F