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**Subject: CONSOL Energy Characterization of InterMountain Power Mill Reject Samples
InterMountain Power Analysis of Primary Air Flow and Mill Operation Impact**

Summary

Mill reject samples were characterized to determine the:

1. concentration of coal in the mill reject sample.
2. concentration of pyrite in the mill reject sample.
3. concentration of arsenic, antimony and mercury in the mill reject sample.
4. correlation between the concentrations of arsenic, mercury and antimony in the reject with the concentration of pyrite.
5. composition of the reject from the H Mill, which contained a Technomic throat, as compared to the composition of the reject from the E Mill, which contained a competitor's throat.
6. particle size distribution of reject material from the H Mill as compared to material rejected from the E Mill.

Data review shows that:

1. the particle size of the H Mill reject is significantly larger than the particle size of the E Mill reject.
2. the reject from the H Mill consistently contains a lower concentration of coal and pyrite because it rejects a higher concentration of calcium (i.e., limestone) and silicon (i.e., sandstone) based minerals which dilute the concentrations of coal and pyrite.

3. the material balances (Table 1) for the samples are consistent with iron and sulfur being attributed to pyrite, with calcium being attributed to limestone, and with silicon being attributed to sandstone.
4. there is a strong correlation between the rejection of pyrite and the rejection of mercury and arsenic. The rejection of antimony is weakly associated with the rejection of pyrite.

Discussion

Ninety-seven mill reject samples from the InterMountain Power Mill Testing were characterized by CONSOL Energy R&D.

Analytical results for the mill reject samples are shown in Table 1. Total carbon concentration is used as an indicator of coal concentration in the mill reject sample. Coal concentration is calculated by multiplying the total carbon concentration by 100/average carbon concentration of the coal (i.e. 68.61 wt%). The correlation between carbon and coal could be refined using the concentration of organic carbon in the reject to determine the concentration of coal. The organic carbon concentration can be determined by subtracting the inorganic carbon concentration from the total carbon.

The budget did not permit the determination of inorganic carbon in every sample. Therefore, samples from the Wednesday AM tests were analyzed for inorganic carbon. The inorganic carbon concentration for the H Mill samples averaged 3.03 wt% whereas the average inorganic carbon for the E Mill tests was 1.13 wt%. Despite this bias, total carbon was used to calculate coal concentration because the inorganic carbon concentration was not available to calculate the organic carbon concentration for every sample. In general, the estimate of coal concentration based on the total carbon concentration is biased 4.41 wt% high for the H Mill and is biased 1.61 wt% high for the E Mill.

The concentration of pyrite in the reject can be calculated from the sulfur or the iron concentrations in the reject. Both methods make the assumption that all of the sulfur or all of the iron is attributable to pyrite. For many samples, use of both methods yields nearly equivalent concentrations of pyrite, suggesting that for those samples, most of the iron and sulfur are attributable to pyrite. In other cases, calculation of pyrite by both methods yields significantly different pyrite concentrations. Review of the data suggests that in these cases, using the iron concentration provides a more accurate calculation of pyrite concentration. For consistency, the iron concentration was used to calculate the pyrite concentration of the reject for all samples.

This report focuses on characterizing the constituents of the rejected material. It does not address the mass of material rejected in more than a general way. The H Mill typically rejected 2-10 times greater mass of material per test than was rejected by the E Mill. The mass of material rejected by Mills H and E is listed in Appendix A for all tests.

Figure 1 shows that H Mill rejected a fairly consistent concentration (9-14 wt%) of coal regardless of pyrite concentration. The reject from the E Mill contained twice as much coal (~30-35 wt%) at low concentrations of pyrite as it contained at high concentrations of pyrite.

Figures 2a and 2b show that for samples collected during the same test, the rejects from the H Mill consistently contain lower concentrations of coal than rejects from the E Mill. The H Mill also produces a more consistent reject suggesting more accurate control over coal rejection than that provided by the

E Mill. It appears that a substantial increase in the concentrations of calcium (attributed to the rejection of limestone) and silicon (attributed to the rejection of sandstone) by the H Mill (Figure 3a and 3b), dilutes the concentration of coal and pyrite in the H Mill rejects by approximately two fold. The H Mill rejects a considerably lower percentage of coal per mass of pyrite/sandstone/limestone than the E Mill.

It is well known that certain trace element atoms can substitute for iron atoms in the pyrite crystalline lattice. Therefore, mill rejection of the pyrite should correlate with trace elements that are primarily associated with the pyrite rather than with the coal. Mercury, arsenic, and antimony were determined in mill reject samples to determine the extent to which these elements were removed by the two types of mill throats.

Mercury in the mill reject samples was determined using acid digestion of the sample followed by measurement of the mercury by atomic fluorescence spectroscopy (AFS). Figure 4 shows a very strong correlation between pyrite concentration and the AFS mercury concentrations. Both mills reject a nearly equivalent percent of mercury per mass of pyrite rejected. However, since the H Mill typically rejects considerably more mass, it rejects a considerably greater mass of mercury from the feed coal.

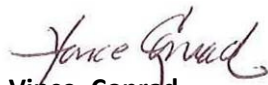
Figure 5 shows a strong correlation between pyrite and arsenic concentrations in the mill reject samples. Doubling the rejection of pyrite in the mill reject results in approximately a two fold increase in the rejection of arsenic. While the ratio of arsenic/pyrite in the reject from both mills is the same, the H Mill rejects a higher mass of pyrite than the E Mill and therefore rejects more arsenic as well.

Antimony rejection exhibits a weaker correlation with pyrite than does arsenic (Figure 6). However, Figure 6 does show that antimony rejection increases as the pyrite rejection increases. While the ratio of antimony to pyrite in the reject from both mills is approximately the same, the H Mill rejects a higher mass of pyrite than the E Mill and therefore rejects more antimony as well.

The size of the particles rejected by the H Mill is visibly larger than the size of the particles rejected from the E Mill. Pictures of "as received" samples from three tests are included as Figures 7a-7c. The particle size distribution of Mill H and Mill E samples from tests 13, 38, and 59 was measured (Table 2) to determine the magnitude of this size difference. Figure 8 indicates that the particle size distribution for the H and E Mills is fairly consistent with 55-65 wt% of each E Mill sample falling in 1/8"-1/4" size range and 45-55% of each H Mill sample falling in the 1/2"-1" size range. Rejection of a higher mass of larger particles is consistent with the reduction in mill amperage that is observed for the H Mill.

Plant data from the InterMountain Power tests and supplemental information provided by Technomics is included in Appendices A through D. This data was not generated or validated by CONSOL Energy R&D. It is included in this report for completeness.

Regards,



Vince. Conrad

cc:

S. E. Winberg

Figure 1. Correlation between Coal and Pyrite Concentrations in Mill Rejects

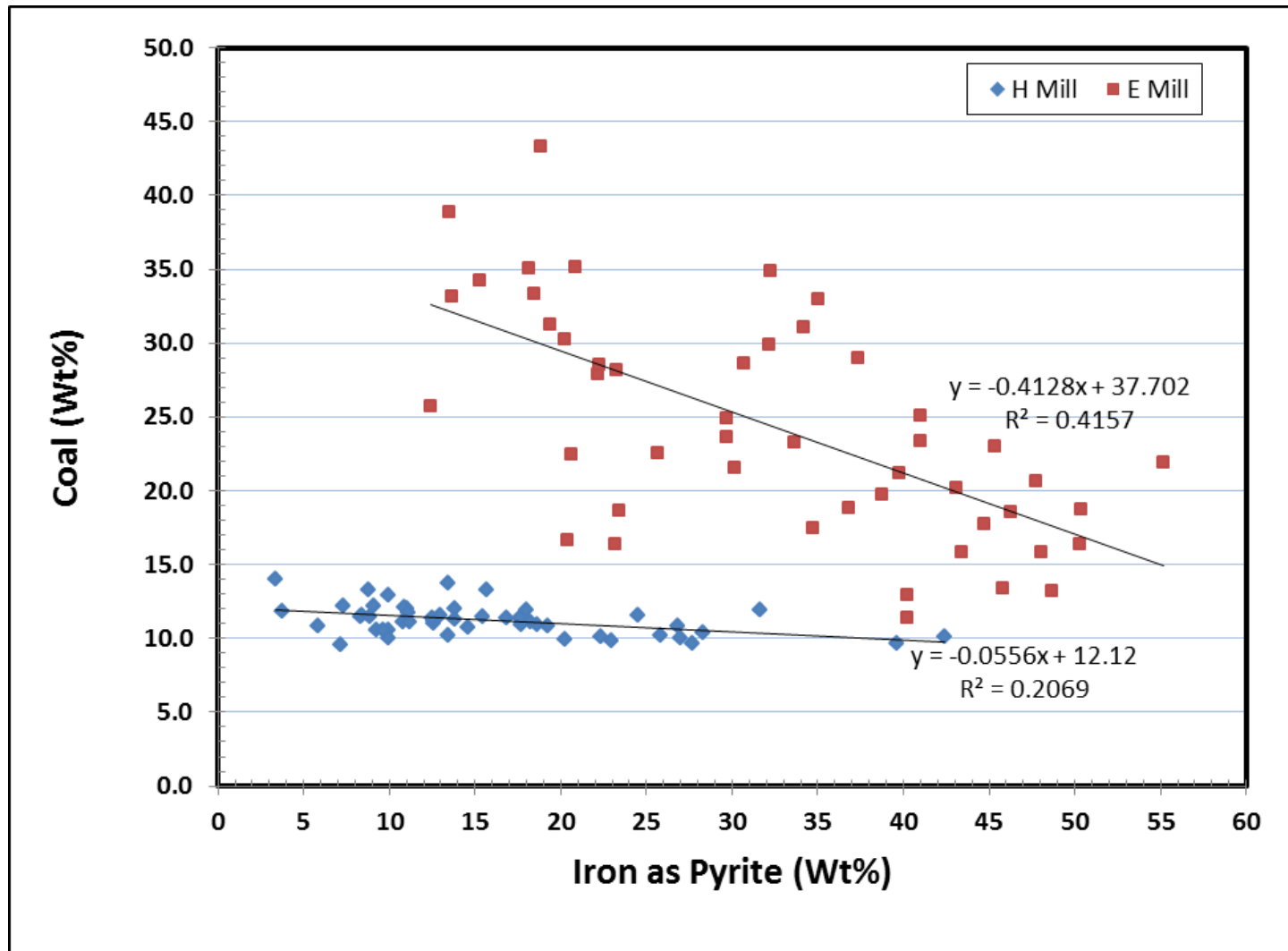


Figure 2a. Comparison of Pyrite Concentration in Mill H and Mill E Reject Samples

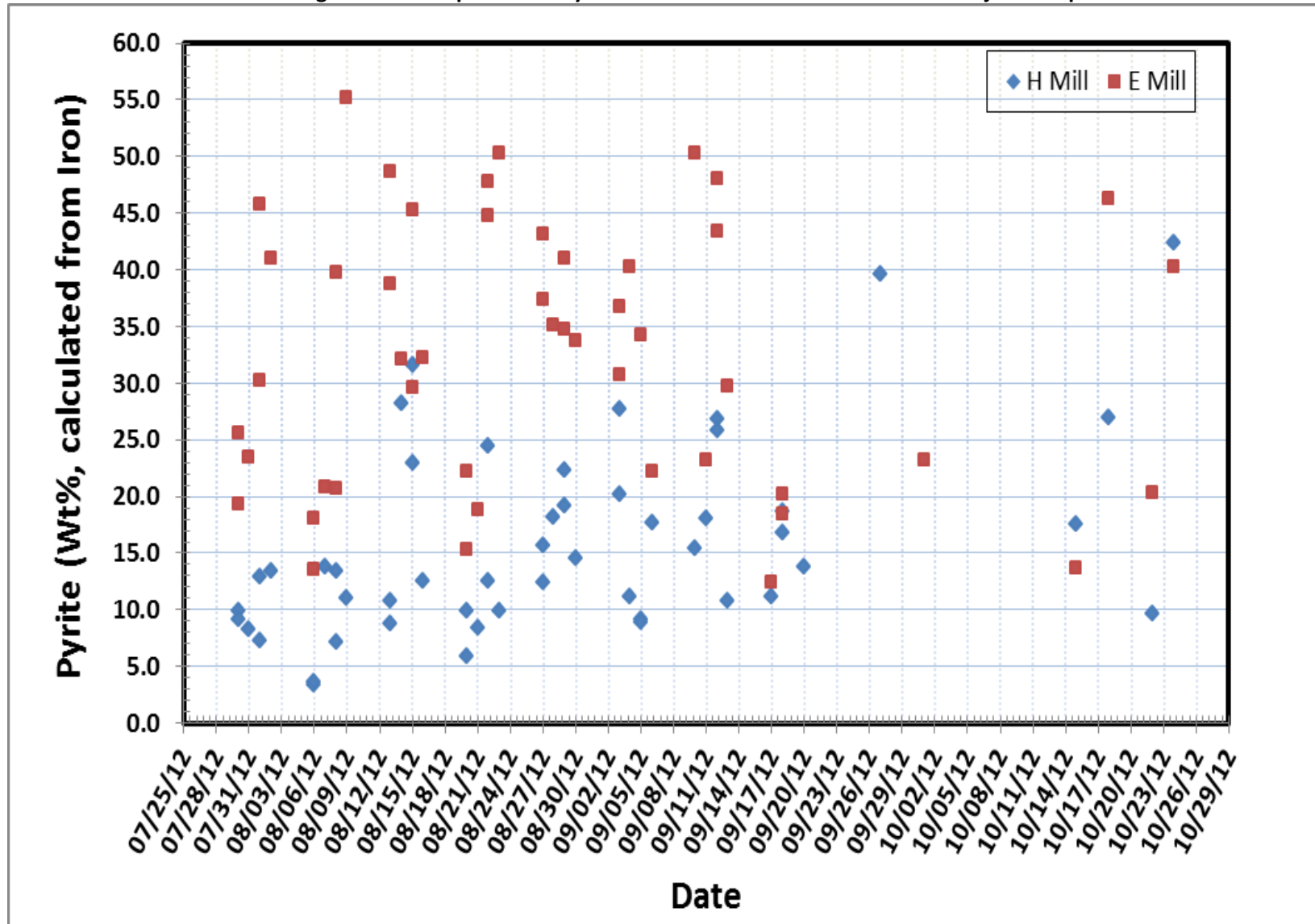


Figure 2b. Comparison of Coal Concentration in Mill H and Mill E Reject Samples

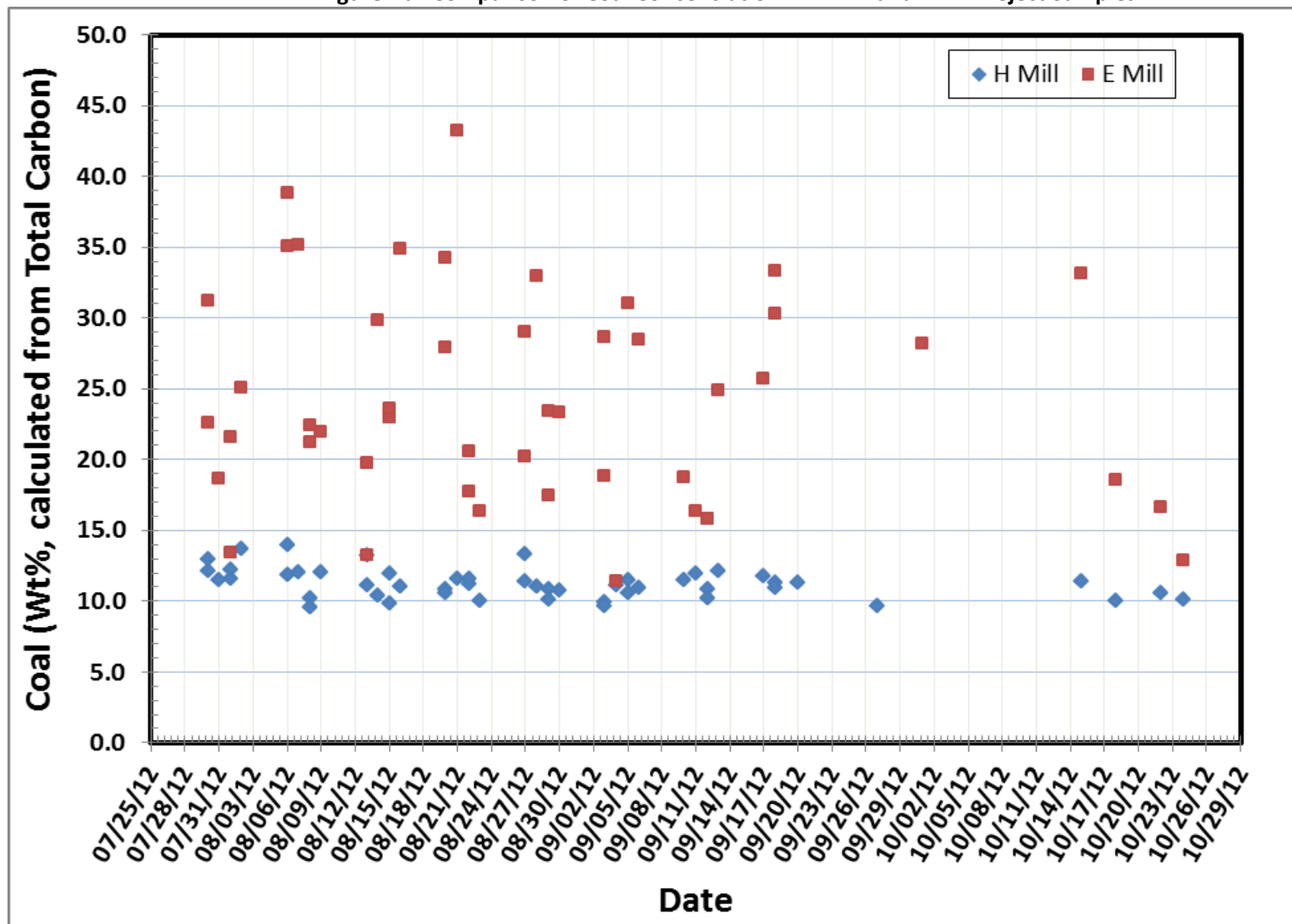


Figure 3a. Comparison of Silicon (Sandstone) Concentration in Mill H and Mill E Reject Samples

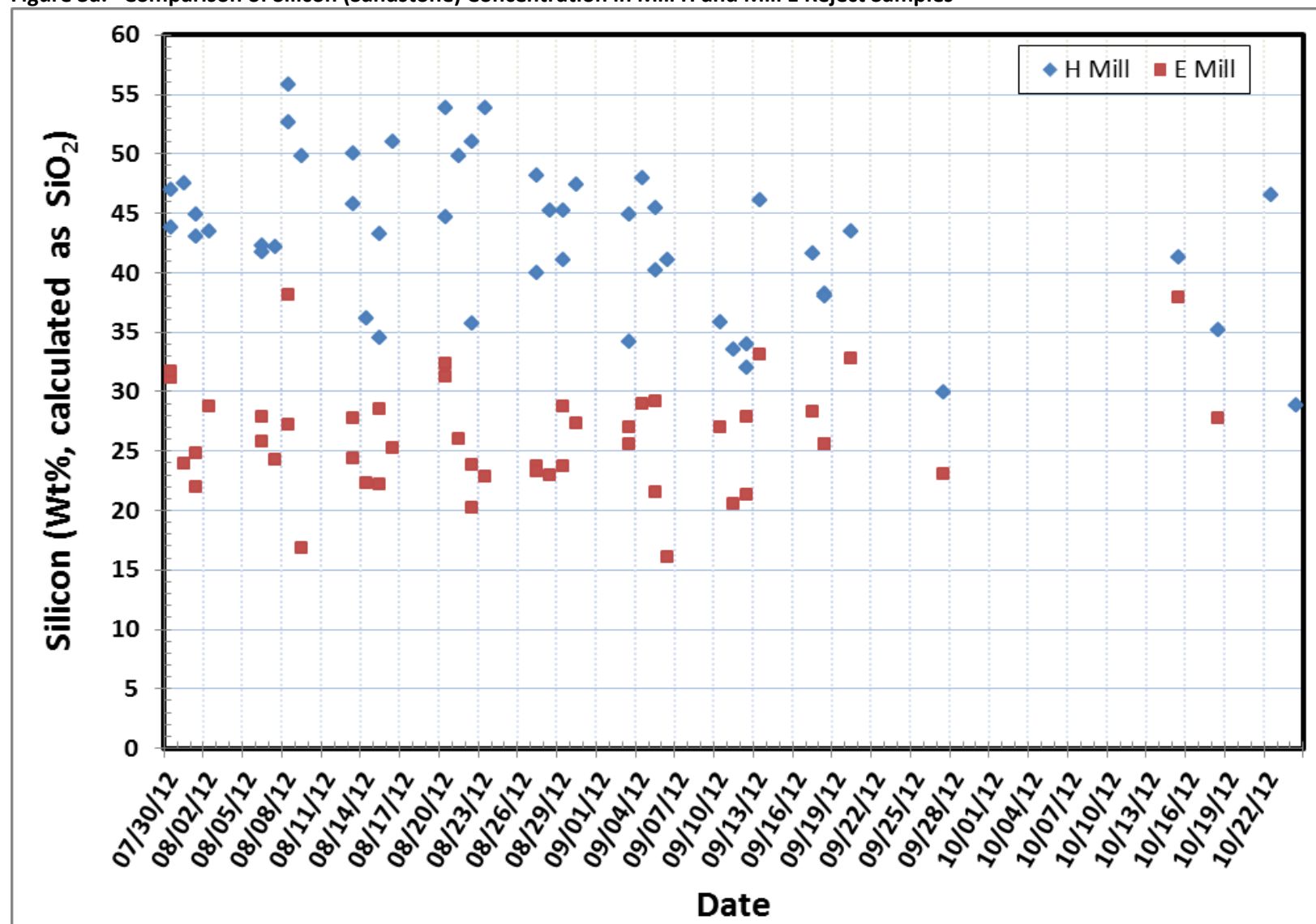


Figure 3b Comparison of Calcium (Limestone) Concentration in Mill H and Mill E Reject Samples

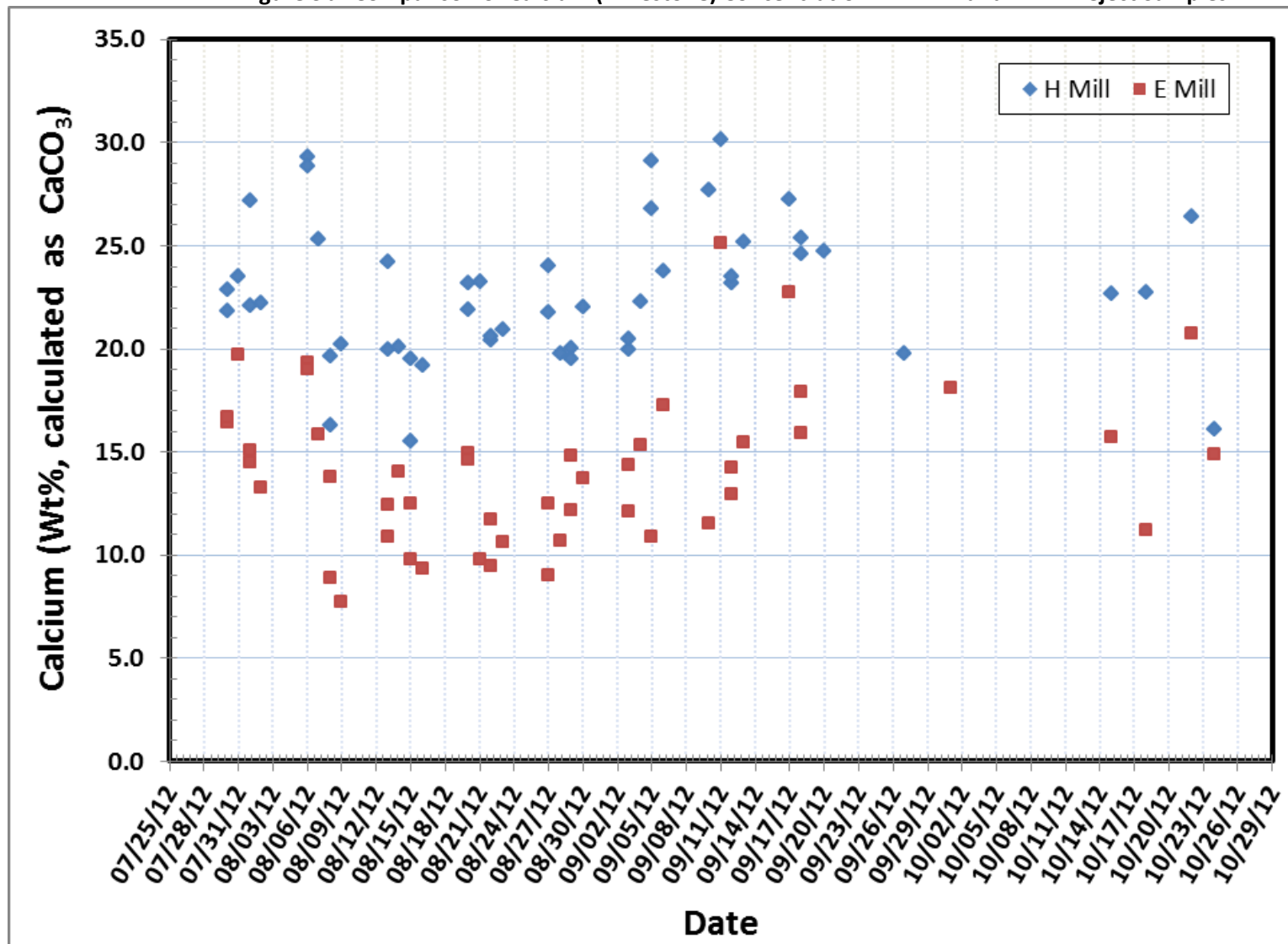


Figure 4. Correlation between Pyrite and Mercury Concentrations in Mill Rejects

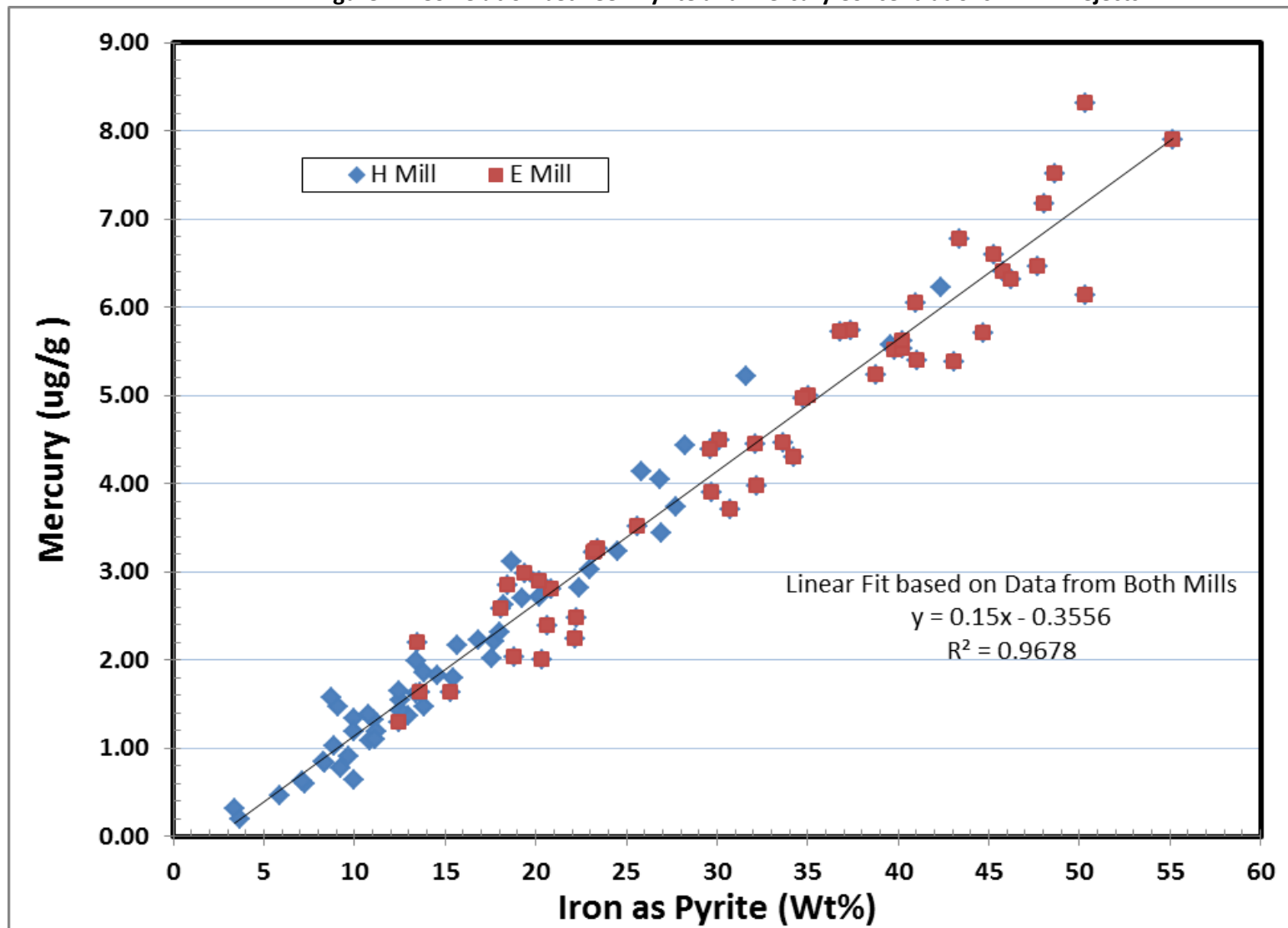


Figure 5. Correlation between Pyrite and Arsenic Concentrations in Mill Rejects

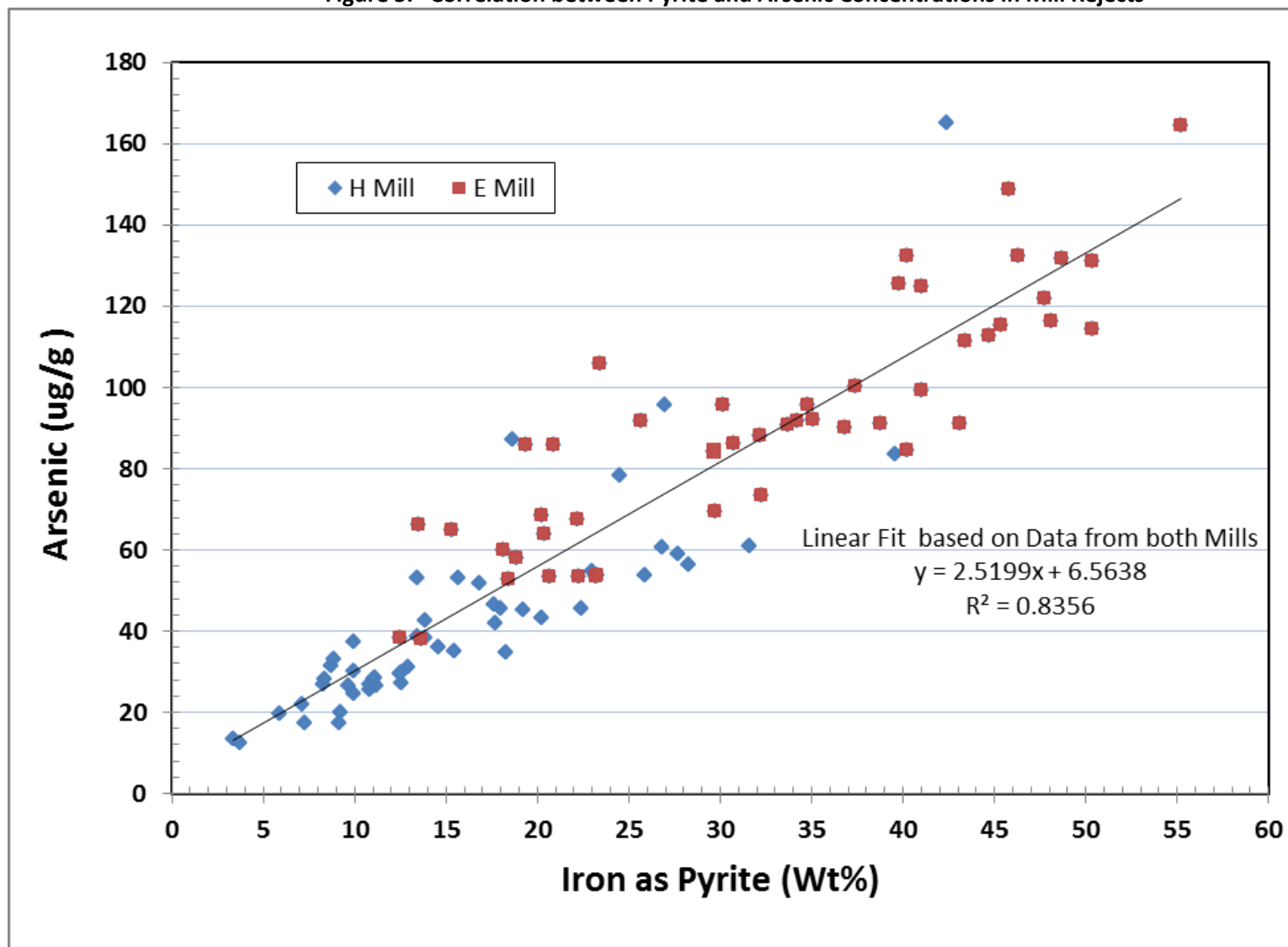


Figure 6. Correlation between Pyrite and Antimony Concentrations in Mill Rejects

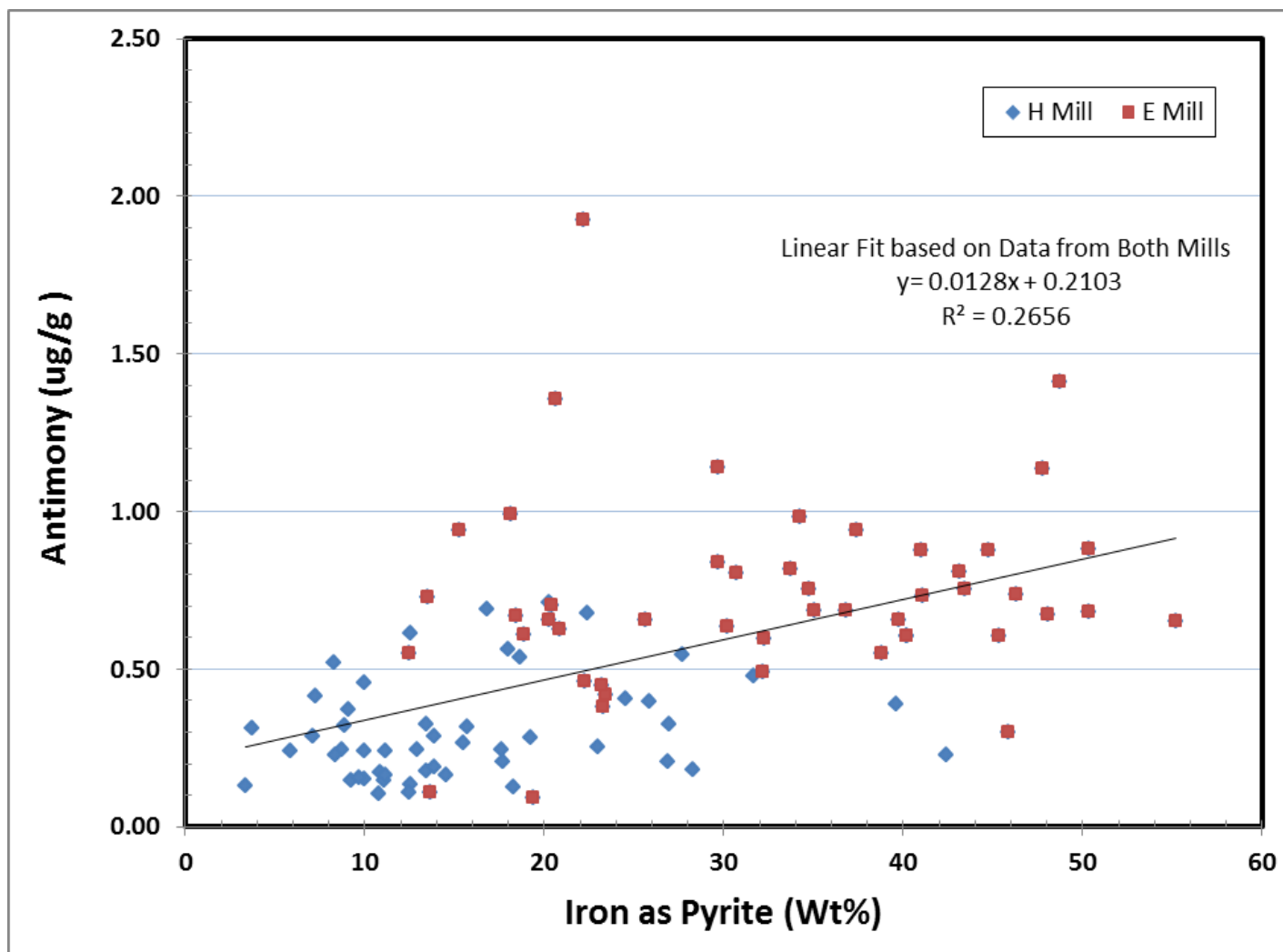




Figure 7a. Unit 1H Pulverizer Test 13 8/8/12 8:55-9:55 am

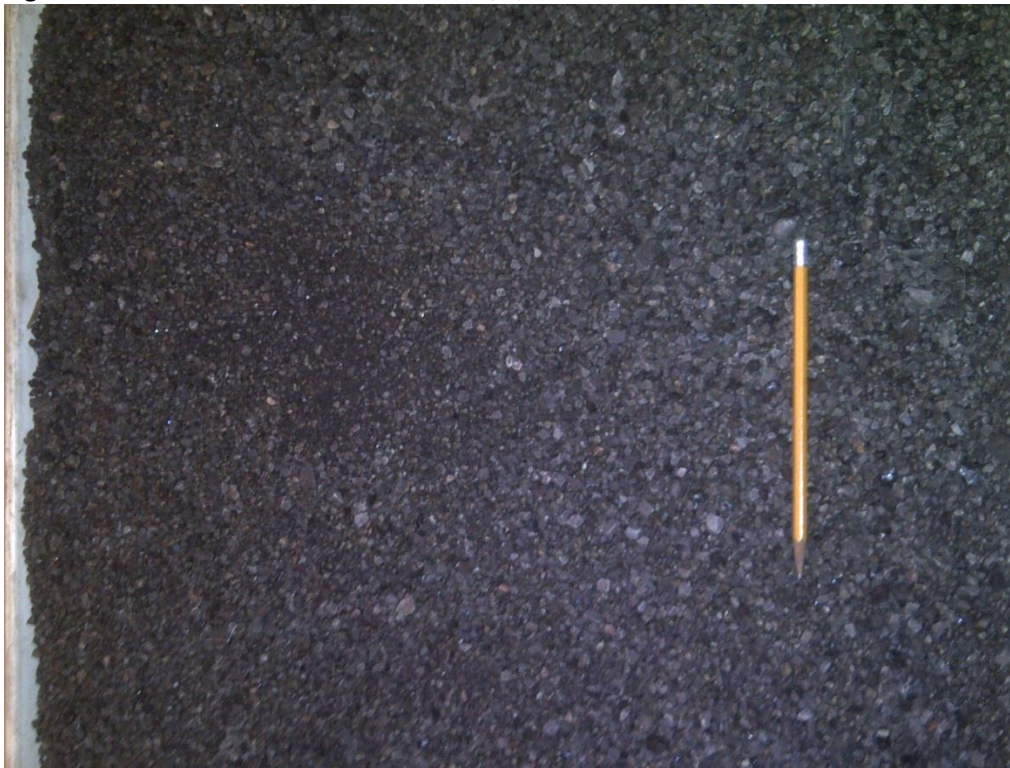


Figure 7a. Unit 2E Pulverizer Test 13 8/8/12 8:55-9:55 am

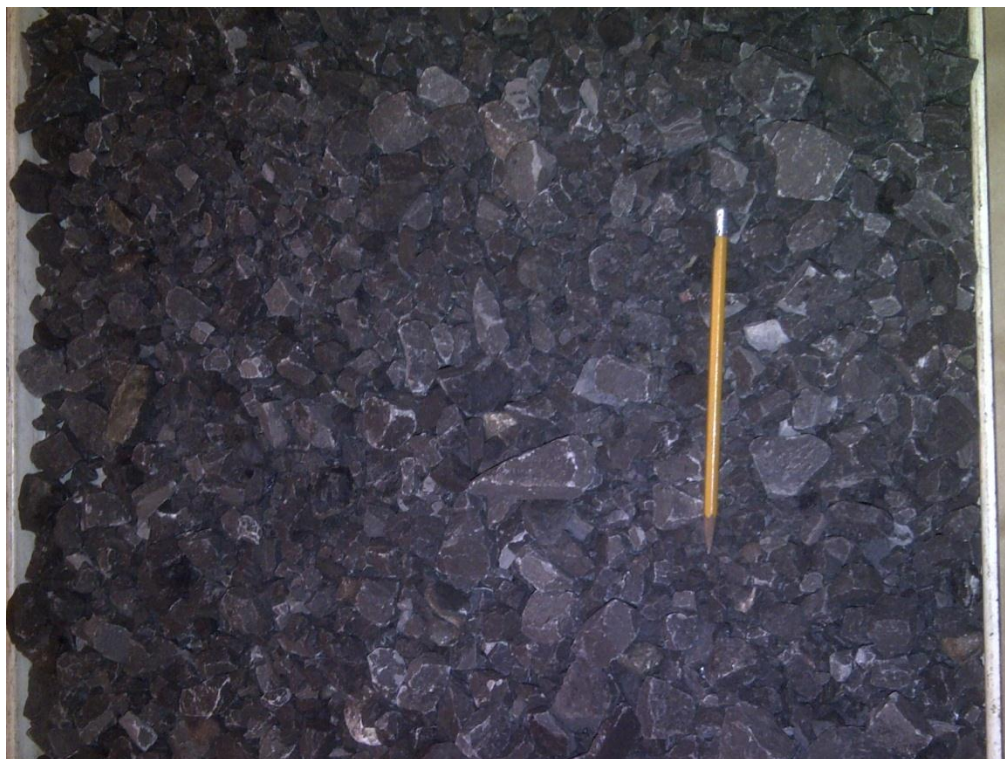


Figure 7b. Unit 1H Pulverizer Test 13 8/8/12 8:55-9:55 am

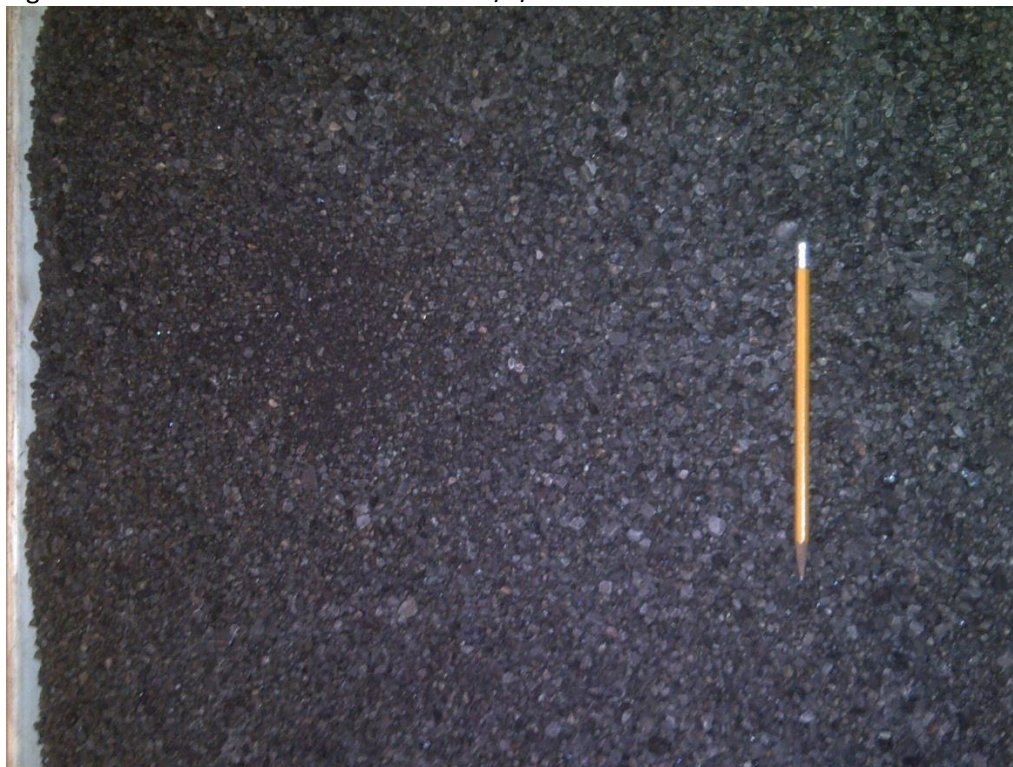


Figure 7b. Unit 2E Pulverizer Test 13 8/8/12 8:55-9:55 am



Figure 7c. Unit 2H Pulverizer Test 38 8/29/12 13:00-14:00



Figure 7c. Unit 2E Pulverizer Test 38 8/29/12 13:00-14:00

Figure 8. Size Fractionation of Reject Samples

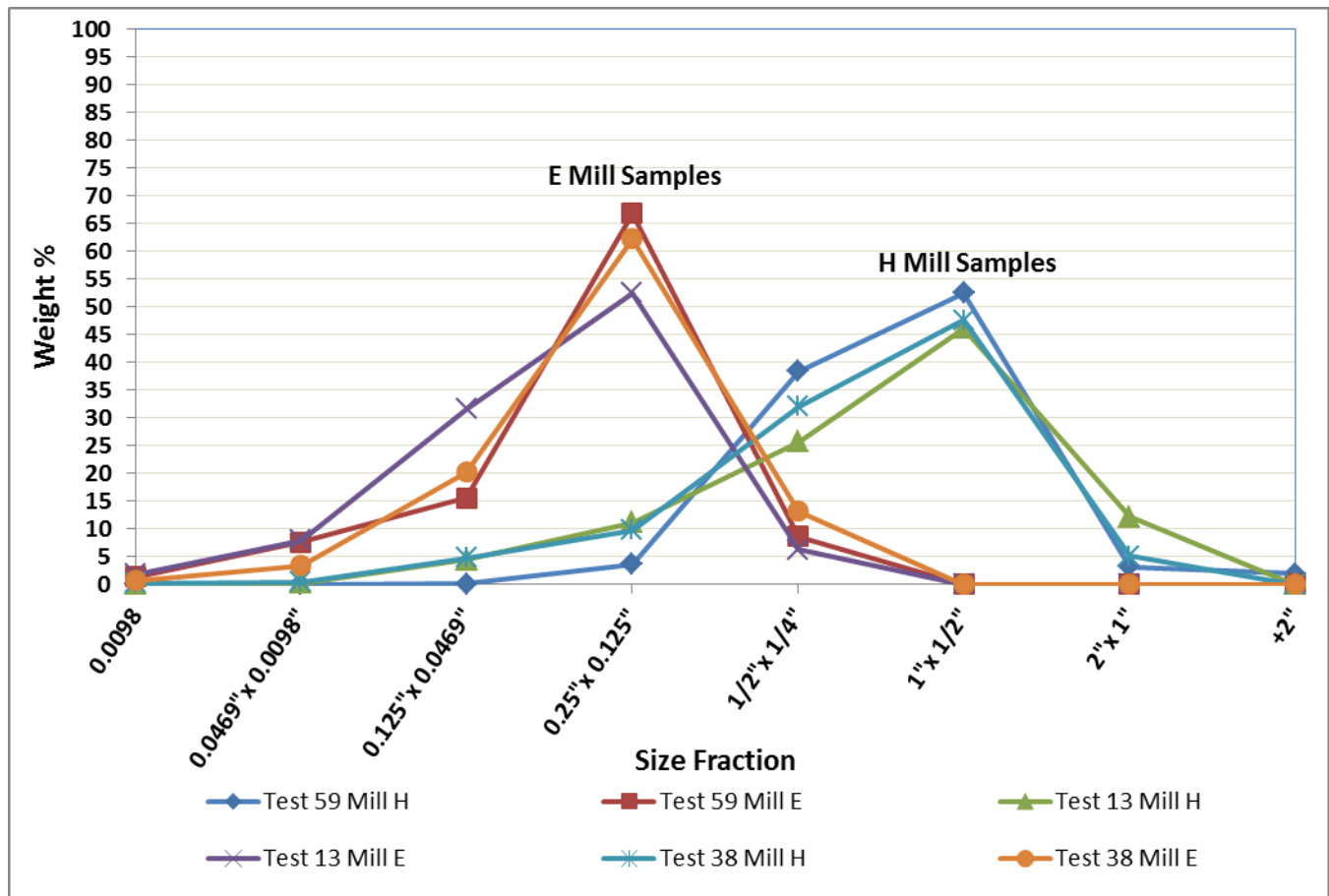


Table 1. Characterization of Mill Reject Samples

Mill Rejects					Concentration (As Determined Wt. %)	Concentration (Dry Wt. %)					Concentration (Dry Wt. %)						
Lab Number	Sample Description	Test	Test Date	Test Time	Residual Moisture	Ash @ 750C	Total Carbon	Sulfur	Inorganic (Carbonate) Carbon reported as Carbon	Organic Carbon	Coal (Wt%) calculated from Carbon (assumes 68.61% Carbon for 100% coal)	Pyrite (Wt%) calculated from Sulfur	Pyrite (Wt%) calculated from Iron	Pyrite calculated from sulfur/Pyrite calculated from Iron	Limestone (Wt%) calculated from Ca	Elemental Mass Balance With Ca as CaCO ₃	Reject Mass Balance (includes Carbon)
20126000	UNIT 1 H PULVERIZER TESTING, TEST 01	1	07/30/12	8:55-9:55	0.36	81.83	8.87	2.30	0.65	8.22	12.9	8.6	10.0	0.87	21.8	91.86	100.73
20126181	UNIT 1 H PULVERIZER TESTING, TEST 02	2	07/30/12	12:59-13:59	0.35	82.00	8.36	2.86			12.2	10.7	9.1	1.17	22.9	89.74	98.10
20126001	UNIT 1 H PULVERIZER TESTING, TEST 03	3	07/31/12	9:00-10:00	0.28	81.67	7.87	1.80	4.55	3.32	11.5	6.7	8.3	0.81	23.5	92.34	100.21
20126002	UNIT 1 H PULVERIZER TESTING, TEST 05	5	08/01/12	9:00-10:00	0.26	85.59	7.92	3.13	4.29	3.63	11.5	11.7	13.0	0.90	22.1	91.56	99.48
20126182	UNIT 1 H PULVERIZER TESTING, TEST 06	6	08/01/12	13:00-14:00	0.26	79.56	8.37	2.11			12.2	7.9	7.3	1.08	27.2	89.91	98.28
20126003	UNIT 1 H PULVERIZER TESTING, TEST 07	7	08/02/12	9:00-10:00	0.36	84.22	9.43	3.22	1.97	7.46	13.7	12.0	13.4	0.90	22.2	90.81	100.24
20126004	UNIT 1 H PULVERIZER TESTING, TEST 09	9	08/06/12	8:50-9:50	0.35	73.52	9.59	0.43	2.36	7.23	14.0	1.6	3.4	0.48	29.3	88.81	98.40
20126183	UNIT 1 H PULVERIZER TESTING, TEST 10	10	08/06/12	12:55-13:55	0.30	75.54	8.13	0.52			11.8	2.0	3.7	0.53	28.9	88.35	96.48
20126005	UNIT 1 H PULVERIZER TESTING, TEST 11	11	08/07/12	9:00-10:00	0.22	85.56	8.25	3.44	2.74	5.51	12.0	12.9	13.8	0.93	25.3	92.02	100.27
20126006	UNIT 1 H PULVERIZER TESTING, TEST 13	13	08/08/12	8:55-9:55	0.25	88.87	7.01	4.78	2.07	4.94	10.2	17.9	13.4	1.33	16.3	92.85	99.86
20126184	UNIT 1 H PULVERIZER TESTING, TEST 14	14	08/08/12	12:50-13:50	0.25	85.55	6.57	2.14			9.6	8.0	7.1	1.12	19.6	92.90	99.47
20126007	UNIT 1 H PULVERIZER TESTING, TEST 15	15	08/09/12	10:15-11:15	0.21	84.68	8.26	2.61	1.57	6.69	12.0	9.8	11.0	0.88	20.2	91.89	100.15
20126008	UNIT 1 H PULVERIZER TESTING, TEST 17	17	08/13/12	9:00-10:00	0.28	83.82	7.63	2.57	4.24	3.39	11.1	9.6	10.8	0.89	20.0	91.45	99.08
20126185	UNIT 1 H PULVERIZER TESTING, TEST 18	18	08/13/12	12:55-13:55	0.30	82.37	9.11	2.96			13.3	11.1	8.7	1.27	24.3	88.71	97.82
20126009	UNIT 1 H PULVERIZER TESTING, TEST 19	19	08/14/12	9:10-10:10	0.20	88.76	7.13	7.18	1.18	5.95	10.4	26.9	28.3	0.95	20.1	93.77	100.90
20126010	UNIT 1 H PULVERIZER TESTING, TEST 21	21	08/15/12	9:00-10:00	0.22	89.55	6.77	5.71	3.44	3.33	9.9	21.4	23.0	0.93	19.5	94.55	101.32
20126186	UNIT 1 H PULVERIZER TESTING, TEST 22	22	08/15/12	13:00-14:00	0.18	85.02	8.21	11.37			12.0	42.5	31.6	1.34	15.5	89.69	97.90
20126011	UNIT 1 H PULVERIZER TESTING, TEST 23	23	08/16/12	8:50-9:50	0.19	86.93	7.59	3.04	3.80	3.79	11.1	11.4	12.5	0.91	19.2	92.36	99.95
20126012	UNIT 1 H PULVERIZER TESTING, TEST 25	25	08/20/12	9:07-10:07	0.17	81.68	7.42	1.20	3.49	3.93	10.8	4.5	5.9	0.77	21.9	92.14	99.56
20126187	UNIT 1 H PULVERIZER TESTING, TEST 26	26	08/20/12	13:05-14:05	0.28	82.98	7.26	2.75			10.6	10.3	10.0	1.03	23.2	92.01	99.27
20126013	UNIT 1 H PULVERIZER TESTING, TEST 27	27	08/21/12	9:07-10:07	0.19	81.91	7.95	1.90	2.20	5.75	11.6	7.1	8.4	0.85	23.2	92.19	100.14
20126014	UNIT 1 H PULVERIZER TESTING, TEST 29	29	08/22/12	9:00-10:00	0.20	86.20	7.71	3.06	3.83	3.88	11.2	11.4	12.6	0.91	20.4	93.32	101.03
20126188	UNIT 1 H PULVERIZER TESTING, TEST 30	30	08/22/12	13:00-14:00	0.23	88.31	7.92	8.78			11.5	32.8	24.5	1.34	20.6	90.32	98.55
20126015	UNIT 1 H PULVERIZER TESTING, TEST 31	31	08/23/12	9:04-10:12	0.18	85.40	6.87	2.36			10.0	8.8	9.9	0.89	21.0	94.36	101.23
20126016	UNIT 1 H PULVERIZER TESTING, TEST 33	33	08/27/12	8:59-9:59	0.20	85.53	7.80	3.05			11.4	11.4	12.5	0.91	21.8	91.94	99.74
20126189	UNIT 1 H PULVERIZER TESTING, TEST 34	34	08/27/12	13:00-14:00	0.20	84.30	9.13	5.41			13.3	20.2	15.7	1.29	24.1	89.20	98.33
20126017	UNIT 1 H PULVERIZER TESTING, TEST 35	35	08/28/12	9:00-10:00	0.18	89.01	7.60	4.76			11.1	17.8	18.3	0.98	19.8	92.33	99.93
20126018	UNIT 1 H PULVERIZER TESTING, TEST 37	37	08/29/12	9:00-10:00	0.14	89.88	7.45	4.85	3.83	3.62	10.9	18.2	19.2	0.94	20.0	93.29	100.74
20126190	UNIT 1 H PULVERIZER TESTING, TEST 38	38	08/29/12	13:00-14:00	0.08	89.88	6.95	7.85			10.1	29.4	22.4	1.31	19.5	91.48	98.43
20126019	UNIT 1 H PULVERIZER TESTING, TEST 39	39	08/30/12	9:00-10:00	0.13	87.59	7.38	3.58			10.8	13.4	14.6	0.92	22.1	93.10	100.48
20126020	UNIT 1 H PULVERIZER TESTING, TEST 41	41	09/03/12	9:00-10:00	0.23	90.96	6.81	5.02			9.9	18.8	20.2	0.93	20.0	94.02	100.83
20126191	UNIT 1 H PULVERIZER TESTING, TEST 42	42	09/03/12	13:00-14:00	0.51	89.18	6.62	10.08			9.6	37.7	27.7	1.36	20.5	90.76	97.38
20126021	UNIT 1 H PULVERIZER TESTING, TEST 43	43	09/04/12	9:00-10:00	0.15	85.53	7.63	2.64			11.1	9.9	11.2	0.88	22.3	91.93	99.56
20126022	UNIT 1 H PULVERIZER TESTING, TEST 45	45	09/05/12	9:00-10:00	0.16	82.28	7.26	2.11	4.73	2.53	10.6	7.9	9.2	0.86	26.8	92.03	99.29
20126192	UNIT 1 H PULVERIZER TESTING, TEST 46	46	09/05/12	13:00-14:00	0.14	80.25	7.86	3.44			11.5	12.9	8.9	1.45	29.1	89.49	97.35
20126023	UNIT 1 H PULVERIZER TESTING, TEST 47	47	09/06/12	9:00-10:00	0.15	88.91	7.48	4.52			10.9	16.9	17.7	0.95	23.8	92.68	100.16
20126193	UNIT 1 H PULVERIZER TESTING, TEST 50	50	09/10/12	12:50-13:50	0.15	84.03	7.89	6.25			11.5	23.4	15.5	1.51	27.7	90.24	98.13
20126024	UNIT 1 H PULVERIZER TESTING, TEST 51	51	09/11/12	9:00-10:00	0.19	86.34	8.18	4.32			11.9	16.1	18.0	0.90	30.1	92.90	101.08
20126025	UNIT 1 H PULVERIZER TESTING, TEST 53	53	09/12/12	9:00-10:00	0.15	90.29	7.46	6.88	3.22	4.24	10.9	25.8	26.9	0.96	23.2	93.67	101.13
20126194	UNIT 1 H PULVERIZER TESTING, TEST 54	54	09/12/12	12:55-13:55	0.28	90.78	6.98	10.84			10.2	40.6	25.9	1.57	23.5	91.77	98.75
20126026	UNIT 1 H PULVERIZER TESTING, TEST 55	55	09/13/12	9:00-10:00	0.19	82.82	8.3	2.42			12.1	9.0	10.8	0.83	25.2	92.83	101.13
20126027	UNIT 1 H PULVERIZER TESTING, TEST 57	57	09/17/12	9:00-10:00	0.14	82.54	8.06	2.54			11.7	9.5	11.1	0.85	27.3	91.93	99.99
20126028	UNIT 1 H PULVERIZER TESTING, TEST 59	59	09/18/12	9:00-10:00	0.27	86.07	7.79	5.89			11.4	22.0	16.8	1.31	25.4	91.54	99.33
20126195	UNIT 1 H PULVERIZER TESTING, TEST 60	60	09/18/12	14:00-15:00	0.12	88.85	7.52	7.44			11.0	27.8	18.6	1.49	24.6	91.67	99.19
20126029	UNIT 1 H PULVERIZER TESTING, TEST 62	62	09/20/12	9:00-10:00	0.14	86.44	7.74	3.25			11.3	12.2	13.8	0.88	24.7	93.20	100.94
20126030	UNIT 1 H PULVERIZER TESTING, TEST 66	66	09/27/12	9:00-10:00	0.13	85.67	6.62	10.10			9.6	37.8	39.6	0.95	19.8	95.82	102.44
20126031	UNIT 1 H PULVERIZER TESTING, TEST 71	71	10/15/12	9:00-10:00	0.15	89.47	7.84	4.34	4.37	3.47	11.4	16.2	17.6	0.92	22.7	92.22	100.06
20126032	UNIT 1 H PULVERIZER TESTING, TEST 72	72	10/18/12	9:00-10:00	0.11	90.21	6.88	6.69			10.0	25.0	27.0	0.93	22.7	94.31	101.19
20126033	UNIT 1 H PULVERIZER TESTING, TEST 73	73	10/22/12	9:25-10:25	0.14	83.55	7.23	2.04			10.5	7.6	9.7	0.79	26.4	93.10	100.33
20126034	UNIT 1 H PULVERIZER TESTING, TEST 74	74	10/24/12	9:15-10:15	0.14	83.43	6.95	10.74	2.12	4.83	10.1	40.2	42.4	0.95	16.1	93.81	100.76
20126035	UNIT 2 E PULVERIZER TESTING, TEST 01	1	07/30/12	9:00-10:00	0.34	79.32	15.48	6.43			22.6	24.1	25.6	0.94	16.4	82.18	97.66
20126196	UNIT 2 E PULVERIZER TESTING, TEST 02	2	07/30/12	13:00-14:00	0.59	71.67	21.43	7.98			31.2	29.9	19.4	1.54	16.7	73.83	95.26
20126036	UNIT 2 E PULVERIZER TESTING, TEST 03	3	07/31/12	9:00-10:00	0.30	83.83	12.79	5.92			18.6	22.1	23.4	0.94	19.7	84.62	97.41
20126037	UNIT 2 E PULVERIZER TESTING, TEST 05	5	08/01/12	9:00-10:00	0.20	79.35	9.20	11.60	2.77	6.43	13.4	43.4	45.8	0.95	14.5	91.28	100.48
20126197	UNIT 2 E PULVERIZER TESTING, TEST 06	6	08/01/12	13:00-14:00	0.37	77.16	14.79	6.80			21.6	25.4	30.2	0.84	15.1	81.37	96.16
20126038	UNIT 2 E PULVERIZER TESTING, TEST 07	7	08/02/12	9:00-10:00	0.35	73.90	17.20	15.15			25.1	56.7	41.0	1.38	13.3	83.02	100.22
20126039	UNIT 2 E PULVERIZER TESTING, TEST 09	9	08/06/12	9:00-10:00	0.61	70.40	24.03	6.50			35.0	24.3	18.1	1.34	19.3	70.97	95.00
20126198	UNIT 2 E PULVERIZER TESTING, TEST 10	10	08/06/12	12:56-13:56	1.03	67.28	26.63	5.36			38.8	20.1	13.5	1.49	19.0	67.07	93.70
20126040	UNIT 2 E PULVERIZER TESTING, TEST 11	11	08/07/12	8:50-9:50	0.67	68.00	24.09	7.58			35.1	28.3	20.9	1.36	15.8	68.63	92.72
20126041	UNIT 2 E PULVERIZER TESTING, TEST 13	13	08/08/12	8:58-9:58	0.40	71.30	14.53	14.68	0.24	14.29	21.2	54.9	39.8	1.38	8.9	81.51	96.04
20126199	UNIT 2 E PULVERIZER TESTING, TEST 14	14	08/08/12	12:55-13:55	0.32	78.01	15.37	8.38			22.4	31.4	20.7	1.52	13.8	80.48	95.85
20126042	UNIT 2 E PULVERIZER TESTING, TEST 15	15	08/09/12	8:52-9:52	0.42	66.94	15.05	13.72			21.9	51.3	55.2	0.93	7.8	84.10	99.15
20126043	UNIT 2 E PULVERIZER TESTING, TEST 17	17	08/13/12	9:04-10:04	0.24	74.68	13.53	9.74			19.7	36.5	38.8	0.94	12.4	85.47	99.00
20126200	UNIT 2 E PULVERIZER TESTING, TEST 18	18	08/13/12	12:58-13:58													

Table 1. Characterization of Mill Reject Samples

Mill Rejects					Concentration (As Determined Wt. %)	Concentration (Dry Wt. %)					Concentration (Dry Wt. %)						
Lab Number	Sample Description	Test	Test Date	Test Time	Residual Moisture	Ash @ 750C	Total Carbon	Sulfur	Inorganic (Carbonate) Carbon reported as Carbon	Organic Carbon	Coal (Wt%) calculated from Carbon (assumes 68.61% Carbon for 100% coal)	Pyrite (Wt%) calculated from Sulfur	Pyrite (Wt%) calculated from Iron	Pyrite calculated from sulfur/Pyrite calculated from Iron	Limestone (Wt%) calculated from Ca	Elemental Mass Balance With Ca as CaCO3	Reject Mass Balance (includes Carbon)
20126045	UNIT 2 E PULVERIZER TESTING, TEST 21	21	08/15/12	8:56-10:03	0.32	69.49	15.76	11.43	0.37	15.39	23.0	42.8	45.3	0.94	9.8	82.88	98.64
20126201	UNIT 2 E PULVERIZER TESTING, TEST 22	22	08/15/12	13:01-14:03	0.45	72.45	16.2	12.35			23.6	46.2	29.7	1.56	12.5	77.57	93.77
20126046	UNIT 2 E PULVERIZER TESTING, TEST 23	23	08/16/12	8:56-9:58	0.36	63.26	23.94	7.98			34.9	29.9	32.2	0.93	9.3	72.73	96.67
20126047	UNIT 2 E PULVERIZER TESTING, TEST 25	25	08/20/12	9:00-10:00	0.48	69.92	19.12	5.61			27.9	21.0	22.2	0.95	15.0	77.22	96.34
20126202	UNIT 2 E PULVERIZER TESTING, TEST 26	26	08/20/12	13:00-14:00	0.59	70.97	23.51	6.30			34.3	23.6	15.3	1.54	14.6	69.10	92.61
20126048	UNIT 2 E PULVERIZER TESTING, TEST 27	27	08/21/12	9:00-10:00	0.46	57.75	29.68	4.64			43.3	17.4	18.8	0.92	9.8	61.18	90.86
20126049	UNIT 2 E PULVERIZER TESTING, TEST 29	29	08/22/12	9:00-10:00	0.17	75.19	12.14	11.21	0.33	11.81	17.7	41.9	44.7	0.94	11.7	85.95	98.09
20126203	UNIT 2 E PULVERIZER TESTING, TEST 30	30	08/22/12	13:00-14:00	0.20	70.07	14.14	19.63			20.6	73.4	47.7	1.54	9.5	82.47	96.61
20126050	UNIT 2 E PULVERIZER TESTING, TEST 31	31	08/23/12	9:00-10:00	0.16	74.38	11.24	12.16			16.4	45.5	50.3	0.90	10.6	89.17	100.41
20126051	UNIT 2 E PULVERIZER TESTING, TEST 33	33	08/27/12	9:00-10:00	1.29	73.64	13.84	10.86			20.2	40.6	43.1	0.94	12.5	85.17	99.01
20126204	UNIT 2 E PULVERIZER TESTING, TEST 34	34	08/27/12	13:00-14:00	0.45	65.26	19.90	15.39			29.0	57.6	37.4	1.54	9.0	74.73	94.63
20126052	UNIT 2 E PULVERIZER TESTING, TEST 35	35	08/28/12	9:00-10:00	0.52	64.84	22.62	12.64			33.0	47.3	35.1	1.35	10.7	74.30	96.92
20126053	UNIT 2 E PULVERIZER TESTING, TEST 37	37	08/29/12	9:00-10:00	0.35	71.45	16.04	15.15	2.25	13.79	23.4	56.7	41.0	1.38	12.2	82.86	98.90
20126205	UNIT 2 E PULVERIZER TESTING, TEST 38	38	08/29/12	13:00-14:00	0.31	79.29	11.98	14.26			17.5	53.4	34.8	1.53	14.8	85.00	96.98
20126054	UNIT 2 E PULVERIZER TESTING, TEST 39	39	08/30/12	9:00-10:00	0.32	73.37	15.98	12.38			23.3	46.3	33.7	1.38	13.7	81.21	97.19
20126055	UNIT 2 E PULVERIZER TESTING, TEST 41	41	09/03/12	9:00-10:00	0.48	69.22	19.66	11.33			28.7	42.4	30.7	1.38	12.1	76.26	95.92
20126206	UNIT 2 E PULVERIZER TESTING, TEST 42	42	09/03/12	13:00-14:00	0.43	75.91	12.93	15.31			18.8	57.3	36.8	1.56	14.4	83.07	96.00
20126056	UNIT 2 E PULVERIZER TESTING, TEST 43	43	09/04/12	9:00-10:00	0.10	83.58	7.83	14.64			11.4	54.8	40.2	1.36	15.4	91.43	99.26
20126207	UNIT 2 E PULVERIZER TESTING, TEST 46	46	09/05/12	13:15-14:15	0.50	66.22	21.28	14.00			31.0	52.4	34.2	1.53	10.9	72.52	93.80
20126057	UNIT 2 E PULVERIZER TESTING, TEST 47	47	09/06/12	9:00-10:00	0.59	73.06	19.55	8.16			28.5	30.5	22.2	1.37	17.3	76.37	95.92
20126208	UNIT 2 E PULVERIZER TESTING, TEST 50	50	09/10/12	13:05-14:05	0.28	70.78	12.88	20.39			18.8	76.3	50.4	1.52	11.5	83.29	96.17
20126058	UNIT 2 E PULVERIZER TESTING, TEST 51	51	09/11/12	9:10-10:10	0.25	86.37	11.23	8.62			16.4	32.2	23.2	1.39	25.1	85.70	96.93
20126059	UNIT 2 E PULVERIZER TESTING, TEST 53	53	09/12/12	9:00-10:00	0.17	75.63	10.83	17.82	0.53	10.30	15.8	66.7	48.1	1.39	12.9	87.42	98.25
20126209	UNIT 2 E PULVERIZER TESTING, TEST 54	54	09/12/12	13:00-14:00	0.27	77.68	10.86	17.81			15.8	66.6	43.4	1.54	14.3	85.42	96.28
20126060	UNIT 2 E PULVERIZER TESTING, TEST 55	55	09/13/12	9:10-10:10	0.31	74.75	17.09	11.11			24.9	41.6	29.7	1.40	15.4	80.67	97.76
20126061	UNIT 2 E PULVERIZER TESTING, TEST 57	57	09/17/12	9:00-10:00	0.30	75.62	17.64	4.28			25.7	16.0	12.5	1.29	22.8	78.00	95.64
20126062	UNIT 2 E PULVERIZER TESTING, TEST 59	59	09/18/12	9:00-10:00	0.81	69.42	22.89	6.64			33.4	24.8	18.5	1.35	15.9	69.97	92.86
20126210	UNIT 2 E PULVERIZER TESTING, TEST 60	60	09/18/12	13:30-14:30	0.84	73.06	20.76	8.23		25.53	30.3	30.8	20.2	1.52	17.9	71.77	92.53
20126063	UNIT 2 E PULVERIZER TESTING, TEST 67	67	10/01/12	9:00-10:00	0.43	74.20	19.31	8.66			28.1	32.4	23.3	1.39	18.1	75.39	94.70
20126064	UNIT 2 E PULVERIZER TESTING, TEST 71	71	10/15/12	9:00-10:00	0.50	69.85	22.72	4.97	0.43	22.29	33.1	18.6	13.7	1.36	15.7	70.61	93.33
20126065	UNIT 2 E PULVERIZER TESTING, TEST 72	72	10/18/12	9:00-10:00	0.34	73.72	12.73	16.73			18.6	62.6	46.3	1.35	11.2	86.03	98.76
20126066	UNIT 2 E PULVERIZER TESTING, TEST 73	73	10/22/12	9:05-10:05	0.23	86.17	11.39	7.32			16.6	27.4	20.4	1.34	20.8	87.63	99.02
20126067	UNIT 2 E PULVERIZER TESTING, TEST 74	74	10/24/12	9:04-10:04	0.17	81.01	8.84	14.55	2.80	6.04	12.9	54.4	40.2	1.35	14.9	89.33	98.17

Table 1. Characterization of Mill Reject Samples

Mill Rejects						Elemental Concentration (Wt. %, Dry Basis)										Trace Element Concentration (ug/g of Dry sample)		
Lab Number	Sample Description	Test	Test Date	Test Time	Elemental Prep	SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Arsenic	Antimony	Mercury
20126000	UNIT 1 H PULVERIZER TESTING, TEST 01	1	07/30/12	8:55-9:55	As Determined	46.98	5.53	0.20	6.63	12.22	6.19	0.07	0.98	0.13	5.76	30.3	0.15	1.34
20126181	UNIT 1 H PULVERIZER TESTING, TEST 02	2	07/30/12	12:59-13:59	As Determined	43.83	6.02	0.24	6.07	12.80	6.47	0.15	0.92	0.13	7.16	17.3	0.37	1.46
20126001	UNIT 1 H PULVERIZER TESTING, TEST 03	3	07/31/12	9:00-10:00	As Determined	47.56	5.22	0.21	5.52	13.16	6.54	0.08	0.83	0.11	4.51	26.8	0.52	0.842
20126002	UNIT 1 H PULVERIZER TESTING, TEST 05	5	08/01/12	9:00-10:00	As Determined	44.85	4.72	0.18	8.62	12.39	5.75	0.06	0.82	0.10	7.82	31.2	0.25	1.37
20126182	UNIT 1 H PULVERIZER TESTING, TEST 06	6	08/01/12	13:00-14:00	As Determined	42.99	4.40	0.17	4.85	15.21	6.99	0.08	0.72	0.11	5.27	17.5	0.42	0.588
20126003	UNIT 1 H PULVERIZER TESTING, TEST 07	7	08/02/12	9:00-10:00	As Determined	43.43	4.67	0.18	8.92	12.43	5.96	0.09	0.77	0.11	8.04	38.5	0.18	1.61
20126004	UNIT 1 H PULVERIZER TESTING, TEST 09	9	08/06/12	8:50-9:50	As Determined	42.27	4.77	0.20	2.23	16.42	7.96	0.08	0.76	0.10	1.08	13.6	0.13	0.304
20126183	UNIT 1 H PULVERIZER TESTING, TEST 10	10	08/06/12	12:55-13:55	As Determined	41.71	5.18	0.21	2.47	16.16	7.78	0.08	0.75	0.07	1.31	12.4	0.31	0.199
20126005	UNIT 1 H PULVERIZER TESTING, TEST 11	11	08/07/12	9:00-10:00	As Determined	42.21	3.81	0.16	9.21	14.17	5.93	0.06	0.63	0.08	8.60	42.7	0.19	1.85
20126006	UNIT 1 H PULVERIZER TESTING, TEST 13	13	08/08/12	8:55-9:55	As Determined	52.69	4.84	0.19	8.94	9.13	4.30	0.06	0.93	0.10	11.94	53.2	0.32	1.98
20126184	UNIT 1 H PULVERIZER TESTING, TEST 14	14	08/08/12	12:50-13:50	As Determined	55.85	4.64	0.17	4.75	10.99	4.48	0.05	0.85	0.10	5.36	22.0	0.29	0.626
20126007	UNIT 1 H PULVERIZER TESTING, TEST 15	15	08/09/12	10:15-11:15	As Determined	49.84	4.46	0.17	7.35	11.33	5.16	0.06	0.82	0.10	6.52	28.1	0.15	1.32
20126008	UNIT 1 H PULVERIZER TESTING, TEST 17	17	08/13/12	9:00-10:00	As Determined	50.00	4.45	0.18	7.18	11.18	5.09	0.06	0.81	0.11	6.42	25.6	0.10	1.38
20126185	UNIT 1 H PULVERIZER TESTING, TEST 18	18	08/13/12	12:55-13:55	As Determined	45.79	4.01	0.15	5.82	13.58	4.90	0.06	0.72	0.09	7.41	31.4	0.24	1.57
20126009	UNIT 1 H PULVERIZER TESTING, TEST 19	19	08/14/12	9:10-10:10	As Determined	36.13	3.35	0.12	18.82	11.27	4.98	0.06	0.64	0.09	17.96	56.2	0.18	4.44
20126010	UNIT 1 H PULVERIZER TESTING, TEST 21	21	08/15/12	9:00-10:00	As Determined	43.26	3.44	0.13	15.29	10.94	4.39	0.08	0.65	0.09	14.27	54.7	0.25	3.03
20126186	UNIT 1 H PULVERIZER TESTING, TEST 22	22	08/15/12	13:00-14:00	As Determined	34.48	2.64	0.09	21.05	8.69	4.75	0.04	0.47	0.07	28.42	61.1	0.48	5.22
20126011	UNIT 1 H PULVERIZER TESTING, TEST 23	23	08/16/12	8:50-9:50	As Determined	51.02	3.66	0.14	8.35	10.74	4.97	0.06	0.68	0.11	7.60	27.3	0.62	1.42
20126012	UNIT 1 H PULVERIZER TESTING, TEST 25	25	08/20/12	9:07-10:07	As Determined	53.86	3.89	0.15	3.91	12.25	5.65	0.06	0.68	0.10	3.01	19.8	0.24	0.458
20126187	UNIT 1 H PULVERIZER TESTING, TEST 26	26	08/20/12	13:05-14:05	As Determined	44.70	6.11	0.20	6.63	12.99	6.81	0.10	0.81	0.12	6.87	37.5	0.46	0.642
20126013	UNIT 1 H PULVERIZER TESTING, TEST 27	27	08/21/12	9:07-10:07	As Determined	49.79	3.90	0.15	5.58	13.01	5.88	0.06	0.69	0.10	4.76	28.3	0.23	0.827
20126014	UNIT 1 H PULVERIZER TESTING, TEST 29	29	08/22/12	9:00-10:00	As Determined	51.01	3.46	0.13	8.36	11.43	4.97	0.05	0.64	0.09	7.65	29.7	0.13	1.54
20126188	UNIT 1 H PULVERIZER TESTING, TEST 30	30	08/22/12	13:00-14:00	As Determined	35.71	3.82	0.13	16.31	11.55	5.07	0.04	0.66	0.07	21.94	78.3	0.41	3.23
20126015	UNIT 1 H PULVERIZER TESTING, TEST 31	31	08/23/12	9:04-10:12	As Determined	53.91	3.41	0.12	6.62	11.74	5.22	0.05	0.65	0.09	5.89	24.5	0.24	1.19
20126016	UNIT 1 H PULVERIZER TESTING, TEST 33	33	08/27/12	8:59-9:59	As Determined	48.21	3.18	0.12	8.31	12.19	5.42	0.07	0.61	0.08	7.63	29.6	0.11	1.64
20126189	UNIT 1 H PULVERIZER TESTING, TEST 34	34	08/27/12	13:00-14:00	As Determined	40.04	2.68	0.09	10.44	13.47	6.09	0.04	0.47	0.05	13.52	53.2	0.32	2.17
20126017	UNIT 1 H PULVERIZER TESTING, TEST 35	35	08/28/12	9:00-10:00	As Determined	45.27	3.13	0.11	12.15	11.08	5.06	0.06	0.56	0.10	11.90	34.9	0.13	2.62
20126018	UNIT 1 H PULVERIZER TESTING, TEST 37	37	08/29/12	9:00-10:00	As Determined	45.25	2.88	0.11	12.80	11.21	5.10	0.06	0.53	0.11	12.13	45.4	0.28	2.70
20126190	UNIT 1 H PULVERIZER TESTING, TEST 38	38	08/29/12	13:00-14:00	As Determined	41.09	2.58	0.09	14.89	10.93	5.19	0.08	0.48	0.08	19.62	45.6	0.68	2.81
20126019	UNIT 1 H PULVERIZER TESTING, TEST 39	39	08/30/12	9:00-10:00	As Determined	47.43	2.73	0.09	9.69	12.35	5.57	0.06	0.52	0.09	8.94	36.0	0.17	1.83
20126020	UNIT 1 H PULVERIZER TESTING, TEST 41	41	09/03/12	9:00-10:00	As Determined	44.85	3.07	0.11	13.47	11.18	5.04	0.08	0.59	0.08	12.54	43.4	0.71	2.72
20126191	UNIT 1 H PULVERIZER TESTING, TEST 42	42	09/03/12	13:00-14:00	As Determined	34.19	2.16	0.07	18.44	11.47	5.66	0.06	0.38	0.05	25.21	59.0	0.54	3.74
20126021	UNIT 1 H PULVERIZER TESTING, TEST 43	43	09/04/12	9:00-10:00	As Determined	47.93	3.57	0.13	7.44	12.50	5.91	0.10	0.69	0.10	6.59	26.4	0.24	1.19
20126022	UNIT 1 H PULVERIZER TESTING, TEST 45	45	09/05/12	9:00-10:00	As Determined	45.44	3.01	0.10	6.13	15.00	6.74	0.06	0.59	0.09	5.28	20.1	0.15	0.767
20126192	UNIT 1 H PULVERIZER TESTING, TEST 46	46	09/05/12	13:00-14:00	As Determined	40.16	2.53	0.08	5.91	16.32	8.04	0.07	0.52	0.07	8.60	33.0	0.32	1.02
20126023	UNIT 1 H PULVERIZER TESTING, TEST 47	47	09/06/12	9:00-10:00	As Determined	41.04	3.10	0.11	11.78	13.32	6.17	0.07	0.59	0.11	11.29	42.1	0.21	2.21
20126193	UNIT 1 H PULVERIZER TESTING, TEST 50	50	09/10/12	12:50-13:50	As Determined	35.85	2.87	0.10	10.30	15.52	7.50	0.12	0.55	0.06	15.62	35.1	0.27	1.79
20126024	UNIT 1 H PULVERIZER TESTING, TEST 51	51	09/11/12	9:00-10:00	As Determined	33.49	2.80	0.09	11.99	16.88	7.63	0.13	0.53	0.07	10.79	45.7	0.56	2.31
20126025	UNIT 1 H PULVERIZER TESTING, TEST 53	53	09/12/12	9:00-10:00	As Determined	33.93	2.76	0.09	17.87	12.99	6.11	0.13	0.51	0.09	17.21	60.6	0.21	4.04
20126194	UNIT 1 H PULVERIZER TESTING, TEST 54	54	09/12/12	12:55-13:55	As Determined	32.05	2.77	0.10	17.21	13.16	6.59	0.29	0.54	0.07	27.10	53.6	0.40	4.13
20126026	UNIT 1 H PULVERIZER TESTING, TEST 55	55	09/13/12	9:00-10:00	As Determined	46.12	3.45	0.11	7.22	14.10	6.26	0.11	0.65	0.10	6.04	26.9	0.17	1.08
20126027	UNIT 1 H PULVERIZER TESTING, TEST 57	57	09/17/12	9:00-10:00	As Determined	41.59	3.56	0.12	7.40	15.28	7.40	0.11	0.65	0.10	6.34	28.7	0.16	1.10
20126028	UNIT 1 H PULVERIZER TESTING, TEST 59	59	09/18/12	9:00-10:00	As Determined	38.28	3.21	0.11	11.19	14.21	6.98	0.11	0.56	0.09	14.72	51.7	0.69	2.23
20126195	UNIT 1 H PULVERIZER TESTING, TEST 60	60	09/18/12	14:00-15:00	As Determined	37.98	2.78	0.11	12.41	13.78	6.85	0.12	0.51	0.07	18.60	87.3	0.54	3.12
20126029	UNIT 1 H PULVERIZER TESTING, TEST 62	62	09/20/12	9:00-10:00	As Determined	43.47	3.60	0.11	9.21	13.85	6.57	0.10	0.68	0.10	8.12	38.2	0.29	1.47
20126030	UNIT 1 H PULVERIZER TESTING, TEST 66	66	09/27/12	9:00-10:00	As Determined	29.98	2.09	0.08	26.35	11.06	3.87	0.06	0.34	0.06	25.26	83.5	0.39	5.57
20126031	UNIT 1 H PULVERIZER TESTING, TEST 71	71	10/15/12	9:00-10:00	As Determined	41.27	3.59	0.12	11.72	12.69	6.13	0.10	0.62	0.12	10.85	46.4	0.25	2.01
20126032	UNIT 1 H PULVERIZER TESTING, TEST 72	72	10/18/12	9:00-10:00	As Determined	35.22	2.54	0.08	17.94	12.72	6.20	0.06	0.46	0.08	16.72	95.8	0.33	3.44
20126033	UNIT 1 H PULVERIZER TESTING, TEST 73	73	10/22/12	9:25-10:25	As Determined	46.59	3.23	0.10	6.43	14.78	6.31	0.10	0.63	0.09	5.11	26.7	0.15	0.910
20126034	UNIT 1 H PULVERIZER TESTING, TEST 74	74	10/24/12	9:15-10:15	As Determined	28.86	1.91	0.08	28.21	9.02	4.03	0.05	0.33	0.06	26.86	165	0.23	6.23
20126035	UNIT 2 E PULVERIZER TESTING, TEST 01	1	07/30/12	9:00-10:00	As Determined	31.11	3.76	0.14	17.06	9.21	4.31	0.12	0.57	0.09	16.08	91.9	0.66	3.52
20126196	UNIT 2 E PULVERIZER TESTING, TEST 02	2	07/30/12	13:00-14:00	As Determined	28.79	3.71	0.14	12.89	9.35	4.35	0.17	0.52	0.09	19.95	86.0	0.09	2.99
20126036	UNIT 2 E PULVERIZER TESTING, TEST 03	3	07/31/12	9:00-10:00	As Determined	31.73	3.60	0.14	15.59	11.03	5.27	0.11	0.56	0.09	14.79	106	0.42	3.26
20126037	UNIT 2 E PULVERIZER TESTING, TEST 05	5	08/01/12	9:00-10:00	As Determined	23.88	2.68	0.10	30.49	8.12	3.74	0.07	0.43	0.07	29.01	149	0.30	6.40
20126197	UNIT 2 E PULVERIZER TESTING, TEST 06	6	08/01/12	13:00-14:00	As Determined	27.90	3.30	0.12	20.08	8.46	4.03	0.12	0.53	0.09	17.00	95.7	0.64	4.49
20126038	UNIT 2 E PULVERIZER TESTING, TEST 07	7	08/02/12	9:00-10:00	As Determined	22.00	2.64	0.11	27.28	7.43	3.43	0.10	0.40	0.08	37.88	125	0.88	6.05
20126039	UNIT 2 E PULVERIZER TESTING, TEST 09	9	08/06/12	9:00-10:00	As Determined	24.82	3.19	0.14	12.06	10.83	4.65	0.18	0.43	0.1	16.25	60.1	0.99	2.58

Mill Rejects						Elemental Concentration (Wt. %, Dry Basis)										Trace Element Concentration (ug/g of Dry sample)		
Lab Number	Sample Description	Test	Test Date	Test Time	Elemental Prep	SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Arsenic	Antimony	Mercury
20126198	UNIT 2 E PULVERIZER TESTING, TEST 10	10	08/06/12	12:56-13:56	As Determined	25.81	3.48	0.14	8.99	10.63	4.43	0.2	0.44	0.08	13.41	66.1	0.73	2.20
20126040	UNIT 2 E PULVERIZER TESTING, TEST 11	11	08/07/12	8:50-9:50	As Determined	24.3	3.25	0.16	13.88	8.86	3.61	0.14	0.4	0.09	18.94	86.0	0.63	2.80
20126041	UNIT 2 E PULVERIZER TESTING, TEST 13	13	08/08/12	8:58-9:58	As Determined	27.16	2.76	0.11	26.47	4.99	2.20	0.07	0.44	0.09	36.71	126	0.66	5.52
20126199	UNIT 2 E PULVERIZER TESTING, TEST 14	14	08/08/12	12:55-13:55	As Determined	38.08	3.63	0.13	13.75	7.71	3.43	0.09	0.64	0.05	20.96	53.3	1.36	2.39
20126042	UNIT 2 E PULVERIZER TESTING, TEST 15	15	08/09/12	8:52-9:52	As Determined	16.79	2.07	0.08	36.72	4.34	1.81	0.09	0.30	0.04	34.31	165	0.65	7.90
20126043	UNIT 2 E PULVERIZER TESTING, TEST 17	17	08/13/12	9:04-10:04	As Determined	27.77	2.81	0.10	25.80	6.96	3.01	0.07	0.47	0.05	24.36	91.0	0.55	5.23
20126200	UNIT 2 E PULVERIZER TESTING, TEST 18	18	08/13/12	12:58-13:58	As Determined	24.32	2.49	0.09	32.40	6.08	2.63	0.05	0.43	0.04	50.32	132	1.41	7.51
20126044	UNIT 2 E PULVERIZER TESTING, TEST 19	19	08/14/12	8:57-9:57	As Determined	22.3	2.62	0.1	21.4	7.88	3.27	0.15	0.37	0.06	19.83	88.1	0.49	4.45
20126045	UNIT 2 E PULVERIZER TESTING, TEST 21	21	08/15/12	8:56-10:03	As Determined	22.18	2.64	0.10	30.16	5.47	2.36	0.09	0.37	0.06	28.58	115	0.60	6.60
20126201	UNIT 2 E PULVERIZER TESTING, TEST 22	22	08/15/12	13:01-14:03	As Determined	28.51	3.09	0.11	19.74	6.99	3.10	0.09	0.48	0.05	30.88	84.3	1.14	4.38
20126046	UNIT 2 E PULVERIZER TESTING, TEST 23	23	08/16/12	8:56-9:58	As Determined	25.27	3.00	0.11	21.45	5.22	2.21	0.11	0.42	0.06	19.96	73.4	0.60	3.97
20126047	UNIT 2 E PULVERIZER TESTING, TEST 25	25	08/20/12	9:00-10:00	As Determined	32.33	3.24	0.13	14.77	8.38	3.69	0.12	0.47	0.08	14.03	67.4	1.93	2.23
20126202	UNIT 2 E PULVERIZER TESTING, TEST 26	26	08/20/12	13:00-14:00	As Determined	31.24	3.35	0.13	10.18	8.19	3.79	0.15	0.45	0.07	15.75	65.0	0.94	1.64
20126048	UNIT 2 E PULVERIZER TESTING, TEST 27	27	08/21/12	9:00-10:00	As Determined	26.04	3.48	0.14	12.54	5.48	2.24	0.18	0.39	0.08	11.6	58.1	0.61	2.03
20126049	UNIT 2 E PULVERIZER TESTING, TEST 29	29	08/22/12	9:00-10:00	As Determined	23.77	2.23	0.08	29.77	6.55	2.96	0.08	0.35	0.05	28.03	113	0.88	5.70
20126203	UNIT 2 E PULVERIZER TESTING, TEST 30	30	08/22/12	13:00-14:00	As Determined	20.27	2.18	0.08	31.77	5.30	2.30	0.08	0.32	0.04	49.07	122	1.14	6.46
20126050	UNIT 2 E PULVERIZER TESTING, TEST 31	31	08/23/12	9:00-10:00	As Determined	22.88	2.18	0.08	33.50	5.94	2.60	0.07	0.36	0.06	30.39	131	0.88	6.13
20126051	UNIT 2 E PULVERIZER TESTING, TEST 33	33	08/27/12	9:00-10:00	As Determined	23.69	2.22	0.08	28.69	6.99	3.09	0.08	0.34	0.08	27.16	91.2	0.81	5.37
20126204	UNIT 2 E PULVERIZER TESTING, TEST 34	34	08/27/12	13:00-14:00	As Determined	23.24	2.34	0.08	24.89	5.05	2.16	0.16	0.29	0.04	38.48	100	0.94	5.73
20126052	UNIT 2 E PULVERIZER TESTING, TEST 35	35	08/28/12	9:00-10:00	As Determined	22.95	2.45	0.1	23.34	5.99	2.48	0.13	0.33	0.09	31.6	92.2	0.69	4.99
20126053	UNIT 2 E PULVERIZER TESTING, TEST 37	37	08/29/12	9:00-10:00	As Determined	23.71	2.27	0.10	27.31	6.82	3.06	0.09	0.35	0.07	37.87	99.3	0.73	5.39
20126205	UNIT 2 E PULVERIZER TESTING, TEST 38	38	08/29/12	13:00-14:00	As Determined	28.72	2.23	0.07	23.14	8.29	3.90	0.08	0.38	0.05	35.66	95.7	0.75	4.96
20126054	UNIT 2 E PULVERIZER TESTING, TEST 39	39	08/30/12	9:00-10:00	As Determined	27.32	2.35	0.09	22.42	7.67	3.49	0.10	0.39	0.09	30.96	90.8	0.82	4.46
20126055	UNIT 2 E PULVERIZER TESTING, TEST 41	41	09/03/12	9:00-10:00	As Determined	26.98	2.67	0.11	20.44	6.79	3.04	0.14	0.40	0.08	28.32	86.1	0.80	3.71
20126206	UNIT 2 E PULVERIZER TESTING, TEST 42	42	09/03/12	13:00-14:00	As Determined	25.55	2.20	0.07	24.49	8.05	3.57	0.08	0.36	0.07	38.27	90.0	0.69	5.72
20126056	UNIT 2 E PULVERIZER TESTING, TEST 43	43	09/04/12	9:00-10:00	As Determined	28.90	2.16	0.09	26.77	8.60	4.18	0.06	0.40	0.06	36.61	84.5	0.61	5.52
20126207	UNIT 2 E PULVERIZER TESTING, TEST 46	46	09/05/12	13:15-14:15	As Determined	21.56	2.52	0.1	22.78	6.09	2.74	0.1	0.33	0.07	35.01	91.6	0.98	4.30
20126057	UNIT 2 E PULVERIZER TESTING, TEST 47	47	09/06/12	9:00-10:00	As Determined	29.17	2.73	0.11	14.80	9.67	4.22	0.10	0.42	0.11	20.40	53.6	0.46	2.47
20126208	UNIT 2 E PULVERIZER TESTING, TEST 50	50	09/10/12	13:05-14:05	As Determined	16.09	1.96	0.08	33.51	6.46	2.82	0.13	0.29	0.03	50.98	114	0.68	8.31
20126058	UNIT 2 E PULVERIZER TESTING, TEST 51	51	09/11/12	9:10-10:10	As Determined	27.00	2.68	0.10	15.45	14.08	6.86	0.12	0.47	0.11	21.55	53.6	0.45	3.22
20126059	UNIT 2 E PULVERIZER TESTING, TEST 53	53	09/12/12	9:00-10:00	As Determined	20.49	1.96	0.08	32.00	7.24	3.40	0.09	0.31	0.08	44.55	116	0.68	7.17
20126209	UNIT 2 E PULVERIZER TESTING, TEST 54	54	09/12/12	13:00-14:00	As Determined	21.30	2.12	0.07	28.88	7.99	3.78	0.08	0.34	0.07	44.53	112	0.75	6.78
20126060	UNIT 2 E PULVERIZER TESTING, TEST 55	55	09/13/12	9:10-10:10	As Determined	27.84	2.77	0.10	19.77	8.65	4.15	0.10	0.45	0.11	27.77	69.4	0.84	3.89
20126061	UNIT 2 E PULVERIZER TESTING, TEST 57	57	09/17/12	9:00-10:00	As Determined	33.09	3.04	0.12	8.29	12.75	5.83	0.14	0.48	0.08	10.71	38.5	0.55	1.29
20126062	UNIT 2 E PULVERIZER TESTING, TEST 59	59	09/18/12	9:00-10:00	As Determined	28.30	2.76	0.12	12.28	8.91	3.77	0.20	0.37	0.09	16.59	52.8	0.67	2.84
20126210	UNIT 2 E PULVERIZER TESTING, TEST 60	60	09/18/12	13:30-14:30	As Determined	25.53	2.8	0.1	13.47	10.03	4.55	0.18	0.4	0.06	20.58	68.4	0.66	2.89
20126063	UNIT 2 E PULVERIZER TESTING, TEST 67	67	10/01/12	9:00-10:00	As Determined	25.58	3.06	0.13	15.49	10.14	4.46	0.18	0.49	0.11	21.64	53.7	0.38	3.23
20126064	UNIT 2 E PULVERIZER TESTING, TEST 71	71	10/15/12	9:00-10:00	As Determined	32.78	3.45	0.15	9.09	8.81	4.09	0.16	0.48	0.11	12.43	38.1	0.11	1.64
20126065	UNIT 2 E PULVERIZER TESTING, TEST 72	72	10/18/12	9:00-10:00	As Determined	23.02	2.02	0.08	30.80	6.27	3.00	0.06	0.29	0.08	41.83	133	0.74	6.32
20126066	UNIT 2 E PULVERIZER TESTING, TEST 73	73	10/22/12	9:05-10:05	As Determined	37.91	2.88	0.12	13.57	11.62	4.87	0.08	0.52	0.11	18.29	63.9	0.70	2.00
20126067	UNIT 2 E PULVERIZER TESTING, TEST 74	74	10/24/12	9:04-10:04	As Determined	27.76	2.24	0.09	26.77	8.33	3.61	0.06	0.38	0.09	36.38	132	0.61	5.61

Table 2. Sieve Analysis of Mill Reject Samples

Mill Rejects			Weight Percent of As Received Sample							
Lab Number	Sample Description	Test Date/Time	"-0.0098	0.0098" x 0.0469"	0.0469" x 0.125"	0.125" x 0.25"	0.25" x 0.5"	0.25" x 1"	1" x 2"	+2"
20126006	UNIT 1 H PULVERIZER TESTING, TEST 13	8/8/12 8:55-9:55	0.11	0.20	4.46	11.17	25.7	46	12.20	0.01
20126041	UNIT 2 E PULVERIZER TESTING, TEST 13	8/8/12 8:58-9:58	1.78	7.94	31.57	52.5	6.21	0.01	0.01	0.01
20126028	UNIT 1 H PULVERIZER TESTING, TEST 59	9/18/12 9:00-10:00	0.03	0.03	0.17	3.7	38.43	52.55	3.21	1.93
20126062	UNIT 2 E PULVERIZER TESTING, TEST 59	9/18/12 9:00-10:00	1.4	7.59	15.56	66.77	8.68	0.01	0.01	0.01
20126190	UNIT 1 H PULVERIZER TESTING, TEST 38	8/29/12 13:00-14:00	0.2	0.42	4.79	9.78	32.00	47.64	5.17	0.01
20126205	UNIT 2 E PULVERIZER TESTING, TEST 38	8/29/12 13:00-14:00	0.68	3.48	20.28	62.32	13.24	0.01	0.01	0.01

Appendix A
Log for Mill H and Mill E, Tests 1 through 70
Lab Results for As-Fired Coal, Tests 1 through 66

Unit 1 H Pulverizer Pyrite Testing

Bottom Ash Operator		weight of sample				
Name	Test #	Date	Start time	end time	lbs	comments
Alan Roper	1	7/30/2012	8:55	9:55	165.8	3 buckets, 75% fdr speed
Alan Roper	2	7/30/2012	12:59	13:59	120.4	2 buckets, 75% fdr speed
Alan Roper	3	7/31/2012	9:00	10:00	115.4	2 buckets, original plate, 75%
Alan Roper	4	7/31/2012	12:56	13:56	124.0	2 buckets, new plate used, 75%
Alan Roper	5	8/1/2012	9:00	10:00	126.8	2 buckets, 75% fdr speed
Alan Roper	6	8/1/2012	13:00	14:00	194.8	3 buckets, newer plate setup, 75%
Alan Roper	7	8/2/2012	9:00	10:00	222.4	4 buckets, 75% feeder speed
Alan Roper	8	8/2/2012	14:00	15:00	68.0	1 bucket, 95% fdr speed
James Dean	9	8/6/2012	8:50	9:50	92.2	2 buckets, 80% fdr speed
James Dean	10	8/6/2012	12:55	13:55	70.2	80% fdr speed
James Dean	11	8/7/2012	9:00	10:00	133.8	80% fdr speed
James Dean	12	8/7/2012	13:20	14:20	175.8	3 buckets, 80% fdr speed
James Dean	13	8/8/2012	8:55	9:55	263.4	4 buckets, 80% feeder speed
James Dean	14	8/8/2012	12:50	13:50	216.0	4 buckets, 80% feeder speed
James Dean	15	8/9/2012	10:15	11:15	273.2	4.5 buckets, 80% feeder speed
James Dean	16	8/9/2012	13:02	14:02	221.0	4 buckets, 95% feeder speed
Mike Anderson	17	8/13/2012	9:00	10:00	255.4	85% fdr speed
Mike Anderson	18	8/13/2012	12:55	13:55	270.8	85% fdr speed
Mike Anderson	19	8/14/2012	9:10	10:10	249.9	85% fdr speed
Mike Anderson	20	8/14/2012	13:00	14:00	349	85% fdr speed
Mike Anderson	21	8/15/2012	9:00	10:00	82.8	85% fdr speed
Mike Anderson	22	8/15/2012	13:00	14:00	89.2	85% fdr speed
Mike Anderson	23	8/16/2012	8:50	9:50	178.6	85% fdr speed
Mike Anderson	24	8/16/2012	12:40	13:40	118.2	95% fdr speed
Julian Finlinson	25	8/20/2012	9:07	10:07	103.8	90% fdr speed
Julian Finlinson	26	8/20/2012	13:05	14:05	78.4	90% fdr speed
Julian Finlinson	27	8/21/2012	9:07	10:07	111.4	90% fdr speed
Julian Finlinson	28	8/21/2012	13:07	14:07	92.0	90% fdr speed
Julian Finlinson	29	8/22/2012	9:00	10:00	160.8	90% fdr speed
Julian Finlinson	30	8/22/2012	13:00	14:00	225.6	90% fdr speed
Julian Finlinson	31	8/23/2012	9:04	10:12	296.6	90% fdr speed
Julian Finlinson	32	8/23/2012	12:35	13:35	139.0	95% fdr speed
Larry Wahlberg	33	8/27/2012	8:59	9:59	114.2	90% fdr speed
Larry Wahlberg	34	8/27/2012	13:00	14:00	122.8	90% fdr speed
Larry Wahlberg	35	8/28/2012	9:00	10:00	158.6	90% fdr speed
Larry Wahlberg	36	8/28/2012	13:00	14:00	138.4	90% fdr speed
Larry Wahlberg	37	8/29/2012	9:00	10:00	164.2	90% fdr speed
Larry Wahlberg	38	8/29/2012	13:00	14:00	123.2	90% fdr speed
Larry Wahlberg	39	8/30/2012	9:00	10:00	113.4	90% fdr speed
Larry Wahlberg	40	8/30/2012	12:30	13:30	156.2	95% fdr speed
Mike Hodges	41	9/3/2012	9:00	10:00	182.4	85% fdr speed
Mike Hodges	42	9/3/2012	13:00	14:00	165.6	85% fdr speed
Mike Terrill	43	9/4/2012	9:00	10:00	199.0	75% fdr speed
Mike Terrill	44	9/4/2012	13:00	14:00	230.0	85% fdr speed
Andrew Sumison	45	9/5/2012	9:00	10:00	87.4	85% fdr speed
Andrew Sumison	46	9/5/2012	13:00	14:00	157.6	85% fdr speed
Alan Roper	47	9/6/2012	9:00	10:00	120.2	85% fdr speed
Alan Roper	48	9/6/2012	12:30	13:30	138.4	95% fdr speed
Barry	49	9/10/2012	11:40	12:40	285	80% fdr speed
Barry	50	9/10/2012	12:50	13:50	346	80% fdr speed
Barry	51	9/11/2012	9:00	10:00	186.6	80% fdr speed
Barry	52	9/11/2012	13:00	14:00	162.6	80% fdr speed
Barry	53	9/12/2012	9:00	10:00	75.8	80% fdr speed
Barry	54	9/12/2012	12:55	13:55	81.2	80% fdr speed
Alan Roper	55	9/13/2012	9:00	10:00	63.0	80% fdr speed
Alan Roper	56	9/13/2012	12:35	13:35	147.2	95% fdr speed
Tony Wright	57	9/17/2012	9:00	10:00	46.2	75% fdr speed
Tony Wright	58	9/17/2012	13:30	14:30	40.0	75% fdr speed
Tony Wright	59	9/18/2012	9:00	10:00	70.4	75% fdr speed
Tony Wright	60	9/18/2012	14:00	15:00	81.8	75% fdr speed
Tony Wright	61	9/19/2012	8:45	9:45	79.8	75% fdr speed
Tony Wright	62	9/20/2012	9:00	10:00	96.6	75% fdr speed
Alan Roper	63	9/24/2012	9:00	10:00	37.0	90% fdr speed
Alan Roper	64	9/25/2012	9:00	10:00	51.6	90% fdr speed
Alan Roper	65	9/26/2012	9:00	10:00	49.9	90% fdr speed
Alan Roper	66	9/27/2012	9:00	10:00	44.2	95% fdr speed
Dean Anderson	67	10/1/2012	9:00	10:00	62.8	85% fdr speed
Dean Anderson	68	10/2/2012	9:00	10:00	91.6	85% fdr speed
Dean Anderson	69	10/3/2012	10:00	11:00	75.5	85% fdr speed
Dean Anderson	70	10/4/2012	9:00	10:00	186.6	85% fdr speed

Unit 2 E Pulverizer Pyrite Testing

Bottom Ash Operator					weight of sample	
Name	Test #	Date	Start time	end time	lbs	comments
Steve Johnson	1	7/30/2012	9:00	10:00	19.0	75% feeder speed
Steve Johnson	2	7/30/2012	13:00	14:00	16.2	75% feeder speed
Steve Johnson	3	7/31/2012	9:00	10:00	11.0	75% feeder speed
Steve Johnson	4	7/31/2012	13:00	14:00	12.2	new plate used, 75% fdr speed
Steve Johnson	5	8/1/2012	9:00	10:00	23.2	newer plate setup, 75% fdr speed
Steve Johnson	6	8/1/2012	13:00	14:00	28.0	75% feeder speed
Steve Johnson	7	8/2/2012	9:00	10:00	8.2	75% feeder speed
Steve Johnson	8	8/2/2012	15:30	16:30	0, no rejects	95% feeder speed, no rejects
Mike Hodges	9	8/6/2012	9:00	10:00	8.6	80% feeder speed
Mike Hodges	10	8/6/2012	12:56	13:56	21.4	80% feeder speed
Mike Hodges	11	8/7/2012	8:50	9:50	7.2	80% feeder speed
Mike Hodges	12	8/7/2012	12:55	13:55	0	80% feeder speed, no rejects
Mike Hodges	13	8/8/2012	8:58	9:58	33.6	80% feeder speed
Mike Hodges	14	8/8/2012	12:55	13:55	87.0	2 buckets, 80% feeder speed
Mike Hodges	15	8/9/2012	8:52	9:52	4.0	80% feeder speed
Mike Hodges	16	8/9/2012	16:05	17:05	18.6	95% feeder speed
Carl Greenhalgh	17	8/13/2012	9:04	10:04	29.0	85% fdr speed
Carl Greenhalgh	18	8/13/2012	12:58	13:58	17.6	85% fdr speed
Carl Greenhalgh	19	8/14/2012	8:57	9:57	12.6	85% fdr speed
Carl Greenhalgh	20	8/14/2012	13:04	14:04	33.8	85% fdr speed
Carl Greenhalgh	21	8/15/2012	8:56	10:03	8.6	85% fdr speed
Carl Greenhalgh	22	8/15/2012	13:01	14:03	35.6	85% fdr speed
Carl Greenhalgh	23	8/16/2012	8:56	9:58	10.6	85% fdr speed
Carl Greenhalgh	24	8/16/2012	13:50	14:54	24.4	95% fdr speed
Preston Eliason	25	8/20/2012	9:00	10:00	10.6	90% fdr speed
Kurt Mundy	26	8/20/2012	13:00	14:00	15.0	90% fdr speed
Kurt Mundy	27	8/21/2012	9:00	10:00	15.0	90% fdr speed
Kurt Mundy	28	8/21/2012	13:00	14:00	22.2	90% fdr speed
Kurt Mundy	29	8/22/2012	9:00	10:00	13.2	90% fdr speed
Kurt Mundy	30	8/22/2012	13:00	14:00	24.8	90% fdr speed
Kurt Mundy	31	8/23/2012	9:00	10:00	16.8	90% fdr speed
Kurt Mundy	32	8/23/2012	13:00	14:00	27.6	95% fdr speed
Joe Zobel	33	8/27/2012	9:00	10:00	14.2	90% fdr speed
Joe Zobel	34	8/27/2012	13:00	14:00	24.0	90% fdr speed
Joe Zobel	35	8/28/2012	9:00	10:00	15.2	90% fdr speed
Joe Zobel	36	8/28/2012	13:00	14:00	22.8	90% fdr speed
Joe Zobel	37	8/29/2012	9:00	10:00	9.6	90% fdr speed
Joe Zobel	38	8/29/2012	13:00	14:00	20.2	90% fdr speed
Joe Zobel	39	8/30/2012	9:00	10:00	14.4	90% fdr speed
Joe Zobel	40	8/30/2012	13:55	14:55	26.8	95% fdr speed
Dean Anderson	41	9/3/2012	9:00	10:00	4.4	85% fdr speed
Dean Anderson	42	9/3/2012	13:00	14:00	4.6	85% fdr speed
Dean Anderson	43	9/4/2012	9:00	10:00	123.2	85% fdr speed
Dean Anderson	44	9/4/2012	13:00	14:00	21.2	85% fdr speed
Dean Anderson	45	9/5/2012	9:30	10:30	9.8	85% fdr speed
Dean Anderson	46	9/5/2012	13:15	14:15	17.6	85% fdr speed
Jon Murdock	47	9/6/2012	9:00	10:00	7.4	85% fdr speed
Jon Murdock	48	9/6/2012	13:35	14:35	26.4	95% fdr speed
J Rogers	49	9/10/2012	9:00	10:00	9.4	80% fdr speed
J Rogers	50	9/10/2012	13:05	14:05	15.6	80% fdr speed
Rob Massa	51	9/11/2012	9:10	10:10	51.8	80% fdr speed
Rob Massa	52	9/11/2012	13:00	14:00	15.4	80% fdr speed
Rob Massa	53	9/12/2012	9:00	10:00	22.6	80% fdr speed
Rob Massa	54	9/12/2012	13:00	14:00	20.8	80% fdr speed
Jon Murdock	55	9/13/2012	9:10	10:10	10.8	80% fdr speed
Jon Murdock	56	9/13/2012	13:35	14:35	12.2	95% fdr speed
Jim Frampton	57	9/17/2012	9:00	10:00	6.2	75% fdr speed
Jim Frampton	58	9/17/2012	13:05	14:05	22.8	75% fdr speed
Jim Frampton	59	9/18/2012	9:00	10:00	10.2	75% fdr speed
Jim Frampton	60	9/18/2012	13:30	14:30	11.6	75% fdr speed
Wade Nielson	61	9/19/2012	13:00	14:00	7.2	75% fdr speed
Wade Nielson	62	9/20/2012	9:15	10:15	no sample	75% fdr speed
Jon Murdock	63	9/24/2012	9:30	10:30	9.6	90% fdr speed
Jon Murdock	64	9/25/2012	12:00	13:00	26.6	90% fdr speed
Jon Murdock	65	9/26/2012	9:10	10:10	6.6	90% fdr speed
Jon Murdock	66	9/27/2012	10:00	11:00	very small sample	95% fdr speed
Sam Nichols	67	10/1/2012	9:00	10:00	4.4	85% fdr speed
Sam Nichols	68	10/2/2012	11:00	12:00	51	85% fdr speed
Sam Nichols	69	10/3/2012	11:00	12:00	9.6	85% fdr speed
Sam Nichols	70	10/4/2012	13:00	14:00	9.6	85% fdr speed

As-Fired Coal Data for Mill Tests

Lab #	Date	Time	Moist%	Ash%	S%	Btu/lb	Res M%	C%	H%	N%	O%	Dry Ash%	Dry S%	Dry C%	Dry H%	Dry N%	Dry O%	Dry Btu/lb	MAF BTU
49309	7/30/2012	15:30	5.50	12.97	0.65	11614	2.50	65.12	4.69	1.24	9.84	13.72	0.69	68.91	4.96	1.31	10.41	12290	14244
49321	7/31/2012	15:30	6.89	12.90	0.60	11414	2.96	64.04	4.59	1.22	9.77	13.85	0.64	68.78	4.93	1.31	10.49	12259	14230
49326	8/1/2012	15:30	7.19	12.76	0.73	11315	2.57	63.81	4.54	1.20	9.77	13.75	0.79	68.75	4.89	1.29	10.53	12192	14136
49334	8/2/2012	15:30	6.58	11.73	0.62	11629	2.31	64.85	4.67	1.26	10.29	12.56	0.66	69.42	5.00	1.35	11.01	12448	14236
49343	8/3/2012	15:30	6.55	12.42	0.63	11396	2.00	64.16	4.55	1.24	10.45	13.29	0.67	68.66	4.87	1.33	11.18	12195	14064
49345	8/4/2012	15:30	5.62	11.64	0.61	11842	1.83	66.08	4.71	1.34	9.99	12.33	0.65	70.02	4.99	1.42	10.59	12547	14312
49347	8/5/2012	15:30	5.63	11.49	0.63	11868	2.36	66.96	4.78	1.27	9.23	12.18	0.67	70.95	5.07	1.35	9.78	12576	14320
49323	8/6/2012	15:30	5.81	11.68	0.47	11724	2.59	65.38	4.72	1.21	10.74	12.40	0.50	69.41	5.01	1.28	11.40	12447	14209
49354	8/7/2012	15:30	7.58	11.89	0.60	11431	2.77	64.07	4.51	1.21	10.14	12.87	0.65	69.32	4.88	1.31	10.97	12369	14196
49360	8/8/2012	15:30	6.66	12.72	0.69	11514	2.66	64.84	4.55	1.25	9.28	13.63	0.74	69.47	4.88	1.34	9.94	12336	14283
49367	8/9/2012	15:30	8.45	11.92	0.75	11162	3.43	62.89	4.39	1.19	10.41	13.02	0.82	68.70	4.79	1.30	11.37	12192	14017
49371	8/10/2012	15:30	6.97	13.69	0.64	11159	2.76	62.95	4.38	1.19	10.17	14.72	0.69	67.67	4.71	1.28	10.93	11995	14065
49375	8/11/2012	15:30	6.85	12.20	0.83	11613	2.10	65.13	4.53	1.30	9.16	13.10	0.89	69.92	4.86	1.40	9.83	12467	14346
49376	8/12/2012	15:30	7.58	12.09	0.63	11297	3.32	63.86	4.47	1.16	10.20	13.08	0.68	69.10	4.84	1.26	11.04	12224	14064
49377	8/13/2012	15:30	7.06	12.53	0.62	11377	2.97	63.99	4.47	1.18	10.15	13.48	0.67	68.85	4.81	1.27	10.92	12241	14148
49379	8/14/2012	15:30	8.26	11.91	0.63	11356	3.36	63.59	4.48	1.19	9.94	12.98	0.69	69.32	4.88	1.30	10.83	12378	14224
49387	8/15/2012	15:30	7.54	12.53	0.65	11354	2.59	63.87	4.46	1.21	9.75	13.55	0.70	69.08	4.82	1.31	10.54	12280	14205
49393	8/16/2012	15:30	6.47	14.14	0.65	11274	2.19	63.72	4.41	1.19	9.48	15.12	0.69	68.13	4.72	1.27	10.07	12054	14201
49398	8/17/2012	15:30	6.59	13.40	0.58	11415	2.07	63.98	4.47	1.21	9.76	14.35	0.62	68.49	4.79	1.30	10.45	12220	14267
49404	8/18/2012	15:30	5.43	13.46	0.61	11610	1.76	64.99	4.58	1.27	9.67	14.23	0.65	68.72	4.84	1.34	10.22	12277	14314
49407	8/19/2012	15:30	5.40	13.10	0.62	11702	1.81	65.74	4.65	1.31	9.18	13.85	0.66	69.49	4.92	1.38	9.70	12370	14359
49408	8/20/2012	15:30	6.19	12.24	0.53	11598	2.47	65.50	4.60	1.22	9.72	13.05	0.57	69.82	4.90	1.30	10.36	12363	14219
49416	8/21/2012	15:30	6.55	12.15	0.54	11535	2.89	65.26	4.55	1.22	9.73	13.00	0.58	69.83	4.87	1.31	10.41	12343	14187
49419	8/22/2012	15:30	6.86	13.10	0.80	11430	2.87	63.70	4.47	1.22	9.84	14.07	0.86	68.39	4.80	1.31	10.57	12272	14281
49424	8/23/2012	15:30	7.52	11.92	0.69	11371	3.10	64.00	4.45	1.20	10.22	12.89	0.75	69.20	4.81	1.30	11.05	12296	14115
49433	8/24/2012	15:30	8.32	12.40	0.71	11215	2.51	63.25	4.43	1.20	9.70	13.52	0.77	68.99	4.83	1.31	10.58	12233	14145
49434	8/25/2012	15:30	7.09	12.12	0.67	11398	2.79	64.36	4.51	1.22	10.03	13.05	0.72	69.27	4.85	1.31	10.80	12268	14109
49436	8/26/2012	15:30	6.42	12.55	0.73	11653	2.18	65.10	4.72	1.30	9.18	13.41	0.78	69.57	5.04	1.39	9.81	12452	14380
49439	8/27/2012	15:30	6.80	12.54	0.63	11515	2.80	64.68	4.58	1.21	9.55	13.46	0.68	69.40	4.91	1.30	10.25	12355	14277
49442	8/28/2012	15:30	7.34	11.64	0.77	11431	2.54	64.05	4.51	1.21	10.48	12.56	0.83	69.12	4.87	1.31	11.31	12336	14108
49446	8/29/2012	15:30	7.48	11.90	0.68	11399	2.33	64.22	4.51	1.23	9.97	12.86	0.74	69.41	4.88	1.33	10.78	12321	14139
49455	8/30/2012	15:30	7.81	12.93	0.71	11142	2.98	63.17	4.43	1.21	9.75	14.02	0.77	68.52	4.80	1.31	10.58	12086	14057
49461	8/31/2012	15:30	8.02	12.51	0.63	11165	3.07	63.19	4.40	1.20	10.05	13.60	0.69	68.70	4.78	1.30	10.93	12138	14049
49465	9/1/2012	15:30	7.86	13.75	0.66	11023	2.50	62.41	4.37	1.18	9.78	14.92	0.72	67.73	4.74	1.28	10.61	11963	14061
49466	9/2/2012	15:30	7.25	13.46	0.62	11235	2.19	63.13	4.52	1.22	9.79	14.51	0.67	68.07	4.87	1.32	10.56	12113	14169
49467	9/3/2012	15:30	8.08	13.09	0.77	11174	2.41	62.74	4.50	1.24	9.57	14.24	0.84	68.26	4.90	1.35	10.41	12156	14174
49468	9/4/2012	15:30	6.50	12.63	0.70	11522	2.03	64.43	4.64	1.27	9.83	13.51	0.75	68.91	4.96	1.36	10.51	12323	14248
49474	9/5/2012	15:30	7.15	13.08	0.66	11192	3.10	63.31	4.50	1.22	10.08	14.09	0.71	68.18	4.85	1.31	10.86	12054	14031
49485	9/6/2012	15:30	7.80	12.93	0.72	11145	3.00	62.98	4.46	1.22	9.89	14.02	0.78	68.31	4.84	1.32	10.73	12088	14059
49491	9/7/2012	15:30	8.65	13.00	0.79	11002	2.45	62.01	4.34	1.20	10.02	14.23	0.86	67.88	4.75	1.31	10.97	12044	14042
49494	9/8/2012	15:30	9.92	12.22	0.71	10847	2.90	61.25	4.31	1.17	10.41	13.57	0.79	67.99	4.79	1.30	11.56	12042	13933
49497	9/9/2012	15:30	9.19	13.10	0.75	10961	2.72	61.39	4.44	1.21	9.92	14.43	0.83	67.60	4.89	1.33	10.92	12070	14105
49504	9/10/2012	15:30	8.31	14.10	0.60	10774	3.34	60.64	4.33	1.14	10.88	15.38	0.65	66.14	4.72	1.24	11.87	11750	13886
49513	9/11/2012	15:30	9.16	12.68	0.64	10820	3.64	61.35	4.31	1.14	10.70	13.96	0.71	67.54	4.75	1.26	11.78	11911	13844
49521	9/12/2012	15:30	9.53	12.28	0.81	10968	2.94	61.66	4.32	1.19	10.21	13.57	0.90	68.16	4.77	1.32	11.28	12123	14026
49529	9/13/2012	15:30	8.25	12.67	0.80	11248	2.15	63.11	4.49	1.26	9.42	13.81	0.87	68.79	4.89	1.37	10.27	12259	14223
49537	9/14/2012	15:30	8.79	13.20	0.70	10974	2.01	62.00	4.41	1.22	9.67	14.47	0.77	67.98	4.84	1.34	10.60	12032	14068
49541	9/15/2012	15:30	8.89	13.25	0.80	10916	2.42	61.65	4.33	1.21	9.88	14.54	0.88	67.66	4.75	1.33	10.84	11981	14019
49544	9/16/2012	15:30	7.35	12.67	0.78	11379	2.26	63.87	4.53	1.27	9.53	13.67	0.84	68.94	4.89	1.37	10.29	12282	14227
49552	9/17/2012	15:30	7.98	13.09	0.55	11069	2.54	62.46	4.42	1.20	10.30	14.23	0.60	67.88	4.80	1.30	11.19	12029	14025
49557	9/18/2012	15:30	8.37	13.44	0.58	10936	2.31	61.52	4.42	1.18	10.49	14.67	0.63	67.14	4.82	1.29	11.45	11935	13987
49572	9/19/2012	15:30	9.01	12.68	0.71	11061	2.35	62.24	4.40	1.22	9.74	13.94	0.78	68.40	4.84	1.34	10.70	12156	14125
49579	9/20/2012	15:30	7.19	14.02	0.73	11125	2.04	62.61	4.40	1.23	9.82	15.11	0.79	67.46	4.74	1.32	10.58	11987	14121
49587	9/21/2012	15:30	8.07	12.21	0.73	11280	1.76	63.64	4.50	1.25	9.61	13.28	0.79	69.23	4.89	1.36	10.45	12270	14149
49590	9/22/2012	15:30	7.70	12.39	0.84	11447	2.31	63.69	4.53	1.28	9.57	13.42	0.91	69.00	4.91	1.39	10.37	12402	14324
49493	9/23/2012	15:30	6.38	12.72	0.80	11621	2.16	64.69	4.67	1.30	9.44	13.59	0.85	69.10	4.99	1.39	10.08	12413	14365
49594	9/24/2012	15:30	7.07	11.99	0.53	11457	2.68	64.29	4.57	1.20	10.35	12.90	0.57	69.18	4.92	1.29	11.14	12329	14155
49603	9/25/2012	15:30	7.90	11.93	0.67	11392	2.59	63.78	4.52	1.22	9.98	12.95	0.73	69.25	4.91	1.32	10.84	12369	14209
49614	9/26/2012	15:30	10.01	13.87	0.80	10613	3.00	60.23	4.21	1.13	9.75	15.41	0.89	66.93	4.68	1.26	10.83	11793	13941
49615	9/27/2012	15:30	10.36	13.54	0.75	10474	3.24	59.48	4.18	1.08	10.61	15.11	0.84	66.35	4.66	1.20	11.84	11684	13764
49624	9/28/2012	15:30	9.82	12.44	0.73	10873	2.72	61.39	4.32	1.15	10.15	13.79	0.81	68.08	4.79	1.27	11.		

Appendix B
Data IV and Data V

U1 H Pulv Tech Throat

U1 H Tech throat			PULV H - PA		PULV 1H		PULV H - PA		PULV 1H			
			Daily average	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS		PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS
TEST #	START TIME	END TIME	1COAXI009A	1COAXI246H	1SGAPEAFRH	1SGAKK0008						
1	7/30/2012 8:55	7/30/2012 9:55	51.75	210.04	2.03	52.01	week 1 average	53.48	206.69	1.94	53.30	
2	7/30/2012 12:59	7/30/2012 13:59	51.73	204.66	1.98	52.37						
3	7/31/2012 9:00	7/31/2012 10:00	51.75	204.75	1.98	52.28						
4	7/31/2012 12:56	7/31/2012 13:56	51.80	204.74	1.98	52.44						
5	8/1/2012 9:00	8/1/2012 10:00	51.81	204.76	1.98	53.46						
6	8/1/2012 13:00	8/1/2012 14:00	51.73	204.72	1.98	53.54						
7	8/2/2012 9:00	8/2/2012 10:00	51.72	204.56	1.98	53.52						
8	8/2/2012 14:00	8/2/2012 15:00	65.58	215.31	1.64	56.76	week 2 average	56.25	208.11	1.86	54.42	
9	8/6/2012 8:50	8/6/2012 9:50	55.20	207.25	1.88	53.32						
10	8/6/2012 12:55	8/6/2012 13:55	55.18	207.27	1.88	53.65						
11	8/7/2012 9:00	8/7/2012 10:00	55.20	207.37	1.88	53.78						
12	8/7/2012 13:20	8/7/2012 14:20	55.19	207.30	1.88	54.52						
13	8/8/2012 8:55	8/8/2012 9:55	54.30	206.53	1.91	54.34						
14	8/8/2012 12:50	8/8/2012 13:50	55.18	207.32	1.88	54.94						
15	8/9/2012 10:15	8/9/2012 11:15	54.40	206.74	1.90	53.61	week 3 average	59.46	210.47	1.77	55.21	
16	8/9/2012 13:02	8/9/2012 14:02	65.39	215.09	1.64	57.22						
17	8/13/2012 9:00	8/13/2012 10:00	58.66	209.88	1.79	55.82						
18	8/13/2012 12:55	8/13/2012 13:55	58.65	209.89	1.79	55.64						
19	8/14/2012 9:10	8/14/2012 10:10	58.63	209.93	1.79	53.76						
20	8/14/2012 13:00	8/14/2012 14:00	58.65	209.91	1.79	54.87						
21	8/15/2012 9:00	8/15/2012 10:00	58.65	209.90	1.79	54.35						
22	8/15/2012 13:00	8/15/2012 14:00	58.65	209.92	1.79	54.56	week 4 average	62.06	212.76	1.72	56.57	
23	8/16/2012 8:50	8/16/2012 9:50	58.29	209.19	1.80	54.96						
24	8/16/2012 12:40	8/16/2012 13:40	65.52	215.16	1.64	57.71						
25	8/20/2012 9:07	8/20/2012 10:07	61.20	212.30	1.74	56.72						
26	8/20/2012 13:05	8/20/2012 14:05	61.87	212.54	1.72	56.78						
27	8/21/2012 9:07	8/21/2012 10:07	60.80	212.14	1.75	56.25						
28	8/21/2012 13:07	8/21/2012 14:07	60.66	212.08	1.75	56.17						
29	8/22/2012 9:00	8/22/2012 10:00	62.14	212.58	1.71	56.13	week 5 average	62.60	212.91	1.70	56.70	
30	8/22/2012 13:00	8/22/2012 14:00	62.17	212.67	1.71	56.59						
31	8/23/2012 9:04	8/23/2012 10:12	62.05	212.52	1.71	57.06						
32	8/23/2012 12:35	8/23/2012 13:35	65.60	215.21	1.64	56.85						
33	8/27/2012 8:59	8/27/2012 9:59	62.18	212.64	1.71	56.63						
34	8/27/2012 13:00	8/27/2012 14:00	62.16	212.66	1.71	56.88						
35	8/28/2012 9:00	8/28/2012 10:00	62.15	212.72	1.71	55.73						
36	8/28/2012 13:00	8/28/2012 14:00	62.15	212.54	1.71	56.67	week 5 average	62.60	212.91	1.70	56.70	
37	8/29/2012 9:00	8/29/2012 10:00	62.16	212.55	1.71	56.02						
38	8/29/2012 13:00	8/29/2012 14:00	62.15	212.48	1.71	56.64						
39	8/30/2012 9:00	8/30/2012 10:00	62.31	212.65	1.71	56.54						
40	8/30/2012 12:30	8/30/2012 13:30	65.56	215.02	1.64	58.48						
41	9/3/2012 9:00	9/3/2012 10:00	58.64	209.87	1.79	55.37						
42	9/3/2012 13:00	9/3/2012 14:00	58.73	209.93	1.79	55.45						

U1 H Pulv Tech Throat

U1 H Tech throat			PULV H - PA		PULV 1H		PULV H - PA		PULV 1H						
			Daily average	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS				
TEST #	START TIME	END TIME	1COAXI009A	1COAXI246H	1SGAPEAFRH	1SGAKK0008									
43	9/4/2012 9:00	9/4/2012 10:00	51.81	204.53	1.97	55.90	week 6 average	58.72	209.87	1.79	56.24				
44	9/4/2012 13:00	9/4/2012 14:00	58.73	209.98	1.78	56.92									
45	9/5/2012 9:00	9/5/2012 10:00	58.75	209.86	1.79	55.88									
46	9/5/2012 13:00	9/5/2012 14:00	58.70	209.76	1.79	55.80									
47	9/6/2012 9:00	9/6/2012 10:00	58.75	209.83	1.79	55.93									
48	9/6/2012 12:30	9/6/2012 13:30	65.61	215.21	1.64	58.67									
49	9/10/2012 11:40	9/10/2012 12:40	55.28	207.34	1.87	55.20	week 7 average	56.64	208.40	1.85	55.42				
50	9/10/2012 12:50	9/10/2012 13:50	55.28	207.38	1.88	55.45									
51	9/11/2012 9:00	9/11/2012 10:00	56.24	208.50	1.86	54.89									
52	9/11/2012 13:00	9/11/2012 14:00	55.21	207.25	1.88	55.00									
53	9/12/2012 9:00	9/12/2012 10:00	55.16	207.26	1.88	54.40									
54	9/12/2012 12:55	9/12/2012 13:55	55.21	207.29	1.88	54.79									
55	9/13/2012 9:00	9/13/2012 10:00	55.19	207.23	1.88	55.48	week 8 average	52.17	204.80	1.96	56.38				
56	9/13/2012 12:35	9/13/2012 13:35	65.56	214.92	1.64	58.13									
57	9/17/2012 9:00	9/17/2012 10:00	50.39	203.23	2.02	56.16									
58	9/17/2012 13:30	9/17/2012 14:30	54.04	206.09	1.91	56.19									
59	9/18/2012 9:00	9/18/2012 10:00	51.74	204.35	1.97	56.11									
60	9/18/2012 14:00	9/18/2012 15:00	51.75	204.54	1.98	55.82									
61	9/19/2012 8:45	9/19/2012 9:45	53.41	206.36	1.93	56.11	week 9 average	62.87	212.92	1.69	57.60				
62	9/20/2012 9:00	9/20/2012 10:00	51.68	204.21	1.98	57.86									
63	9/24/2012 9:00	9/24/2012 10:00	61.84	211.81	1.71	57.28									
64	9/25/2012 9:00	9/25/2012 10:00	61.99	212.10	1.71	57.40									
65	9/26/2012 9:00	9/26/2012 10:00	62.09	212.42	1.71	56.83									
66	9/27/2012 9:00	9/27/2012 10:00	65.57	215.36	1.64	58.87									
67	10/1/2012 9:00	10/1/2012 10:00	58.55	209.30	1.79	56.77	week 10 average	58.62	209.61	1.79	55.65				
68	10/2/2012 9:00	10/2/2012 10:00	58.54	209.44	1.79	55.38									
69	10/3/2012 10:00	10/3/2012 11:00	58.67	209.97	1.79	56.01									
70	10/4/2012 9:00	10/4/2012 10:00	58.70	209.75	1.79	54.44									
71	10/8/2012 8:57	10/8/2012 9:58	51.88	204.99	1.98	54.77									
72	10/9/2012 8:57	10/9/2012 10:00	55.22	207.35	1.88	54.97									
73	10/10/2012 8:52	10/10/2012 9:54	55.30	207.33	1.87	54.85	week 11 average	56.85	208.68	1.85	56.07				
74	10/11/2012 13:10	10/11/2012 14:10	65.01	215.07	1.66	59.69									
75	10/15/2012 9:00	10/15/2012 10:00	51.64	216.55	2.10	54.69									
76	10/16/2012 17:00	10/16/2012 18:00	51.72	204.61	1.98	57.57									
77	10/17/2012 9:10	10/17/2012 10:10	50.67	217.02	2.15	55.14									
78	10/18/2012 9:00	10/18/2012 10:00	51.75	210.69	2.04	53.58									
79	10/22/2012 9:25	10/22/2012 10:25	62.12	218.61	1.76	57.65	week 12 average	51.44	212.22	2.07	55.25				
80	10/23/2012 9:10	10/23/2012 10:10	62.13	218.68	1.76	56.88									
81	10/24/2012 9:15	10/24/2012 10:15	62.11	218.58	1.76	56.16									
82	10/25/2012 8:25	10/25/2012 9:25	65.58	221.00	1.68	57.86									
total test average												58.02	210.16	1.82	55.71

U2 E Pulv OEM Throat

TEST #	Unit 2 E OEM throat		Daily average	PULV E - PA		E Pulv lb fuel	PULV 1E MOTOR AMPS		PULV 1E COAL FLOW tons/hr	PULV E - PA MASS FLOW KPPH	E Pulv lb air/lb fuel	PULV 1E MOTOR AMPS
	START TIME	END TIME		PULV 1E COAL FLOW tons/hr	MASS FLOW KPPH							
				2COAXI009A	2COAXI246E	2SGAPEAFRE	2SGAKK0005					
1	7/30/2012 9:00	7/30/2012 10:00		34.38	218.99	2.16	61.94					
2	7/30/2012 13:00	7/30/2012 14:00		38.84	219.04	2.15	61.27					
3	7/31/2012 9:00	7/31/2012 10:00		41.81	218.93	2.15	60.95					
4	7/31/2012 13:00	7/31/2012 14:00		41.83	219.07	2.16	60.41					
5	8/1/2012 9:00	8/1/2012 10:00		37.81	219.63	2.15	60.72					
6	8/1/2012 13:00	8/1/2012 14:00		44.73	219.45	2.16	60.53					
7	8/2/2012 9:00	8/2/2012 10:00		41.28	219.41	2.15	61.44					
8	8/2/2012 15:30	8/2/2012 16:30		41.29	235.11	1.83	60.90	week 1 average	40.25	221.20	2.11	61.02
9	8/6/2012 9:00	8/6/2012 10:00		38.52	223.16	2.05	62.05					
10	8/6/2012 12:56	8/6/2012 13:56		38.52	223.32	2.06	61.55					
11	8/7/2012 8:50	8/7/2012 9:50		38.53	223.33	2.06	60.85					
12	8/7/2012 12:55	8/7/2012 13:55		38.53	223.41	2.06	56.84					
13	8/8/2012 8:58	8/8/2012 9:58		38.91	223.03	2.05	61.56					
14	8/8/2012 12:55	8/8/2012 13:55		38.94	223.52	2.06	62.17					
15	8/9/2012 8:52	8/9/2012 9:52		0.09	223.30	2.06	59.62					
16	8/9/2012 16:05	8/9/2012 17:05		0.08	235.79	1.84	63.81	week 2 average	29.01	224.86	2.03	61.06
17	8/13/2012 9:04	8/13/2012 10:04		35.74	227.33	1.97	62.99					
18	8/13/2012 12:58	8/13/2012 13:58		35.70	227.98	1.98	61.70					
19	8/14/2012 8:57	8/14/2012 9:57		36.91	227.48	1.97	61.72					
20	8/14/2012 13:04	8/14/2012 14:04		36.91	227.60	1.98	62.65					
21	8/15/2012 8:56	8/15/2012 10:03		34.34	227.39	1.97	61.46					
22	8/15/2012 13:01	8/15/2012 14:03		34.33	227.37	1.97	62.52					
23	8/16/2012 8:56	8/16/2012 9:58		34.33	227.18	1.96	62.24					
24	8/16/2012 13:50	8/16/2012 14:54		34.36	234.52	1.83	64.60	week 3 average	35.33	228.36	1.95	62.49
25	8/20/2012 9:00	8/20/2012 10:00		34.34	231.30	1.90	63.68					
26	8/20/2012 13:00	8/20/2012 14:00		34.36	231.49	1.90	63.30					
27	8/21/2012 9:00	8/21/2012 10:00		35.73	231.47	1.89	63.19					
28	8/21/2012 13:00	8/21/2012 14:00		35.74	231.51	1.90	62.75					
29	8/22/2012 9:00	8/22/2012 10:00		35.74	230.86	1.89	61.88					
30	8/22/2012 13:00	8/22/2012 14:00		35.74	231.55	1.90	62.10					
31	8/23/2012 9:00	8/23/2012 10:00		38.49	231.44	1.89	62.19					
32	8/23/2012 13:00	8/23/2012 14:00		38.47	235.84	1.83	64.61	week 4 average	36.08	231.93	1.89	62.96
33	8/27/2012 9:00	8/27/2012 10:00		38.50	231.45	1.89	62.75					
34	8/27/2012 13:00	8/27/2012 14:00		38.49	231.52	1.89	62.75					
35	8/28/2012 9:00	8/28/2012 10:00		38.47	231.50	1.89	63.01					
36	8/28/2012 13:00	8/28/2012 14:00		37.82	231.57	1.89	62.54					
37	8/29/2012 9:00	8/29/2012 10:00		37.81	231.47	1.90	62.41					
38	8/29/2012 13:00	8/29/2012 14:00		37.81	231.48	1.90	62.40					
39	8/30/2012 9:00	8/30/2012 10:00		37.81	231.34	1.89	62.68					
40	8/30/2012 13:55	8/30/2012 14:55		37.80	235.05	1.83	63.97	week 5 average	38.06	231.92	1.89	62.81
41	9/3/2012 9:00	9/3/2012 10:00		36.90	227.03	1.97	61.71					
42	9/3/2012 13:00	9/3/2012 14:00		36.90	228.29	1.98	60.66					

U2 E Pulv OEM Throat

TEST #	Unit 2 E OEM throat		Daily average	PULV E - PA		E Pulv lb fuel	PULV 1E MOTOR AMPS		PULV 1E COAL FLOW tons/hr	PULV E - PA MASS FLOW KPPH	E Pulv lb air/lb fuel	PULV 1E MOTOR AMPS
	START TIME	END TIME		PULV 1E COAL FLOW tons/hr	MASS FLOW KPPH							
				2COAXI009A	2COAXI246E	2SGAPEAFRE	2SGAKK0005					
43	9/4/2012 9:00	9/4/2012 10:00		36.91	226.79	1.97	62.33					
44	9/4/2012 13:00	9/4/2012 14:00		36.87	227.44	1.97	62.14					
45	9/5/2012 9:30	9/5/2012 10:30		36.90	227.34	1.97	60.91					
46	9/5/2012 13:15	9/5/2012 14:15		36.92	227.32	1.97	60.47					
47	9/6/2012 9:00	9/6/2012 10:00		34.77	227.23	1.97	60.96					
48	9/6/2012 13:35	9/6/2012 14:35		37.77	231.42	1.90	62.04	week 6 average	36.74	227.86	1.96	61.40
49	9/10/2012 9:00	9/10/2012 10:00		46.84	225.63	2.01	60.23					
50	9/10/2012 13:05	9/10/2012 14:05		44.38	223.05	2.06	60.32					
51	9/11/2012 9:10	9/11/2012 10:10		36.40	223.46	2.05	59.68					
52	9/11/2012 13:00	9/11/2012 14:00		36.42	223.19	2.05	59.52					
53	9/12/2012 9:00	9/12/2012 10:00		34.34	223.06	2.06	59.20					
54	9/12/2012 13:00	9/12/2012 14:00		34.35	225.06	2.03	60.26					
55	9/13/2012 9:10	9/13/2012 10:10		34.32	223.35	2.05	60.31					
56	9/13/2012 13:35	9/13/2012 14:35		34.33	234.80	1.82	61.83	week 7 average	37.67	225.20	2.02	60.17
57	9/17/2012 9:00	9/17/2012 10:00		34.35	219.01	2.15	59.86					
58	9/17/2012 13:05	9/17/2012 14:05		34.35	219.04	2.14	59.57					
59	9/18/2012 9:00	9/18/2012 10:00		34.62	218.91	2.15	60.31					
60	9/18/2012 13:30	9/18/2012 14:30		34.60	219.12	2.16	59.39					
61	9/19/2012 13:00	9/19/2012 14:00		34.64	218.98	2.16	58.91					
62	9/20/2012 9:15	9/20/2012 10:15		48.13	219.07	2.15	60.54	week 8 average	36.78	219.02	2.15	59.76
63	9/24/2012 9:30	9/24/2012 10:30		37.80	231.53	1.89	61.53					
64	9/25/2012 12:00	9/25/2012 13:00		37.03	231.42	1.90	61.94					
65	9/26/2012 9:10	9/26/2012 10:10		35.79	231.53	1.89	61.05					
66	9/27/2012 10:00	9/27/2012 11:00		41.25	235.61	1.83	61.37	week 9 average	37.97	232.52	1.88	61.47
67	10/1/2012 9:00	10/1/2012 10:00		40.12	227.38	1.97	58.61					
68	10/2/2012 11:00	10/2/2012 12:00		40.53	227.39	1.96	60.41					
69	10/3/2012 11:00	10/3/2012 12:00		41.46	227.50	1.97	59.01					
70	10/4/2012 13:00	10/4/2012 14:00		41.46	226.96	1.97	58.48	week 10 average	40.89	227.31	1.97	59.13
71	10/8/2012 8:10	10/8/2012 9:10		41.28	219.16	2.16	57.34					
72	10/9/2012 8:15	10/9/2012 9:15		41.26	224.16	2.04	57.11					
73	10/10/2012 10:15	10/10/2012 11:20		41.25	223.40	2.05	57.60					
74	10/11/2012 14:21	10/11/2012 15:21		41.27	235.71	1.83	62.49	week 11 average	41.26	225.61	2.02	58.63
75	10/15/2012 9:00	10/15/2012 10:40		38.69	222.64	2.06	60.88					
76	10/16/2012 9:10	10/16/2012 10:25		38.71	218.23	2.18	60.22					
77	10/17/2012 10:00	10/17/2012 11:20		38.52	219.03	2.15	59.79					
78	10/18/2012 9:00	10/18/2012 10:00		38.50	218.98	2.15	57.20	week 12 average	38.61	219.72	2.14	59.52
79	10/22/2012 9:05	10/22/2012 10:05		38.63	231.48	1.89	62.28					
80	10/23/2012 8:45	10/23/2012 9:45		38.64	231.39	1.89	60.35					
81	10/24/2012 9:04	10/24/2012 10:04		38.65	231.42	1.89	61.28					
82	10/25/2012 9:35	10/25/2012 10:35		38.64	235.51	1.83	61.32	week 13 average	38.64	232.45	1.88	61.31
total test average									37.02	226.77	1.99	61.15

			Daily average	Swgr 1A2 Cub7 PA Fan 2A Average Current	Swgr 1A2 Cub7 PA Fan 2A Average Voltage	Swgr 1A2 Cub7 PA Fan 2A Power Factor	Swgr 1A2 Cub7 PA Fan 2A Real Power KWatts	Swgr 1B2 Cub7 PA Fan 2B Average Current	Swgr 1B2 Cub7 PA Fan 2B Average Voltage	Swgr 1B2 Cub7 PA Fan 2B Power Factor	Swgr 1B2 Cub7 PA Fan 2B Real Power KWatts		Swgr 1A2 Cub7 PA Fan 2A Average Current	Swgr 1A2 Cub7 PA Fan 2A Average Voltage	Swgr 1A2 Cub7 PA Fan 2A Power Factor	Swgr 1A2 Cub7 PA Fan 2A Real Power KWatts	Swgr 1B2 Cub7 PA Fan 2B Average Current	Swgr 1B2 Cub7 PA Fan 2B Average Voltage	Swgr 1B2 Cub7 PA Fan 2B Power Factor	Swgr 1B2 Cub7 PA Fan 2B Real Power KWatts
TEST #	START TIME	END TIME	1APE.1A2.42639	1APE.1A2.42642	1APE.1A2.42648	1APE.1A2.42645	1APE.1B2.43421	1APE.1B2.43424	1APE.1B2.43430	1APE.1B2.43427		TECH	TECH	TECH	TECH	OTHER	OTHER	OTHER	OTHER	
1	7/30/2012 8:55	7/30/2012 9:55	307.25	6738.43	0.88	3173.12	327.31	6689.02	0.89	3366.45										
2	7/30/2012 12:59	7/30/2012 13:59	308.56	6734.12	0.88	3184.21	330.95	6685.47	0.89	3402.58										
3	7/31/2012 9:00	7/31/2012 10:00	312.78	6737.26	0.88	3231.75	332.03	6687.07	0.89	3415.50										
4	7/31/2012 12:56	7/31/2012 13:56	311.65	6735.54	0.88	3217.91	334.20	6685.75	0.89	3437.39										
5	8/1/2012 9:00	8/1/2012 10:00	294.52	6760.03	0.88	3042.85	312.86	6714.12	0.89	3222.71										
6	8/1/2012 13:00	8/1/2012 14:00	311.14	6734.64	0.88	3212.45	328.36	6689.63	0.89	3377.88										
7	8/2/2012 9:00	8/2/2012 10:00	311.23	6729.22	0.88	3211.31	330.22	6682.96	0.89	3394.59										
8	8/2/2012 14:00	8/2/2012 15:00	308.77	6730.81	0.89	3184.81	330.10	6684.44	0.89	3393.18	week 1 average	308.24	6737.51	0.88	3182.30	328.25	6689.81	0.89	3376.29	
9	8/6/2012 8:50	8/6/2012 9:50	310.44	6733.96	0.89	3205.01	331.56	6685.54	0.89	3409.46										
10	8/6/2012 12:55	8/6/2012 13:55	309.08	6734.91	0.88	3189.77	331.15	6688.34	0.89	3405.46										
11	8/7/2012 9:00	8/7/2012 10:00	313.67	6739.65	0.89	3241.60	334.64	6690.10	0.89	3443.64										
12	8/7/2012 13:20	8/7/2012 14:20	309.80	6741.72	0.89	3200.31	332.32	6692.99	0.89	3419.74										
13	8/8/2012 8:55	8/8/2012 9:55	309.21	6743.70	0.88	3195.50	329.24	6691.00	0.89	3387.27										
14	8/8/2012 12:50	8/8/2012 13:50	308.42	6742.16	0.89	3186.04	329.43	6693.20	0.89	3389.44										
15	8/9/2012 10:15	8/9/2012 11:15	297.16	6737.99	0.88	3062.96	317.26	6695.41	0.88	3261.81										
16	8/9/2012 13:02	8/9/2012 14:02	309.55	6731.52	0.88	3194.51	330.37	6690.75	0.89	3398.28	week 2 average	308.42	6738.20	0.89	3184.46	329.50	6690.92	0.89	3389.39	
17	8/13/2012 9:00	8/13/2012 10:00	312.98	6710.78	0.89	3223.73	330.58	6703.17	0.89	3406.51										
18	8/13/2012 12:55	8/13/2012 13:55	310.95	6713.25	0.89	3201.50	329.17	6704.83	0.89	3392.31										
19	8/14/2012 9:10	8/14/2012 10:10	316.79	6709.97	0.89	3263.26	334.92	6704.90	0.89	3453.55										
20	8/14/2012 13:00	8/14/2012 14:00	312.91	6710.73	0.89	3221.45	332.16	6704.71	0.89	3424.14										
21	8/15/2012 9:00	8/15/2012 10:00	314.99	6711.04	0.89	3245.64	332.23	6706.15	0.89	3426.24										
22	8/15/2012 13:00	8/15/2012 14:00	308.53	6715.21	0.89	3176.77	328.64	6707.39	0.89	3388.06										
23	8/16/2012 8:50	8/16/2012 9:50	300.40	6718.01	0.89	3090.74	319.21	6708.11	0.89	3288.16										
24	8/16/2012 12:40	8/16/2012 13:40	310.01	6712.85	0.89	3190.85	327.08	6706.71	0.89	3370.83	week 3 average	310.94	6712.73	0.89	3201.74	329.25	6705.75	0.89	3393.72	
25	8/20/2012 9:07	8/20/2012 10:07	309.38	6732.15	0.88	3192.38	330.65	6686.58	0.89	3400.02										
26	8/20/2012 13:05	8/20/2012 14:05	310.11	6730.13	0.88	3199.04	327.70	6686.79	0.89	3368.65										
27	8/21/2012 9:07	8/21/2012 10:07	309.69	6741.84	0.89	3199.54	330.27	6695.26	0.89	3399.96										
28	8/21/2012 13:07	8/21/2012 14:07	307.00	6740.66	0.89	3169.56	325.47	6693.24	0.89	3347.75										
29	8/22/2012 9:00	8/22/2012 10:00	308.99	6734.77	0.88	3189.16	330.39	6688.84	0.89	3398.95										
30	8/22/2012 13:00	8/22/2012 14:00	309.54	6731.38	0.88	3193.68	329.65	6687.20	0.89	3390.08										
31	8/23/2012 9:04	8/23/2012 10:12	312.77	6728.82	0.89	3227.31	332.59	6685.12	0.89	3420.49										
32	8/23/2012 12:35	8/23/2012 13:35	310.52	6730.41	0.89	3203.49	330.03	6686.99	0.89	3393.03	week 4 average	309.75	6733.77	0.88	3196.77	329.59	6688.75	0.89	3389.87	
33	8/27/2012 8:59	8/27/2012 9:59	311.74	6709.14	0.89	3208.62	331.00	6704.36	0.89	3411.57										
34	8/27/2012 13:00	8/27/2012 14:00	309.45	6728.23	0.89	3191.33	326.01	6724.93	0.89	3367.08										
35	8/28/2012 9:00	8/28/2012 10:00	283.74	6726.65	0.89	2913.23	304.40	6712.81	0.89	3130.58										
36	8/28/2012 13:00	8/28/2012 14:00	309.39	6711.21	0.89	3183.47	328.45	6706.00	0.89	3384.44										
37	8/29/2012 9:00	8/29/2012 10:00	309.33	6714.99	0.89	3185.08	327.96	6707.10	0.89	3381.54										
38	8/29/2012 13:00	8/29/2012 14:00	308.57	6711.63	0.89	3176.36	327.33	6707.94	0.89	3374.66										
39	8/30/2012 9:00	8/30/2012 10:00	310.49	6714.19	0.89	3197.44	327.71	6707.42	0.89	3378.89										
40	8/30/2012 12:30	8/30/2012 13:30	308.53	6715.89	0.89	3176.43	325.94	6708.76	0.89	3360.30	week 5 average	306.41	6716.49	0.89	3153.99	324.85	6709.92	0.89	3348.63	
41	9/3/2012 9:00	9/3/2012 10:00	290.67	6703.70	0.88	2981.13	315.74	6636.54	0.89	3221.65										
42	9/3/2012 13:00	9/3/2012 14:00	312.29	6690.64	0.89	3207.46	330.43	6649.93	0.89	3382.46										
43	9/4/2012 9:00	9/4/2012 10:00	306.83	6704.01	0.89	3154.38	328.85	6631.40	0.89	3357.98										
44	9/4/2012 13:00	9/4/2012 14:00	310.69	6687.42	0.89	3188.80	329.85	6625.03	0.89	3364.97										
45	9/5/2012 9:00	9/5/2012 10:00	310.50	6696.98	0.89	3190.95	332.90	6631.18	0.89	3400.46										
46	9/5/2012 13:00	9/5/2012 14:00	309.58	6693.00	0.89	3178.68	330.36	6628.19	0.89	3371.74										
47	9/6/2012 9:00	9/6/2012 10:00	307.87	6696.77	0.88	3162.43	330.10	6630.63	0.89	3370.38										
48	9/6/2012 12:30	9/6/2012 13:30	311.53	6689.64	0.89	3199.48	331.02	6626.01	0.89	3377.47	week 6 average	307.49	6695.27	0.89	3157.91	328.66	6632.36	0.89	3355.89	
49	9/10/2012 11:40	9/10/2012 12:40	294.58	6739.38	0.88	3035.87	318.26	6688.55	0.89	3270.13										
50	9/10/2012 12:50	9/10/2012 13:50	294.17	6738.74	0.88	3030.34	316.97	6688.76	0.89	3256.71										
51	9/11/2012 9:00	9/11/2012 10:00	314.12	6728.92	0.89	3242.79	335.77	6681.56	0.89	3452.47		TECH	Tech	Tech	Tech	Original	Original	Original	Original	
52	9/11/2012 13:00	9/11/2012 14:00	313.95	6730.75	0.89	3241.29	334.11	6684.45	0.89	3436.39										
53	9/12/2012 9:00	9/12/2012 10:00	303.88	6738.14	0.88	3137.04	324.17	6687.60	0.89	3333.12										
54	9/12/2012 12:55	9/12/2012 13:55	313.86	6732.42	0.89	3241.14	333.19	6680.67	0.89	3424.88										
55	9/13/2012 9:00	9/13/2012 10:00	307.86	6733.96	0.89	3178.44	333.04	6684.32	0.89	3425.45										
56	9/13/2012 12:35	9/13/2012 13:35	310.95	6734.24	0.89	3210.32	332.61	6687.64	0.89	3422.60	week 7 average	306.67	6734.57	0.89	3164.65	328.52	6685.44	0.89	3377.72	
57	9/17/2012 9:00	9/17/2012 10:00	310.89	6727.23	0.89	3207.75	333.24	6697.63	0.89	3432.79										
58	9/17/2012 13:30	9/17/2012 14:30	311.06	6719.94	0.88	3205.76	331.83	6693.89	0.89	3416.00										
59	9/18/2012 9:00	9/18/2012 10:00	302.88	6718.45	0.89	3118.49	326.19	6701.75	0.89	3360.74										
60	9/18/2012 14:00	9/18/2012 15:00	309.53	6719.09	0.89	3189.77	330.12	6702.38	0.89	3401.78										
61	9/19/2012 9:45	9/19/2012 10:45	314.01	6710.91	0.89	3234.18	334.61	6699.29	0.89	3448.33										
62	9/20/2012 9:00	9/20/2012 10:00	276.25	6738.55	0.89	2836.25	295.86	6718.52	0.89	3040.91										
63	9/24/2012 9:00	9/24/2012 10:00	299.80	6745.36	0.88	3095.67	324.90	6680.75	0.89	3337.78										
64	9/25/2012 9:00	9/25/2012 10:00	308.75	6733.99	0.88	3187.78	329.73	6686.39	0.89	3391.58										
65	9/26/2012 9:00	9/26/2012 10:00	310.72	6731.61	0.88	3208.44	333.59	6682.87	0.89</											

			Daily average	Swgr 1A2 Cub7 PA Fan 2A Average Current	Swgr 1A2 Cub7 PA Fan 2A Average Voltage	Swgr 1A2 Cub7 PA Fan 2A Power Factor	Swgr 1A2 Cub7 PA Fan 2A Real Power KWatts	Swgr 1B2 Cub7 PA Fan 2B Average Current	Swgr 1B2 Cub7 PA Fan 2B Average Voltage	Swgr 1B2 Cub7 PA Fan 2B Power Factor	Swgr 1B2 Cub7 PA Fan 2B Real Power KWatts		Swgr 1A2 Cub7 PA Fan 2A Average Current	Swgr 1A2 Cub7 PA Fan 2A Average Voltage	Swgr 1A2 Cub7 PA Fan 2A Power Factor	Swgr 1A2 Cub7 PA Fan 2A Real Power KWatts	Swgr 1B2 Cub7 PA Fan 2B Average Current	Swgr 1B2 Cub7 PA Fan 2B Average Voltage	Swgr 1B2 Cub7 PA Fan 2B Power Factor	Swgr 1B2 Cub7 PA Fan 2B Real Power KWatts
TEST #	START TIME	END TIME		1APE.1A2.42639	1APE.1A2.42642	1APE.1A2.42648	1APE.1A2.42645	1APE.1B2.43421	1APE.1B2.43424	1APE.1B2.43430	1APE.1B2.43427									
82	10/25/2012 8:25	10/25/2012 9:25		323.11	6734.01	0.89	3341.53	346.32	6680.25	0.89	3561.59	week 13 average	318.56	6733.61	0.89	3292.36	342.16	6677.03	0.89	3516.69
												total test average	309.33	6724.87	0.89	3189.26	329.97	6687.43	0.89	3393.36

Appendix C

Testing Protocols and Data

U1 H Pulv Tech Throat

U1 H Tech throat			Daily	PULV H - PA		PULV 1H		PULV H - PA		PULV 1H	
TEST #	START TIME	END TIME	average	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS
			1COAXI009A	1COAXI246H	1SGAPEAFRH	1SGAKK0008					
1	7/30/2012 8:55	7/30/2012 9:55	51.75	210.04	2.03	52.01	week 1 average	53.48	206.69	1.94	53.30
2	7/30/2012 12:59	7/30/2012 13:59	51.73	204.66	1.98	52.37					
3	7/31/2012 9:00	7/31/2012 10:00	51.75	204.75	1.98	52.28					
4	7/31/2012 12:56	7/31/2012 13:56	51.80	204.74	1.98	52.44					
5	8/1/2012 9:00	8/1/2012 10:00	51.81	204.76	1.98	53.46					
6	8/1/2012 13:00	8/1/2012 14:00	51.73	204.72	1.98	53.54					
7	8/2/2012 9:00	8/2/2012 10:00	51.72	204.56	1.98	53.52					
8	8/2/2012 14:00	8/2/2012 15:00	65.58	215.31	1.64	56.76					
9	8/6/2012 8:50	8/6/2012 9:50	55.20	207.25	1.88	53.32	week 2 average	56.25	208.11	1.86	54.42
10	8/6/2012 12:55	8/6/2012 13:55	55.18	207.27	1.88	53.65					
11	8/7/2012 9:00	8/7/2012 10:00	55.20	207.37	1.88	53.78					
12	8/7/2012 13:20	8/7/2012 14:20	55.19	207.30	1.88	54.52					
13	8/8/2012 8:55	8/8/2012 9:55	54.30	206.53	1.91	54.34					
14	8/8/2012 12:50	8/8/2012 13:50	55.18	207.32	1.88	54.94					
15	8/9/2012 10:15	8/9/2012 11:15	54.40	206.74	1.90	53.61					
16	8/9/2012 13:02	8/9/2012 14:02	65.39	215.09	1.64	57.22					
17	8/13/2012 9:00	8/13/2012 10:00	58.66	209.88	1.79	55.82	week 3 average	59.46	210.47	1.77	55.21
18	8/13/2012 12:55	8/13/2012 13:55	58.65	209.89	1.79	55.64					
19	8/14/2012 9:10	8/14/2012 10:10	58.63	209.93	1.79	53.76					
20	8/14/2012 13:00	8/14/2012 14:00	58.65	209.91	1.79	54.87					
21	8/15/2012 9:00	8/15/2012 10:00	58.65	209.90	1.79	54.35					
22	8/15/2012 13:00	8/15/2012 14:00	58.65	209.92	1.79	54.56					
23	8/16/2012 8:50	8/16/2012 9:50	58.29	209.19	1.80	54.96					
24	8/16/2012 12:40	8/16/2012 13:40	65.52	215.16	1.64	57.71					
25	8/20/2012 9:07	8/20/2012 10:07	61.20	212.30	1.74	56.72	week 4 average	62.06	212.76	1.72	56.57
26	8/20/2012 13:05	8/20/2012 14:05	61.87	212.54	1.72	56.78					
27	8/21/2012 9:07	8/21/2012 10:07	60.80	212.14	1.75	56.25					
28	8/21/2012 13:07	8/21/2012 14:07	60.66	212.08	1.75	56.17					
29	8/22/2012 9:00	8/22/2012 10:00	62.14	212.58	1.71	56.13					
30	8/22/2012 13:00	8/22/2012 14:00	62.17	212.67	1.71	56.59					
31	8/23/2012 9:04	8/23/2012 10:12	62.05	212.52	1.71	57.06					
32	8/23/2012 12:35	8/23/2012 13:35	65.60	215.21	1.64	56.85					
33	8/27/2012 8:59	8/27/2012 9:59	62.18	212.64	1.71	56.63					
34	8/27/2012 13:00	8/27/2012 14:00	62.16	212.66	1.71	56.88					
35	8/28/2012 9:00	8/28/2012 10:00	62.15	212.72	1.71	55.73					

U1 H Pulv Tech Throat

U1 H Tech throat			Daily	PULV H - PA		PULV 1H		PULV H - PA		PULV 1H		
TEST #	START TIME	END TIME	average	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS	
				1COAXI009A	1COAXI246H	1SGAPEAFRH	1SGAKK0008					
36	8/28/2012 13:00	8/28/2012 14:00		62.15	212.54	1.71	56.67	week 5 average	62.60	212.91	1.70	56.70
37	8/29/2012 9:00	8/29/2012 10:00		62.16	212.55	1.71	56.02					
38	8/29/2012 13:00	8/29/2012 14:00		62.15	212.48	1.71	56.64					
39	8/30/2012 9:00	8/30/2012 10:00		62.31	212.65	1.71	56.54					
40	8/30/2012 12:30	8/30/2012 13:30		65.56	215.02	1.64	58.48					
41	9/3/2012 9:00	9/3/2012 10:00		58.64	209.87	1.79	55.37	week 6 average	58.72	209.87	1.79	56.24
42	9/3/2012 13:00	9/3/2012 14:00		58.73	209.93	1.79	55.45					
43	9/4/2012 9:00	9/4/2012 10:00		51.81	204.53	1.97	55.90					
44	9/4/2012 13:00	9/4/2012 14:00		58.73	209.98	1.78	56.92					
45	9/5/2012 9:00	9/5/2012 10:00		58.75	209.86	1.79	55.88					
46	9/5/2012 13:00	9/5/2012 14:00		58.70	209.76	1.79	55.80	week 7 average	56.64	208.40	1.85	55.42
47	9/6/2012 9:00	9/6/2012 10:00		58.75	209.83	1.79	55.93					
48	9/6/2012 12:30	9/6/2012 13:30		65.61	215.21	1.64	58.67					
49	9/10/2012 11:40	9/10/2012 12:40		55.28	207.34	1.87	55.20					
50	9/10/2012 12:50	9/10/2012 13:50		55.28	207.38	1.88	55.45					
51	9/11/2012 9:00	9/11/2012 10:00		56.24	208.50	1.86	54.89	week 8 average	52.17	204.80	1.96	56.38
52	9/11/2012 13:00	9/11/2012 14:00		55.21	207.25	1.88	55.00					
53	9/12/2012 9:00	9/12/2012 10:00		55.16	207.26	1.88	54.40					
54	9/12/2012 12:55	9/12/2012 13:55		55.21	207.29	1.88	54.79					
55	9/13/2012 9:00	9/13/2012 10:00		55.19	207.23	1.88	55.48					
56	9/13/2012 12:35	9/13/2012 13:35		65.56	214.92	1.64	58.13	week 9 average	62.87	212.92	1.69	57.60
57	9/17/2012 9:00	9/17/2012 10:00		50.39	203.23	2.02	56.16					
58	9/17/2012 13:30	9/17/2012 14:30		54.04	206.09	1.91	56.19					
59	9/18/2012 9:00	9/18/2012 10:00		51.74	204.35	1.97	56.11					
60	9/18/2012 14:00	9/18/2012 15:00		51.75	204.54	1.98	55.82					
61	9/19/2012 8:45	9/19/2012 9:45		53.41	206.36	1.93	56.11	week 10 average	58.62	209.61	1.79	55.65
62	9/20/2012 9:00	9/20/2012 10:00		51.68	204.21	1.98	57.86					
63	9/24/2012 9:00	9/24/2012 10:00		61.84	211.81	1.71	57.28					
64	9/25/2012 9:00	9/25/2012 10:00		61.99	212.10	1.71	57.40					
65	9/26/2012 9:00	9/26/2012 10:00		62.09	212.42	1.71	56.83					
66	9/27/2012 9:00	9/27/2012 10:00		65.57	215.36	1.64	58.87	week 10 average	58.62	209.61	1.79	55.65
67	10/1/2012 9:00	10/1/2012 10:00		58.55	209.30	1.79	56.77					
68	10/2/2012 9:00	10/2/2012 10:00		58.54	209.44	1.79	55.38					
69	10/3/2012 10:00	10/3/2012 11:00		58.67	209.97	1.79	56.01					
70	10/4/2012 9:00	10/4/2012 10:00		58.70	209.75	1.79	54.44					
71	10/8/2012 8:57	10/8/2012 9:58		51.88	204.99	1.98	54.77					
72	10/9/2012 8:57	10/9/2012 10:00		55.22	207.35	1.88	54.97					
73	10/10/2012 8:52	10/10/2012 9:54		55.30	207.33	1.87	54.85					

U1 H Pulv Tech Throat

U1 H Tech throat				Daily	PULV H - PA		PULV 1H		PULV H - PA		PULV 1H	
TEST #	START TIME	END TIME		average	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS	PULV 1H COAL FLOW tons/hr	MASS FLOW kpph	H Pulv lb air/lb fuel	MOTOR AMPS
				1COAXI009A	1COAXI246H	1SGAPEAFRH	1SGAKK0008					
74	10/11/2012 13:10	10/11/2012 14:10		65.01	215.07	1.66	59.69	week 11 average	56.85	208.68	1.85	56.07
75	10/15/2012 9:00	10/15/2012 10:00		51.64	216.55	2.10	54.69					
76	10/16/2012 17:00	10/16/2012 18:00		51.72	204.61	1.98	57.57					
77	10/17/2012 9:10	10/17/2012 10:10		50.67	217.02	2.15	55.14					
78	10/18/2012 9:00	10/18/2012 10:00		51.75	210.69	2.04	53.58	week 12 average	51.44	212.22	2.07	55.25
79	10/22/2012 9:25	10/22/2012 10:25		62.12	218.61	1.76	57.65					
80	10/23/2012 9:10	10/23/2012 10:10		62.13	218.68	1.76	56.88					
81	10/24/2012 9:15	10/24/2012 10:15		62.11	218.58	1.76	56.16					
82	10/25/2012 8:25	10/25/2012 9:25		65.58	221.00	1.68	57.86	week 13 average	62.99	219.22	1.74	57.14
								total test average	58.02	210.16	1.82	55.71

U2 E Pulv OEM Throat

Unit 2 E OEM throat			Daily	PULV 1E COAL	PULV E - PA MASS	E Pulv lb air/lb	PULV 1E			PULV 1E	PULV E - PA	E Pulv lb	PULV 1E
			average	FLOW tons/hr	FLOW KPPH	fuel	MOTOR			COAL FLOW	MASS FLOW	air/lb fuel	MOTOR
TEST #	START TIME	END TIME		2COAXI009A	2COAXI246E	2SGAPEAFRE	2SGAKK0005			tons/hr	KPPH		AMPS
1	7/30/2012 9:00	7/30/2012 10:00		34.38	218.99	2.16	61.94						
2	7/30/2012 13:00	7/30/2012 14:00		38.84	219.04	2.15	61.27						
3	7/31/2012 9:00	7/31/2012 10:00		41.81	218.93	2.15	60.95						
4	7/31/2012 13:00	7/31/2012 14:00		41.83	219.07	2.16	60.41						
5	8/1/2012 9:00	8/1/2012 10:00		37.81	219.63	2.15	60.72						
6	8/1/2012 13:00	8/1/2012 14:00		44.73	219.45	2.16	60.53						
7	8/2/2012 9:00	8/2/2012 10:00		41.28	219.41	2.15	61.44						
8	8/2/2012 15:30	8/2/2012 16:30		41.29	235.11	1.83	60.90	week 1 average		40.25	221.20	2.11	61.02
9	8/6/2012 9:00	8/6/2012 10:00		38.52	223.16	2.05	62.05						
10	8/6/2012 12:56	8/6/2012 13:56		38.52	223.32	2.06	61.55						
11	8/7/2012 8:50	8/7/2012 9:50		38.53	223.33	2.06	60.85						
12	8/7/2012 12:55	8/7/2012 13:55		38.53	223.41	2.06	56.84						
13	8/8/2012 8:58	8/8/2012 9:58		38.91	223.03	2.05	61.56						
14	8/8/2012 12:55	8/8/2012 13:55		38.94	223.52	2.06	62.17						
15	8/9/2012 8:52	8/9/2012 9:52		0.09	223.30	2.06	59.62						
16	8/9/2012 16:05	8/9/2012 17:05		0.08	235.79	1.84	63.81	week 2 average		29.01	224.86	2.03	61.06
17	8/13/2012 9:04	8/13/2012 10:04		35.74	227.33	1.97	62.99						
18	8/13/2012 12:58	8/13/2012 13:58		35.70	227.98	1.98	61.70						
19	8/14/2012 8:57	8/14/2012 9:57		36.91	227.48	1.97	61.72						
20	8/14/2012 13:04	8/14/2012 14:04		36.91	227.60	1.98	62.65						
21	8/15/2012 8:56	8/15/2012 10:03		34.34	227.39	1.97	61.46						
22	8/15/2012 13:01	8/15/2012 14:03		34.33	227.37	1.97	62.52						
23	8/16/2012 8:56	8/16/2012 9:58		34.33	227.18	1.96	62.24						
24	8/16/2012 13:50	8/16/2012 14:54		34.36	234.52	1.83	64.60	week 3 average		35.33	228.36	1.95	62.49
25	8/20/2012 9:00	8/20/2012 10:00		34.34	231.30	1.90	63.68						
26	8/20/2012 13:00	8/20/2012 14:00		34.36	231.49	1.90	63.30						
27	8/21/2012 9:00	8/21/2012 10:00		35.73	231.47	1.89	63.19						
28	8/21/2012 13:00	8/21/2012 14:00		35.74	231.51	1.90	62.75						
29	8/22/2012 9:00	8/22/2012 10:00		35.74	230.86	1.89	61.88						
30	8/22/2012 13:00	8/22/2012 14:00		35.74	231.55	1.90	62.10						
31	8/23/2012 9:00	8/23/2012 10:00		38.49	231.44	1.89	62.19						
32	8/23/2012 13:00	8/23/2012 14:00		38.47	235.84	1.83	64.61	week 4 average		36.08	231.93	1.89	62.96
33	8/27/2012 9:00	8/27/2012 10:00		38.50	231.45	1.89	62.75						
34	8/27/2012 13:00	8/27/2012 14:00		38.49	231.52	1.89	62.75						
35	8/28/2012 9:00	8/28/2012 10:00		38.47	231.50	1.89	63.01						

U2 E Pulv OEM Throat

Unit 2 E OEM throat			Daily	PULV 1E COAL	PULV E - PA MASS	E Pulv lb air/lb	PULV 1E		PULV 1E	PULV E - PA		PULV 1E
TEST #	START TIME	END TIME	average	FLOW tons/hr	FLOW KPPH	fuel	MOTOR		COAL FLOW	MASS FLOW	E Pulv lb	MOTOR
				2COAXI009A	2COAXI246E	2SGAPEAFRE	2SGAKK0005		tons/hr	KPPH	air/lb fuel	AMPS
36	8/28/2012 13:00	8/28/2012 14:00		37.82	231.57	1.89	62.54					
37	8/29/2012 9:00	8/29/2012 10:00		37.81	231.47	1.90	62.41					
38	8/29/2012 13:00	8/29/2012 14:00		37.81	231.48	1.90	62.40					
39	8/30/2012 9:00	8/30/2012 10:00		37.81	231.34	1.89	62.68					
40	8/30/2012 13:55	8/30/2012 14:55		37.80	235.05	1.83	63.97	week 5 average	38.06	231.92	1.89	62.81
41	9/3/2012 9:00	9/3/2012 10:00		36.90	227.03	1.97	61.71					
42	9/3/2012 13:00	9/3/2012 14:00		36.90	228.29	1.98	60.66					
43	9/4/2012 9:00	9/4/2012 10:00		36.91	226.79	1.97	62.33					
44	9/4/2012 13:00	9/4/2012 14:00		36.87	227.44	1.97	62.14					
45	9/5/2012 9:30	9/5/2012 10:30		36.90	227.34	1.97	60.91					
46	9/5/2012 13:15	9/5/2012 14:15		36.92	227.32	1.97	60.47					
47	9/6/2012 9:00	9/6/2012 10:00		34.77	227.23	1.97	60.96					
48	9/6/2012 13:35	9/6/2012 14:35		37.77	231.42	1.90	62.04	week 6 average	36.74	227.86	1.96	61.40
49	9/10/2012 9:00	9/10/2012 10:00		46.84	225.63	2.01	60.23					
50	9/10/2012 13:05	9/10/2012 14:05		44.38	223.05	2.06	60.32					
51	9/11/2012 9:10	9/11/2012 10:10		36.40	223.46	2.05	59.68					
52	9/11/2012 13:00	9/11/2012 14:00		36.42	223.19	2.05	59.52					
53	9/12/2012 9:00	9/12/2012 10:00		34.34	223.06	2.06	59.20					
54	9/12/2012 13:00	9/12/2012 14:00		34.35	225.06	2.03	60.26					
55	9/13/2012 9:10	9/13/2012 10:10		34.32	223.35	2.05	60.31					
56	9/13/2012 13:35	9/13/2012 14:35		34.33	234.80	1.82	61.83	week 7 average	37.67	225.20	2.02	60.17
57	9/17/2012 9:00	9/17/2012 10:00		34.35	219.01	2.15	59.86					
58	9/17/2012 13:05	9/17/2012 14:05		34.35	219.04	2.14	59.57					
59	9/18/2012 9:00	9/18/2012 10:00		34.62	218.91	2.15	60.31					
60	9/18/2012 13:30	9/18/2012 14:30		34.60	219.12	2.16	59.39					
61	9/19/2012 13:00	9/19/2012 14:00		34.64	218.98	2.16	58.91					
62	9/20/2012 9:15	9/20/2012 10:15		48.13	219.07	2.15	60.54	week 8 average	36.78	219.02	2.15	59.76
63	9/24/2012 9:30	9/24/2012 10:30		37.80	231.53	1.89	61.53					
64	9/25/2012 12:00	9/25/2012 13:00		37.03	231.42	1.90	61.94					
65	9/26/2012 9:10	9/26/2012 10:10		35.79	231.53	1.89	61.05					
66	9/27/2012 10:00	9/27/2012 11:00		41.25	235.61	1.83	61.37	week 9 average	37.97	232.52	1.88	61.47
67	10/1/2012 9:00	10/1/2012 10:00		40.12	227.38	1.97	58.61					
68	10/2/2012 11:00	10/2/2012 12:00		40.53	227.39	1.96	60.41					
69	10/3/2012 11:00	10/3/2012 12:00		41.46	227.50	1.97	59.01					
70	10/4/2012 13:00	10/4/2012 14:00		41.46	226.96	1.97	58.48	week 10 average	40.89	227.31	1.97	59.13

U2 E Pulv OEM Throat

Unit 2 E OEM throat			Daily	PULV 1E COAL	PULV E - PA MASS	E Pulv lb air/lb	PULV 1E		PULV 1E	PULV E - PA		PULV 1E
TEST #	START TIME	END TIME	average	FLOW tons/hr	FLOW KPPH	fuel	MOTOR		COAL FLOW	MASS FLOW	E Pulv lb	MOTOR
				2COAXI009A	2COAXI246E	2SGAPEAFRE	2SGAKK0005		tons/hr	KPPH	air/lb fuel	AMPS
71	10/8/2012 8:10	10/8/2012 9:10		41.28	219.16	2.16	57.34					
72	10/9/2012 8:15	10/9/2012 9:15		41.26	224.16	2.04	57.11					
73	10/10/2012 10:15	10/10/2012 11:20		41.25	223.40	2.05	57.60					
74	10/11/2012 14:21	10/11/2012 15:21		41.27	235.71	1.83	62.49	week 11 average	41.26	225.61	2.02	58.63
75	10/15/2012 9:00	10/15/2012 10:40		38.69	222.64	2.06	60.88					
76	10/16/2012 9:10	10/16/2012 10:25		38.71	218.23	2.18	60.22					
77	10/17/2012 10:00	10/17/2012 11:20		38.52	219.03	2.15	59.79					
78	10/18/2012 9:00	10/18/2012 10:00		38.50	218.98	2.15	57.20	week 12 average	38.61	219.72	2.14	59.52
79	10/22/2012 9:05	10/22/2012 10:05		38.63	231.48	1.89	62.28					
80	10/23/2012 8:45	10/23/2012 9:45		38.64	231.39	1.89	60.35					
81	10/24/2012 9:04	10/24/2012 10:04		38.65	231.42	1.89	61.28					
82	10/25/2012 9:35	10/25/2012 10:35		38.64	235.51	1.83	61.32	week 13 average	38.64	232.45	1.88	61.31
total test average									37.02	226.77	1.99	61.15

Appendix D
Synopsis of Intermountain Power
Test Data August 2012 – November 2012

Synopsis of Intermountain Power test data August 2012-November 2012

Mill Primary Air Flow PI Data and its impact

This is based on data supplied directly from Intermountain Power's computerized data collection system at the Delta Utah plant and reflected in the Excel data attachments. These are the averages for the entire test period for both tested mills.

Tons of coal processed per hour

Original installed Rotating Throat Mill (OIRTM)	57.24 TPH
Technomics Rotating Throat Mill (Tech)	58.02 TPH

Thousands of Pounds of Primary Air Per hour

OIRTM	226,770 TPH
TECH	210,160 TPH 7.9% Reduction

Average Air to Fuel Ratio

OIRTM	1.99/1.00
TECH	1.85/1.00 9.34% reduction

Average Mill Motor Amps

OIRTM	61.15
TECH	55.71 9.75% reduction

Average Primary Air Fan Amps

OIRTM	329.97
TECH	309.33 6.67% reduction