

To K. Morton; cc: A. Hall; W. A. Moore

Date November 2, 1977

From L. J. Connell

Ref.

Subject ROASTER STACK TEST (ISOKINETIC TESTING)

On October 28, a repeat stack test was conducted to confirm the results reported from the test of October 18th. The shaking cycle to the baghouse was shut off at 0630 hours and compartment #7 closed (due to poor bags). The pressure drop across the bags climbed from 1.2 to 2.8 inches in 3½ hours (as compared to a period of 6 hours required on Oct. 18th to go from a pressure drop of 1.0 to 2.25 inches). The rapid increase in pressure drop across the baghouse necessitated that the bags be shaken during the test period (70 minutes) to maintain the pressure drop at approximately 2.5 to 2.8 inches.

<u>Sampling Date</u>	<u>October 18th</u>	<u>October 28th</u>
Ambient Temp.	34°F	42°F
Stack Temp.	197°F	189°F
Dry Gas Volume	47.553 cu ft	41.950 cu ft
Moisture Content	7.21%	4.32%
Stack Gas Velocity	10.19 Fps	10.43 Fps
Stack Volume	27,390 S.C.F.M.	26,310 S.C.F.M.
Total Particulate Wt	0.0040 gr/scf	0.0069 gr/scf
Total Arsenic Wt	0.0064 gr/scf	0.0056 gr/scf
Arsenic to Filter & Probe	0.0006 gr/scf	0.0027 gr/scf
Arsenic to Impingers	0.0058 gr/scf	0.0029 gr/scf
Particulate Emission Rate	22.65 lb/day	37.39 lb/day
Total Arsenic Emission Rate	36.2608 lb/day	30.3100 lb/day
Arsenic Particulate Emission Rate	3.6100 lb/day	14.6100 lb/day
Arsenic Vapour Emission Rate	32.6508 lb/day	15.700 lb/day
% Isokinetic	99.31%	93.37%

continued----

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Subject STACK TEST continued

It is believed that the shaking of the bags during the test period was the primary cause of the higher particulate weight recovered on the filter during the October 28th test. The higher total arsenic in the particulate matter is compensated for by a lower volatilized or gas borne arsenic. The reason for the change in arsenic reporting to the impingers is not understood and is possibly due to some other operating parameter such as temperature of the gas entering the baghouse. Following the stack test the baghouse shaking cycle was put back on automatic. It took 3/4 of an hour for the pressure drop to return to 1.2 inches.

In conclusion the emission of total arsenic is reduced by increasing the pressure drop across the bags. The reduced shaking cycle required in the baghouse to increase the pressure drop should reduce maintenance costs on the shaking mechanisms although bag life may also be decreased.