

MEMORANDUM

TO: S. McAlpine
CC: K. Blower, G. Halverson
FROM: K. Morton
DATE: May 3, 1990
SUBJECT: ROASTER EXHAUST SYSTEM - POSSIBLE MODIFICATIONS

A hi-temp blowback filter system such as we are considering for replacement of the cottrells has one potential disadvantage, it operates at a higher differential pressure than an electrostatic precipitator. The ESP operates at a differential pressure of only 2-3" wg and the filter operates through a range of perhaps 10" to 20" wg.

The existing stack fan induces draft through the entire system right back to the roaster cyclones, and under ordinary conditions it has enough capacity to provide adequate draft for roaster exhaust and for cooling air added downstream of the cottrells. On hot summer days, it just barely does the job.

I do not know if the fan can be modified to handle the new demand, especially if dilution air is added to the fan inlet to reduce sulphur dioxide and arsenic concentration. If it cannot, it may be possible to install a vacuum booster in the gas train ahead of the cooling fan inlet. This would require a large rotary vacuum blower capable of handling hot gas, and I'm not sure if this can be done at reasonable cost.

Before any meaningful capital estimates can be done on Stage One of the new Warox proposal, the question of gas handling must be dealt with, and I think that this can only be done by experts in the field. It is likely that flow and pressure measurements will be required in our existing system to determine what it is now handling and what it is capable of handling. The new roaster and hi-temp filter installation will have to be evaluated to determine what additional load will be placed on the system, and what modifications to the existing equipment will be necessary to handle it.

It might be useful to have this work done quickly so that a detailed proposal for Stage One can be prepared right after pilot testing of the hi-temp filters is completed.



Kent Morton