Division Headquarters
September 28, 1964

J. E. Hesse - Denison

AIR MAIL

Process Control Program - Plastic Pipe

You have received a copy of my letter of 9/24/64 to W. E. Volwiler on this subject. In it I have asked that he forward copies of his initial Manufacturing Specifications to you.

It is desireable for Denison to also start working on a process control program. It is recognized that such a project will take a lot of effort and will not be completed for an extended period. Results in known, controlled productivity , will begin to show early however.

At Denison it would appear that it is an appropriate time to start establishing "set points" with reasonable tolerances on the numerous extrusion variables. The reasons for tackling the individual machines now are as follows.

It is desirable to get the Prodex "back on the track" - to reestablish the high output previously achieved. By returning to and holding the machine conditions in use, before the "spider and burning trouble", this should be possible.

The NRM should be tied down "as is" and then controlled "speed runs" made during, for example, the last 15 minutes of operation before a scheduled shut down. This would be to determine the bottlenecks which must be broken one by one to equal or surpass the output being achieved currently on the equivalent extruder at Franklin. (Refer to #8 machine on Franklin Monthly Performance Report).

The Angers should be placed under strict process control to enable programmed continuity of your fine achievements in increased productivity.

The purpose of this letter is to request that you and your staff "get your heads together" on process control for plastic pipe. Controlled operation will pay off in known output, higher quality, lower costs, and a firm basis for pushing ahead on all fronts.

May I have your comments on a Denison program.

GCE

G. C. Eggleston

cc: J. B. McCarty
K. J. Whalen
S. Moyer
File 1/0-15-1

amg

Stilchik —
Pls discuss with me.
JH.

Division Headquarters
September 24, 1964

W. E. Volwiler - Franklin

Process Control Program

Your recently submitted mixing and extruding Manufacturing Specs indicate good progress toward installing a working Process Control Program.

You have evidently accomplished (for mixing and extrusion on the Prodex) the following:

1. Agreement on a best method (at least as now envisioned).
2. Recorded and tied down all variables on a Manufacturing Specification (incl. attachments).
3. Supplemented the general specs and operating conditions covered by item 2, with Machine Condition Reports for specific products (sizes and classes) on a machine.
4. Specified that only a foreman may change the conditions as established - not an operator.

It would appear that additional items still remain. You may have done some or all of these already.

1. Establish operator "tolerances" for some items. That is, for example, a range of temperatures such as $\pm 5^{o}$ on a cylinder zone. The operator may vary conditions within this tolerance but must notify the foreman when this range is exceeded. Haven't you found this necessary for any of the variables?
2. Have an Action Plan. How does the operator know what the conditions are supposed to be ? Does he call over the foreman (hourly leader)? If the conditions are changed how are they recorded and revised? I assume by the use of a "marked-up" Machine Condition Report. Also that your key people then review the revision and determine whether a permanent change is needed or whether the action was a one-shot item such as might be caused by a mechanical or electrical difficulty during operation.

Attached are sketches of the type of controls in use at Waukegan (TRANSITE Pipe) for handling the above. Also descriptions as to how they are used and might be adopted for plastics.

The key items are:

Form #1. Manufacturing Specifications
(Supplemented by individual Machine Condition Reports as required). You have this but may wish to streamline for "floor" use.

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Form #2. Daily Check Sheet - This sheet is posted daily and covers the three shift period. Compliance is checked and an out-of-control condition or non compliance is indicated by an "X".

Form #3. "Out-of Control" or "OOC Notice" Completed by operator to show what happened and why, if possible. Action taken is recorded by foreman. OOC Notice is then reviewed in the Daily Production Meeting. There should be one Notice for each "X" recorded on the Check Sheet.

Additional variations which might be considered are having the foreman circle the "X", after taking action to correct the situation. Thus the Check Sheet, posted at the operators work table or in the extruder vicinity, would provide an up-to-date status on the process.

Also, the daily sheet can be used to record the foreman's spot audits. The priority of a foreman's duties should be:

1. Action to resolve OOC conditions.
2. Routine or repetitive duties - normal machine assistance, operator contact, reporting, etc.
3. Spot auditing.

Duty #3 is performed daily as time permits. At random the foreman chooses several machine or operating variables to check for compliance. These items as checked are circled in red on the Check Sheet. Variances from spec. are discussed with the operators and foreman's immediate supervisor for appropriate correction.

I am submitting the above for information and guidance only. Any system must be tailored to suit the local requirements. This is your responsibility.

Our eventual aim of course is complete process control. Only after "drawing in the reins" on everyone "doing it his own way" can this be established. With process control will come quality production. Following process control should come the systematized drive for increased output.

With a formal process control program, installed on your part with considerable effort and training, you will begin to be able to manage by exception - the goal for effective management. A program such as outlined above is a necessity to gain this end.

Will you please send one copy of your Manufacturing Specifications No. 5-1 and 5-2 to A. Harris and J. E. Hesse.

Also, may I have your comments regarding extending any of the above proposals to your current program.

GCE

G. C. Eggleston

cc: J. B. McCarty
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