Remotely Monitor Your Wash Process

Stay on top of your Wash Process from your desk:

Washing parts is a necessary evil. Necessary because without cleaning each separate component prior to the subsequent process, the finished, completed product will not function as designed. Evil because parts washers, if not closely monitored, quickly become a maintenance nightmare. A nightmare with problems that if not resolved soon make the entire washing system a waste of floor space and time.

When this occurs, instead of being a vital step in the manufacturing process, the part washer ends up being a loud, high priced, dirty material handling system. The washer operator finds himself with water so saturated with contaminant that the cleaning agent is rendered ineffective. The spray headers have nozzles that become so plugged with particles that fluid cannot pass through them to impinge the part. The pump is forced to transfer sludge rather than water because the bottom of the tank is loaded with fallen contaminant. The heating element or heat exchanger is so coated with the insulating sludge that the fluid never gets hot. The blow off stage becomes just as dirty as the load stage and literally re-contaminates the parts. All these and more contribute to a machine that cannot do the task it was built to accomplish.

An industrial part washer is specified, quoted, purchased, designed for a specific part, built, run-off, accepted, installed and then put into the production line. After some time in production, however, the washer begins to loose its effectiveness. The simple reason for this is proper preventative maintenance is not being performed on a regular basis. The questions then become when is it necessary to begin this maintenance? When is the best time to change a filter or a heater element or a nozzle?

For the vast majority of companies that must wash parts, the answer is never. Preventative maintenance is never done. Instead, “after the failure” maintenance is performed only because there is no other choice. For the most progressive plants, preventative maintenance is done based on a calendar schedule. For example, at the end of each month the fluid in the wash tank is dumped out, the interior of the cabinet is cleaned and the bath is recharged with fresh water and the correct amount of chemistry. Although that appears to be a sound scheduling philosophy in theory, it is not sound practice.

Maintenance cannot be scheduled using a calendar unless the exact same amount of parts with the exact same amount of soil is going through the washer during the same time frame. As soon as any of these variables change, the time to perform maintenance related tasks must be adjusted as well. If it is not, then the task is either being performed too often or not often enough. Either way, production efficiency will suffer.

With the economy surging and the struggle to find and keep good employees becoming more competitive, it becomes difficult to find machine operators who will take ownership of their machines and be aware of pre-fault situations. It is even more difficult to find operators who have either the initiative or the ability to do something to avoid the inevitable fault. This is particularly true with washer operators. The washer is normally such a dirty job that the last hire in the work cell is the one who is assigned to the parts cleaning system. As soon as an employee earns enough seniority, he will bid his way off the job onto something else.

Facing this reality, production and engineering supervisors must investigate alternative approaches to making themselves aware of pre-fault conditions so they can resolve them before they effect production or quality.

Engineer’s and Production Supervisor’s schedules are far too unpredictable to assume they will make regular rounds to observe the current state of the manufacturing cell. Even when they do get to the floor, it is usually to resolve a crisis. The last thing these company leaders will remember during a crisis that effects current production, is to check a pressure gage to make sure a filter has been changed. Instead, observing real time status of the cleaning system must be done on a regular basis in a controlled, non-chaotic environment. In order to do this, the information must be made as accessible as possible. The most

advanced, and yet still most practical, way of learning of these conditions is to monitor the machine fault points via a personal computer and modem link.

In this scenario, each maintainable area can be monitored for action. For example, most washers being built today come equipped with operator interface and/or a computer touch screen to start, stop, activate individual components in the washer and to trouble shoot the system, much like a machine tool does. Connecting this PLC to the local area network within the plant for monitoring purposes can be extremely easy. Connecting this system to the Internet to monitor it offsite can be just as common. If this is arranged properly, then no matter where the production engineer in charge of the area is, he can bring up the screen and direct action to be taken to keep the washing system operating effectively. An example of the information needed to provide this direction includes the following:

- Production piece count since last fluid dump and recharge
- Fluid pressure before filter
- Fluid Pressure after filter
- Blow off air pressure reading
- Blow off air vacuum reading
- Amp reading on each heater element
- Amp reading on drives motor
- Amp reading of pump motor
- Amp reading of steam exhaust motor
- Gas pressure reading
- Solution Temperature Wash and Rinse
- Air Blow off temperature

If any of these numbers fall out of the proper, pre-determined, acceptable operating range, then a quick e-mail to the maintenance staff can quickly bring it back within the desired range. There will be no unnecessary strain on the components and no early, wasteful shut down of equipment.

When considering this method of monitoring equipment those involved in the decision must be progressive enough to visualize the end result. Of course there will be high initial cost, resistance to change and early confusion, there always is. The Internet itself did not run smoothly at first. Now, however, it is difficult to imagine performing our jobs without it.

This step forward will enable the production line to utilize a more efficient, less costly to maintain washer, a more tightly controlled manufacturing process and an Engineer and a Production Supervisor who can prevent a crisis before it begins.