

Friends of the Pine Creek Grist Mill

Wildcat Den State Park, Muscatine, Iowa

Progress Report No. 53

Where we stand September 12, 2009



August and September found us still working on many of the same projects that occupied us all summer. The good news is that we have completed two of our projects. The mill is in good shape for Heritage Day and many of our old chronic problems like keeping the belts on certain pulleys are behind us.

Penstock Gate Structure

Repairs to the penstock gate are finally completed and the gate is back in place in Pine Creek. The gate has been painted and the rack and pinion gear that lifts the gate tested. We will try to remember to open the gate and turbine valve on a regular basis on Tuesdays to try to keep mud from accumulating in the turbine pit.

Wheat Separator

Restoration of the wheat separator on the second floor of the mill is now complete. For a simple machine, it took a great deal of work to restore it. It has almost all new sheet metal internal parts and all of its mechanical parts are working properly.

Powering it from the mill's second floor main line shaft would have been difficult since the separator got its power from the scalper's drive shaft. That meant that we would have had to restore the scalper (that is almost impossible for visitors to see) in order to power the separator. For this reason we opted to power the separator with its own electric motor. The motor simply plugs into a 120V outlet and has its own on/off switch in a concealed location. Eventually we will integrate the motor with the control system for the mill's main drive motor so both start together.

As machines in the mill go, this one is fairly safe as it offers only a minor pinch hazard to wandering fingers. To prevent any possible problems a plastic safety cover has been installed.

Steam Engine

Where possible we are going to be covering and disguising modern additions to the mill. The steam engine had two areas that needed treatment. One is the modern winch and cable that elevates the idler pulley on the steam engine belt. It has been covered with wood. A door allows access to the winch when the idler needs adjustment.

Next we covered the modern steel angle iron brackets on the steam engine idler pulley mount. From the outside they now look like they are made of oak.

Boiler Feed Pump

All summer we have fought the boiler feed pump. In past years we have had problems getting the pump to work early in the season. Eventually with the usual amount of fiddling it started to pump as it should. This summer, no matter what we did, the pump refused to work properly.

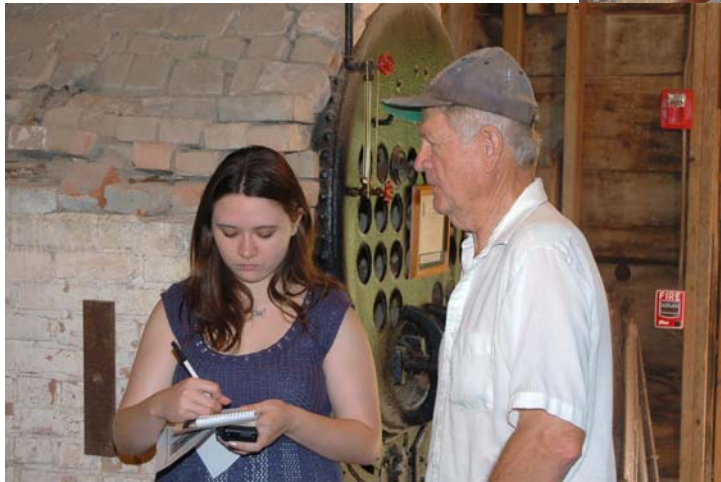
We checked for air leaks, cleaned the strainer and foot valve, even replaced the internal clap valves when we suspected that they were leaking. Nothing worked. Tuesday Scott Gibbs took the problem on, while testing the pump, we noticed something we had overlooked before. At the top of the pump housing there is an extra drain plug. I removed the plug mainly to see if when we primed the pump water reached the top of the cylinder. To my surprise, there was none.

After a little consultation we decided that due to the pump's primitive design when primed it trapped air at the top of the cylinder and unless purged, the pump piston merely oscillated up and down without pulling a vacuum. We replaced the plug with a petcock and purged the air while the pump was running. After a few strokes the pump worked perfectly. Now we finally understand it!



Peter Allenger and Scott Gibbs are working on the stubborn boiler feed pump. Peter is cleaning the piston while Scott checks the valves.

A crowded day in the shop. Bob Willis is working on the mount for the separator drive motor. Joe Clark and Peter Allenger are working on the separator cam shaft.



Linsey Hocker is interviewing Joe Clark for a article about the mill in an upcoming issue of the "Radish."

Jerry Kieth is installing the safety cover over the front of the separator.



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