

Instrument monitors steam and air blowing

Steam or air blowing of piping, superheaters, and reheaters occurs after erection, repair, or chemical cleaning. It consumes energy and time, so that monitoring its effectiveness is important. Up to now, the process has been judged largely on basis of experience.

A new instrument fulfills the need for direct in-line, on-line monitoring by electronically determining the impacts of individual contaminating particles on a target probe permanently installed in the system to be cleaned. The instrument (Fig 2) determines both number of particles and mass of each particle. Fig 3 depicts the results of four steam blows of a superheater and reheater. Areas under the curves represent the particle mass removed during the blow.

Information supplied by the instrument relates the number and size of particles to the progress of the blow, to the length of individual blows, and to other parameters—such as blow time, pressure, temperature, and flow velocity.

The instrument, developed by Jonas Inc, Wilmington, Del, has application in moni-

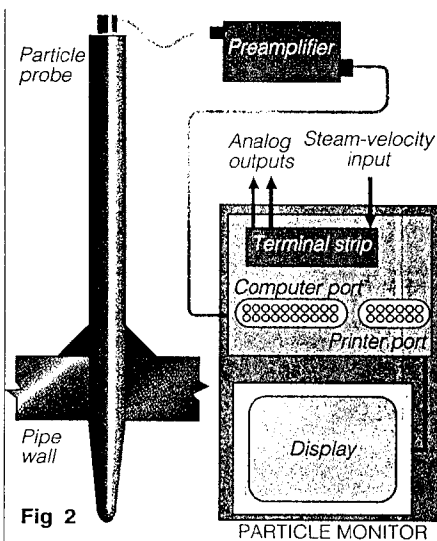


Fig 2

toring of startup of major components and protection of turbines and valves from foreign-object damage. One instrument, permanently installed for several years, has been monitoring oxide exfoliation, a condition that can cause solid-particle erosion of a high-pressure turbine. The probe location is close upstream of the end valve. Veloci-

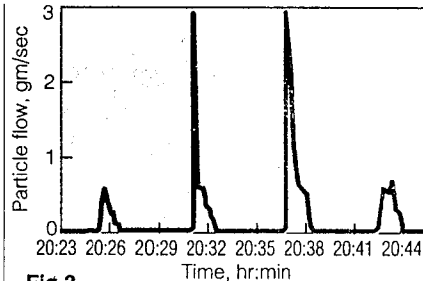


Fig 3

ties there are only a few hundred feet/sec, so the probe is not damaged by vibration.

Pulse MIG speeds boiler-membrane welds

Membrane welding to seal spaces between waterwall tubes in a boiler is often done during unit outages. Beveled steel bars, welded to the tubes, form the membrane. Appalachian Power Co plants formerly did the welding by the standard stick-rod method which, for a large job, takes considerable time. Average output for a welder at efficient pace was estimated at 40 ft of weld per shift. The utility's search for more welding output per shift