

CTRL Systems, Inc. Best Practice

Industry

Power Plant

Application

Leak Detection

System

Pneumatic

Component

Fly Ash Hopper

Current Procedures

The electrostatic precipitator uses electrically charged wires to attract fly ash generated by the burner keeping it from escaping into the atmosphere through the stack. A rapper assembly then knocks the fly ash down the wire where it is collected into the ash hopper. The rapper assembly prolonged intense vibration dulls fittings on supply air and vacuum lines. Vibration also creates cracks in the ash hopper allowing air to be sucked into the system where it blows the fly ash off the wires, up the smoke stack and into the environment. Detection of these leaks is difficult due to the amount of ambient noise.



CTRL's Sound Solution.

1. After a short training lesson of familiarization and application of the UL101. The maintenance technician selects the UL101 Receiver, Headset, Mini-Concentrator, and 1-Inch Acoustic Tip from case.
2. Attach Mini-Concentrator and plug in headset to UL101 Receiver.
3. Test battery by moving output switch to headset only position. If meter needle is below the 5-10 (½ scale) of the meter, replace the battery. Return output switch to headset/meter position.
4. Turn gain switch to ½ scale (half-moon); adjust potentiometer knob between 1 and 2.
5. Begin at one end of the ash hopper and piping system. Point the UL101 receiver in the direction of the valves, fittings, hoses, and lines under pressure or in a vacuum and walk along while scanning with the receiver.
6. An air or vacuum leak is indicated by a jump in the meter and a loud rushing sound through the headset.
7. Once an air leak is detected, pinpoint by switching the Mini-Concentrator attachment with the 1-Inch Acoustic Tip. Adjust the potentiometer down to locate the exact source of the leak.
8. Indicate the location and issue a work order for repair. Verify repairs with UL101.

Benefit

An efficient means of leak detection for the ash hopper and its components greatly enhances the operating efficiency of the electrostatic precipitator system. Power plant operating expenses and down time is minimized, as well as environmental impact due to escaping fly ash.

The UL101 is much faster and more effective at locating leaks, even during peak operation. Leak location and identification is not impeded by ambient noise and therefore, less down time and less guess work are involved in leak isolation. Maintenance technicians do not have to wait for a quiet day to find leaks. More leaks can be found and properly identified for repair. Monitoring with the UL101 provides instantaneous real-time information.