CEC Combustion Services Group

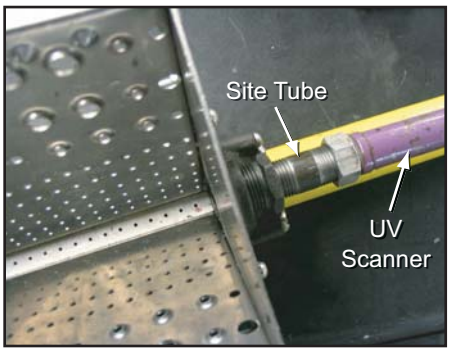
Improving personnel safety and the reliability of fuel-fired equipment worldwide

Safety Bulletin: # 1017

Flame Detector Site Tube Cautions

Applies to any system using ultraviolet flame detectors

This bulletin speaks to a number of cases we have found where site tubes (small pipe nipples attached to burners and flame detectors), have been found to contribute to false flame detector signals.



Our firm has found several cases of site tubes in use that are made from galvanized or stainless steel. These materials have a low ultraviolet light absorption rate. Hence, they have been found to reflect and transmit considerable ultraviolet light generated from spark igniters. All scanner manufacturers recommend only using black iron pipe for site tubes.

We found these cases when doing pilot spark pick up tests. This test is done to determine if flame detectors are sighted and installed correctly. In these cases the burner management systems received flame signals, from spark only, far in excess of that required for them to think a good pilot flame has been established. This situation makes for the possibility of the main fuel valves opening when there really is no pilot. If this occurs the gas could accumulate and then ignite after a delay. This could cause an explosion and or fire.

Actions to Take:

1. Make sure that the pilot spark pick up test is being done properly on all equipment at least annually.
2. Verify that galvanized and or stainless steel nipples are not used for flame detector applications. Remove them and install black iron pipe instead.
3. If a pilot spark pick up test fails and galvanized and or stainless steel nipples are not in use make sure an experienced professional is involved to look for other issues like the length of the tube, the possible need for orifices, and or issues such as electrical noise.

If you have questions on this and/or any other fuel system or combustion equipment safety issue call us at 216-749-2992. Our staff has hundreds of years of burner and combustion system experience including licensed professional engineers, burner technicians, and combustion controls experts.