INDUSTRIAL “HOW TO INSTALL” SERIES

WET OR CONDENSING ENVIRONMENTS

Introduction

VESDA Aspirating Smoke Detection (ASD) systems have been installed very effectively in many applications where wet or damp conditions exist.

A well designed and installed system will take into consideration a number of performance aspects; detector and sampling pipe locations and specific ancillary devices designed to trap and prevent the collection of water into the pipe network, which could restrict air flow.

So what do we mean by “Wet or Condensing” and what needs to be considered?

Some examples of areas where the presence of water or moisture can create issues for any installed electronic smoke detection equipment include:

- Battery Filling and Charging Rooms
- Water Treatment Plants
- Waste Recycling Facilities
- Fertilizer Production
- Tanneries
- Commercial Cooking Production Facilities
- Water Parks and Swimming Pools
- Abattoirs and Sea Food Processing Facilities
- Boiler Rooms
- Food Production

Environmental Assessment

An assessment of the area where the ASD and pipework will be installed must be carried out. Once a survey has been conducted and details about site work practices are obtained a suitable design can be prepared. Ideally the detector would be mounted in an area that will not be influenced by the sampling area conditions and where it can be easily accessed for service and maintenance.

Site wash downs conducted in many facilities can create issues if water is forced into the sampling holes and pipe network. This is common where meat or poultry processing occurs. Steam is also a factor that can create unwanted moisture if not managed properly. These conditions can be easily mitigated with a properly designed system.

The following pictures are some examples of wet and condensing environments where VESDA fire detection is installed that required special attention.

Figure 1: Condensation on Ceiling Tiles Where VESDA Pipe is Located in Processing Facility

Figure 2: Battery Filling / Charging Room

Figure 3: Wet Area Brewery Conveyor

Moisture or "Water Traps" installed at the detector location require one trap for each pipe arrangement. These assist to remove residual moisture that could be forced or drawn into the pipe network as well as moisture that forms in the pipes due to condensation as a result of hot or warm air.

Below is an example of a detector set up in a Food Production Facility where steam and moisture is present. The detectors were located near the detection area.

Figure 4: VESDA System in Food Production Facility

Applying Aspirating Smoke Detection (ASD)

To prevent moisture or water from running into detectors they should be inverted and incorporate in-line filters with water-traps. As previously indicated Purging (Back-Flush) valves are also recommend. Ensuring that the sampling pipe is installed with no low spots to trap water is also recommended. An ASD system correctly designed will not only survive the environment but will also result in a system that will be more reliable and outperform other detection technologies in similar situations.

Some applications present no option other than to install the detector/s within the sampling areas where condensation can form or where they may experience water spray due to normal day to day business processes.

In these instances it is advisable, particularly where wash down or steam cleaning is undertaken, to house the detector in a suitable IP rated enclosure.

The VESDA VLI, with its IP66 rating, would accomplish this without the need for a secondary enclosure. However, if other ASD models are used or the conditions warrant additional protection, a secondary protective enclosure would be necessary to protect the detector. In these instance stainless steel housings are recommended.

The type of ASD sampling pipe used in wet and steamy environments is another important consideration, e.g. stainless steel sampling pipe is normally used in seafood and meat processing environments. To prevent water from blocking sample points rotate them 30 degrees from the bottom of the pipe.

Regulatory requirements in food processing facilities set down strict hygiene procedures for routine cleaning which occurs frequently. One such example is a Poultry Processing Facility as shown below using stainless steel pipe.

Figure 5: Stainless Steel Sampling Pipe in Poultry Facility

A myriad of applications fit within the wet and condensing environment sector, each having unique requirements. External conditions can also influence some system operation so careful observation during the survey is necessary. Any system design should allow for unusual aspects and be catered for during installation.

For more information on how your business can benefit from the Xtralis solution for Industrial Applications, please visit www.xtralis.com/industrial or contact your local office or Authorised Partner for expert advice and assistance with design.