Alert Plus, Inc.
PO Box 268; Pinedale WY 82941
(307) 749-0615

Enbridge Energy 2015 Case Study

Study

In 2015, Enbridge Energy's Superior Terminal Mainline Enhancements Project in Superior, Wisconsin purchased an Aegis 400 to place near their pipeline pig launcher. The Safety Coordinator of Mainline Enhancements, John Jenkins, noted that workers at the pipeline pig launcher were potentially being exposed to volatile organic compounds (VOCs) and other emissions during the opening and closing of the launcher as well as a general concern about ambient emission levels.

The context of the installation was that the pig launcher is located in a Class I Div 2 zone inside an open-air building also near to multiple storage tanks that workers frequent often. Further, the climate of Superior, Wisconsin is well known to be a wet-cold during the winters and any installation would need to compensate for these factors. Enbridge's Superior Terminal is one of the largest facility's that Enbridge maintains and is an extremely strategically important facility between Canada and the United States.

The challenge was therefore an instrument capable of working continuously well under multiple climatic changes from hot to cold. Additionally, audible and visual notification was required to warn workers if ambient emission conditions merited it. The monitor must also provide data logging, email and text alerts, and the opportunity for workers to check an area before entry. Finally, the safety coordinator required an instrument that could monitor multiple gases including VOCs, specifically benzene. The requirements were:

1. Benzene with a short-term exposure limit of 2.5 ppm and an 8 hour exposure of 0.5 ppm.
2. H_2S with a low of 10 ppm to a high of 15 ppm
3. LEL with a low of 10% and a high of 20%
4. Carbon monoxide with a low of 25 ppm and a high of 100 ppm.

The Context
Potential situational risk at the pipeline pig launcher during hours of operation and general ambient levels

The Challenge
Monitor multiple gases including VOCs in order to preserve worker safety in an open-air, cold-weather environment.

The Solution
Implementation of the Aegis 400 located in Class I Div 2 space near to pipeline pig launcher.

The Results
It was determined that there were not significant levels of exposure and the device was re-located to another location.

The solution was the onsite installation of the Aegis 400, which was easily accomplished in several hours by the Enbridge Operations team. The system included an RKI Instruments infrared LEL sensor (*0-100%*), a RKI Instruments carbon monoxide sensor (*1-300 ppm*), a RKI Instruments H_2S sensor (*1-100 ppm*) and a Honeywell VOC photo-ionization detector sensor (*0.1 ppm-100 ppm*). The Aegis system was placed in an open area near the pipeline pig launcher, able to provide sufficient coverage for workers coming and going from the launcher. The placement also afforded a clear view of the visual alarm in case conditions merited an alarm. Enbridge did not

connect the system to its communications system, but wanted it to remain a stand-alone air monitor. Both the real-time monitoring and the visual and audible alarm provided instantaneous warning to workers coming onsite if conditions met the alarm criteria as defined by Enbridge's safety coordinator.

The results were that the Safety Coordinator was pleased to learn that conditions outside of the pig launcher were not as originally believed. After several months, the system was removed and relocated to another location.

If there are further questions specific to this summary, please contact:

Mr. John Jenkins
CWR, PL Construction Safety Spec| MP HSE, Safety USA
26 East Superior Street, Suite 313A.01; Duluth, MN 55802
CELL: (541) 326-2960 OFFICE: (218) 623-7628

Photos

Enbridge Energy Superior Terminal Pipeline Pig Launcher

Aegis 400 at Pipeline Pig Launcher

Aegis 400 at Pipeline Pig Launcher