As a new Safety Specialist at a large refinery, I was responsible for improving the crew's portable gas detection program. Upon my first few days on the job, I observed that much of their gas detection equipment had not only suffered the wear and tear of daily use in a refinery, but was sorely aging. Secondly, I observed that the maintenance of the instruments was completely manual, requiring a lot of time and leaving room for employee error and/or disregard. Lastly, I noticed that there was a lack of proper documentation of things like equipment maintenance history or worker exposure history.

Though the refinery’s safety record, to this point, had been fairly clean of gas-related incidents, it seemed as if the safety of the crew was at risk given their current gas detection program. I was glad to have the opportunity to implement a new program that would ultimately keep the crew safer when conducting work. The workers required both multi-gas and single gas instruments. The multi-gas detectors would need to be capable of sampling confined spaces. The single gas instruments would need to monitor for H2S – the most commonly found gas in the refinery.

With this opportunity, I began extensive research on the latest in portable gas detection. I came across a study on bump testing practices, which was conducted by a leading gas detection manufacturer. Given my prior experience and in my discussions with the plant management and crew about the inability to conduct daily bump tests, I was not surprised by the findings. The study showed that about 20% of users bump tested their monitors prior to each day’s use; 15% never bump tested. The rest of the users’ practices fell somewhere in between.

I soon learned that there was a perfect, cost-effective solution to this problem. A revolutionary single gas monitor had just been introduced to the market. This instrument uses two like sensors for the detection of a single gas. The two sensor readings are processed through an algorithm and displayed as a single reading to the user. This technology was developed to address the major challenge of making sure workers are always using fully functioning, reliable instruments in the field. Previously, that required a functional bump test of the instrument before each day’s use.

With this new technology, regardless of bump test frequency, my crew would be significantly safer with the new instrument than with any other single gas instrument on the market today. This made for an easy decision regarding which single gas instrument to implement.

Next, I had to consider the accessories needed to support my gas detector fleet. I started with confined space sampling accessories. Fortunately, some key accessories have been developed over the years that are attached to, or integrated into, a typical portable instrument to improve its performance when sampling for confined spaces such as pumps (external and internal), tubing, filters, and probes. Specifically, there is an external slide-on pump and probe that allows the gas detector to function as a personal monitor, but can quickly be converted for confined space sampling applications. The slide-on pump provides excellent instrument flexibility with the extendable probe, allowing users to distance themselves from the confined space.

Today, the crew is using the single gas monitors with the redundant sensor technology. I have peace of mind in knowing the crew goes into the field each day using the safest single gas monitor available. We’ve added several new instrument accessories to our fleet that save both time and money while ensuring the workers are kept safe no matter what kind of work they are conducting within the refinery on any given day. Lastly, Gas Detection as a Service has proven invaluable to our program. From the “in-the-cloud” dashboard that provides visibility into our program 24 hours a day, to the automated instrument maintenance and reporting, it is a service that we simply could not do without.

Looking ahead, I hope to continually improve our program using the latest technologies that are both reliable and affordable, and above all else, are capable of keeping 100% of our crew safe from hazardous gases 100% of the time.

Another important accessory I needed to consider was a docking station. It seems that once this introduction to the market, docking stations have quickly grown in popularity as they go beyond simply charging and automating the bump testing and calibration of an instrument. Docking stations store every calibration, bump test, data event, and alarm that the instrument has ever recorded, as well as provide a single user interface for fleet-wide instrument management and visibility.

Docking stations have been a game changing accessory by ensuring proper instrument maintenance and providing unique insight into user habits. They enable companies to thoroughly root cause incidents and increase the overall safety of their gas detection program. To me, it seems that our gas detection program simply cannot go without a docking station.

3 Months Later…

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*The Safety Specialist is a fictional character created for the purpose of this article.*