

Case Study

Tatweer Petroleum
Kingdom of Bahrain



Client Tatweer Petroleum

Requirement Replacement H₂S Gas Monitor
for the UltimaX

Solution MSA ULTIMA® X5000

WE KNOW WHAT'S AT STAKE.

Case Study

Tatweer Petroleum is an Oil & Gas exploration and production company, based in the Kingdom of Bahrain. As the fields they operate are sour gas fields with a risk of H₂S exposure to the people working in the area, MSA's UltimaX gas monitors have been used to monitor for toxic H₂S gas leaks. Fernando Nieto, Senior Supervisor Automation, Maintenance Services and Manekshaw Caruthedathu, Technician III-Automation Maintenance, both work for Tatweer Petroleum and are responsible for the maintenance of the gas detection systems. Here is what they had to say about our old H₂S detectors and their experience when they upgraded to the latest technology.

What has been your main challenges with your current H₂S gas detector?

Our maintenance team had to perform frequent calibrations on the gas detectors. This was mainly because the Electrochemical sensors were not fail-safe, so in the event of the sensor not being able to detect a gas leak due to the loss of sensitivity, reaching the end of its life or if the sensor inlet became blocked, we would not know as the detector would not alert us with a fault signal. The only way we would find out that the detector could not detect gas was during a manual gas calibration. This meant our maintenance team would have to be in the hazardous area every 4 months to perform a calibration, which was often a long drive to the wellheads around the country.

Did you have any other issues with your old, traditional gas detectors?

We found that the cost of carrying out such frequent maintenance was very expensive. When considering the cost of the labour, calibration gas and also the cost of replacing the Electrochemical sensors, which was about every 2 years, the maintenance costs were very high. Then there was also the travel time to the many locations and typically a team of minimum three people were involved. Fernando Nieto commented that "the H₂S detectors were the most expensive gas detectors to maintain".

Why did you decide to evaluate the gas detector?

After we learnt that MSA's new ULTIMA®X5000 had been launched and had several advantages over the UltimaX, we ordered 6 of the new detectors to evaluate their performance. As well as the new X5000 Transmitter, we wanted to evaluate the new XCell® H₂S Electrochemical sensor with Diffusion Supervision. This was the first time we had heard that a gas detector could give an alert if the inlet was blocked, preventing the gas leak being detected.

The MSA local Channel Partner Mohammed Jalal had informed us of the new technology behind the XCell sensor, which included:

- TruCal® sensor technology, which performed a sensor self-check every 6-hours.
- Self-calibrating sensors, which allows for manual gas calibrations to be extended up to 2-years.
- Diffusion Supervision, which could automatically monitor the sensor inlet for blockages.
- Fail-safe sensor technology.
- A higher operating temperature of 60°C, which would be more suitable for our extreme environment in the Middle East.
- A longer operating life of 5-years, compared to 2-years for the traditional sensor.

What was your conclusion on the performance and features of the X5000?

After 12 months under evaluation, we concluded that the X5000 detector with the XCell sensor performed really well. We will now upgrade all of our remaining UltimaX H₂S gas detectors.

What are the main advantages of the new ULTIMA X5000 technology?

Being a fail-safe sensor was one of the most important advantages for us, which includes the Diffusion Supervision, but also the self-calibrating capability of the sensor, its extended calibration period and longer operating life. The X5000 helps to make our plant and wellheads safer and also reduces our maintenance costs.

Not having to maintain the sensors so frequently also means that our maintenance engineers are not required to go into the hazardous area as often. This was also an advantage, as it reduces the risk for our engineers. Many of the detectors are located around the country at the various oil/gas wellheads, so the reduced servicing requirements also saves a considerable amount of time for our engineers. This gives them more time to focus on other activities.

Is there anything else you liked about the X5000 and its new technology?

The other features of the X5000 that we liked was the touch screen display, as it meant we did not need any special tools and we also liked that we could now use a Bluetooth™ device to configure and calibrate the sensors. Being able to fit or replace sensors without having to remove the power to the detector is also useful for us and reduces the time the sensor is offline.

Do you have any final comments on this new technology?

The ULTIMA X5000 is very advanced and we like that we know it is working in between our manual calibrations. This helps to make it safer for our colleagues working in the hazardous areas. As the sensor is fail-safe, it self-calibrates and therefore it needs less servicing, and the sensor has a longer life, it is also reducing our maintenance costs compared to the older technology.

MSA would like to thank Fernando Nieto, Senior Supervisor Automation, Maintenance Services and Manekshaw Caruthedathu, Technician III-Automation Maintenance for taking the time to provide your feedback on our latest H₂S gas detectors – the ULTIMA® X5000 with H₂S XCell® sensor.



MSA—The Safety Company

Our business is safety. We've been the world's leading manufacturer of high-quality safety products since 1914. MSA products may be simple to use and maintain, but they're also highly-sophisticated devices and protective gear—the result of countless R&D hours, relentless testing and an unwavering commitment to quality that saves lives and protects millions of hard working men and women each and every day. Many of our most popular products integrate multiple combinations of electronics, mechanical systems and advanced materials to help ensure that users around the world remain protected in even the most hazardous of situations.

Our Mission

MSA's mission is to see to it that men and women may work in safety and that they, their families and their communities may live in health throughout the world.

MSA: WE KNOW WHAT'S AT STAKE.

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice.

MSA operates in over 40 countries worldwide. To find an MSA office near you, please visit [MSAsafety.com/offices](https://www.msasafety.com/offices).