

SOHAR Port and Freezone Strengthens Environmental Stewardship Through Smart Odor Detection and Monitoring

SOHAR Port and Freezone (SOHAR) have reached another important milestone in its sustainability journey with the successful implementation of an advanced Odor Detection and Management System as part of enhancing the air quality management in the area. The project represents one of the first large-scale smart environmental monitoring networks deployed within an industrial port ecosystem in the region. It demonstrates SOHAR's continued investment in digital technologies that strengthen environmental protection, improve transparency, support regulatory compliance, and enhance the quality of life for employees, tenants, and surrounding communities.

Why the Project Was Needed

As SOHAR Port and Freezone continues to strengthen its position as a leading logistics, petrochemicals, metals, and manufacturing hub in the region, environmental monitoring has become increasingly important. Building on the existing Air Quality Monitoring Program, Groundwater Monitoring Program, Soil Monitoring Program, and Marine Water Quality Monitoring Program, there is a growing need to address environmental concerns associated with the diverse industrial activities within the SOHAR Port and Freezone area.

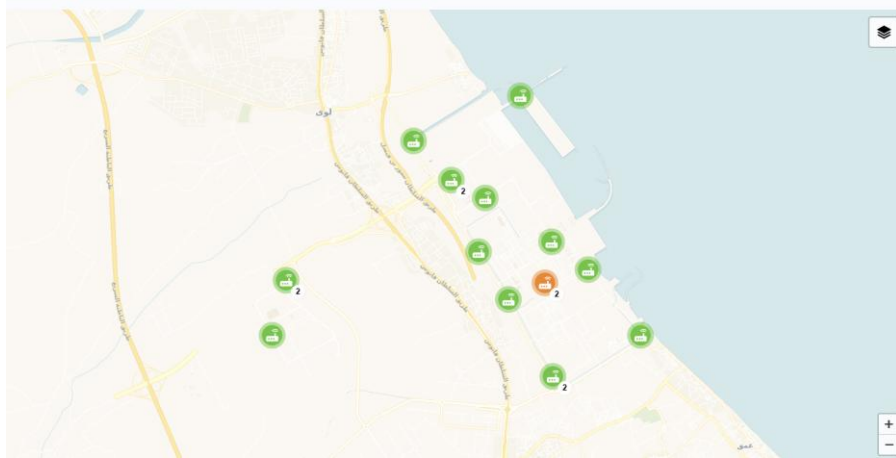
To enhance environmental management and respond more effectively to odour-related complaints from surrounding communities, SOHAR aims to establish a dedicated odour monitoring system. This system will help identify, assess, and understand the nature and frequency of odour incidents, enabling targeted mitigation measures and reducing the likelihood of recurrence.

Given the complexity and diversity of industrial operations within the area, proactive monitoring tools are essential for the timely detection of odour events, source identification, and informed environmental decision-making. The proposed monitoring network will provide continuous environmental intelligence, complementing traditional inspection approaches and reducing reliance on complaint-based investigations alone. This will strengthen SOHAR's ability to protect environmental quality while maintaining sustainable industrial growth.



Project Overview

The project included engineering assessment, optimization of monitoring locations, installation, commissioning, cloud integration and operational testing. The deployed solution consists of fourteen fixed WT1 Lite monitoring stations together with one mobile monitoring unit strategically positioned across the port and freezone based on prevailing wind conditions, emission sources and sensitive receptors. The Odor Detection and Management System is based on advanced environmental sensing technology developed by **Ellona**, a French company specializing in real-time environmental monitoring solutions for industrial, urban, and infrastructure applications. Ellona is the manufacturer of the WT1 Lite multi-parameter environmental monitoring devices and the associated cloud-based analytics platform, enabling continuous monitoring of odors, gases, meteorological parameters, and environmental conditions. In Oman, the project was delivered through **On-Transition**, Ellona's authorized local partner, which was responsible for the engineering, supply, installation, system integration, commissioning, and technical support of the solution, working closely with SOHAR Port and Freezone throughout the implementation.



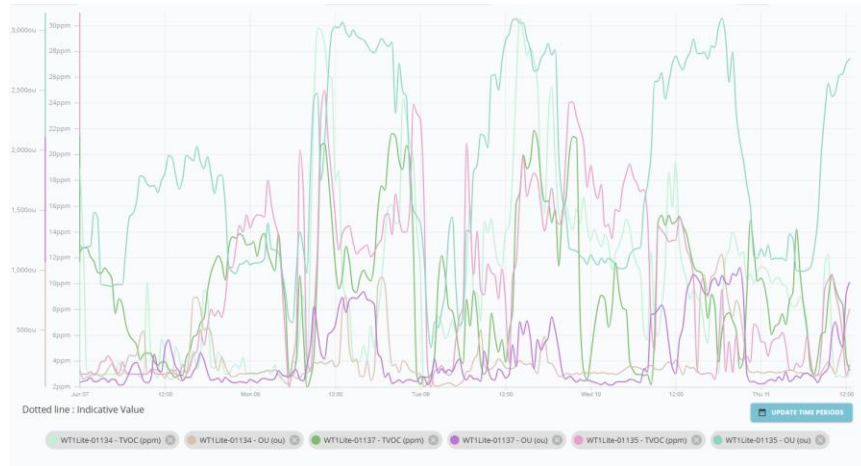
Technology Behind the System

The WT1 Lite monitoring units continuously collect environmental data including odor signatures, atmospheric conditions and other environmental parameters. The information is transmitted securely to the Ellona cloud platform where it is processed in real time. Authorized users can visualize live conditions, historical trends, receive automated alerts, analyse environmental events and export data for further investigations.

Key Capabilities

- Continuous 24/7 environmental monitoring.
- Real-time odor event detection.
- Cloud-based dashboards and analytics.

- Weather integration to understand odor dispersion.
- Automated alarms and notifications.
- Historical data analysis and reporting.
- Scalable platform for future AI and predictive analytics.



Project Benefits

The monitoring network provides significant operational and environmental benefits. It enables earlier identification of odor events, supports faster investigations, improves communication with regulators, enhances confidence among tenants and neighboring communities, and provides reliable environmental data that supports ESG reporting and long-term sustainability objectives.

Implementation of Success

The installation phase was successfully completed following detailed site surveys and engineering assessments. During implementation, the project team addressed field challenges such as variable electrical supply by introducing engineering solutions that ensured reliable operation of all monitoring stations. Following commissioning, all devices were integrated into the monitoring platform and verified for continuous operation.



Looking Ahead

The odor monitoring network establishes the foundation for the next generation of environmental management at SOHAR Port and Freezone. Future developments may include additional environmental sensors, artificial intelligence for automatic source identification, integration with air quality monitoring systems, predictive environmental

analytics and enhanced reporting dashboards. Through this initiative, SOHAR continues positioning itself as a regional leader in smart, sustainable and environmentally responsible industrial development.