ENGINEERED SOLUTIONS

CASE STUDY

Enhancing Safety and Compliance for a Medical Device Manufacturer with Advanced Ethylene Oxide Detection and Monitoring Systems

relevant.

FAMILY OF COMPANIES

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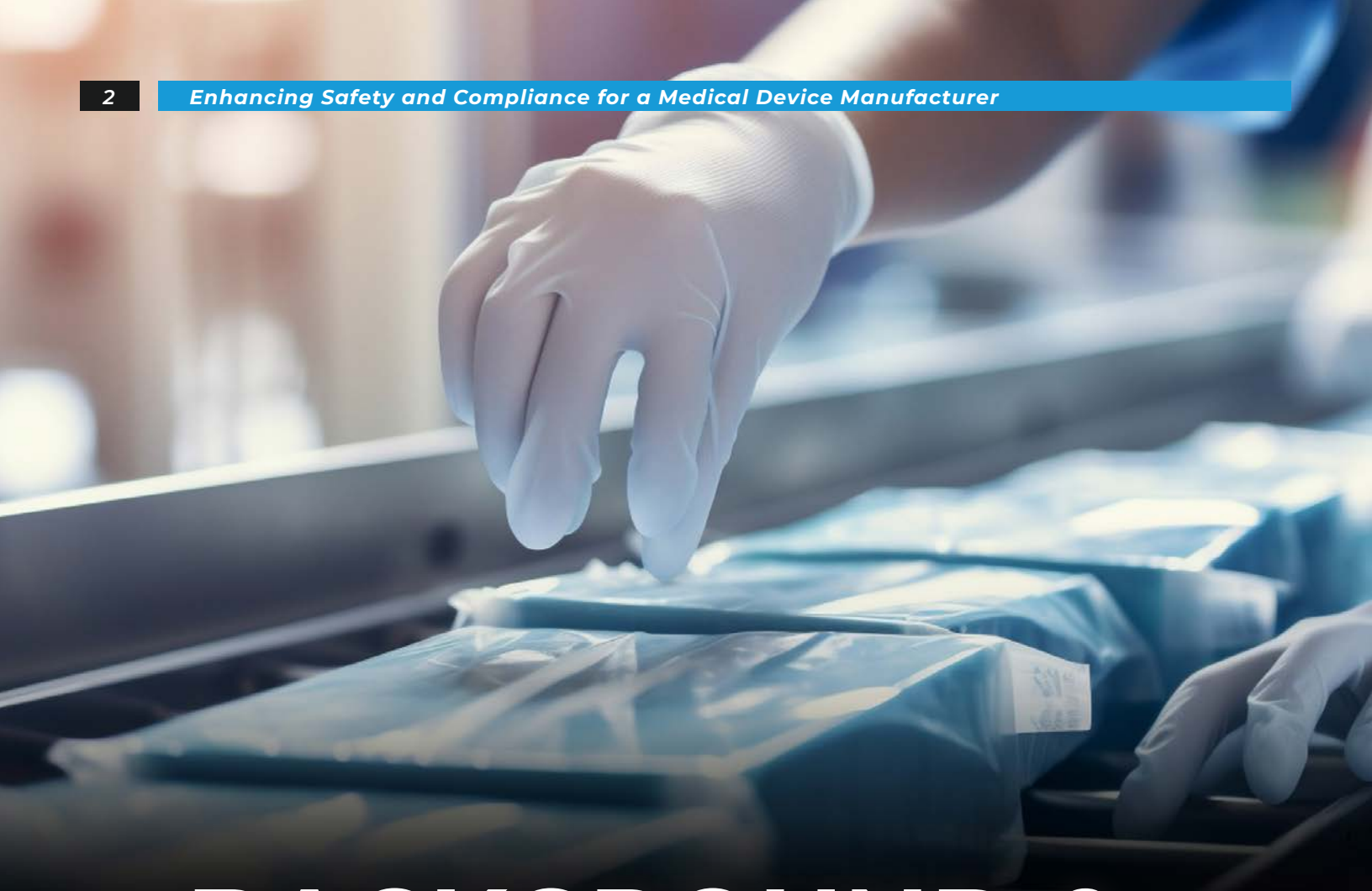


BACKGROUND & CHALLENGES

BACKGROUND

1. A Leading Medical Device Manufacturer That Produces Essential Medical Devices
2. These Devices Must Be Sterilized Before Packaging to Ensure They Are Safe for Hospital Use

CHALLENGE

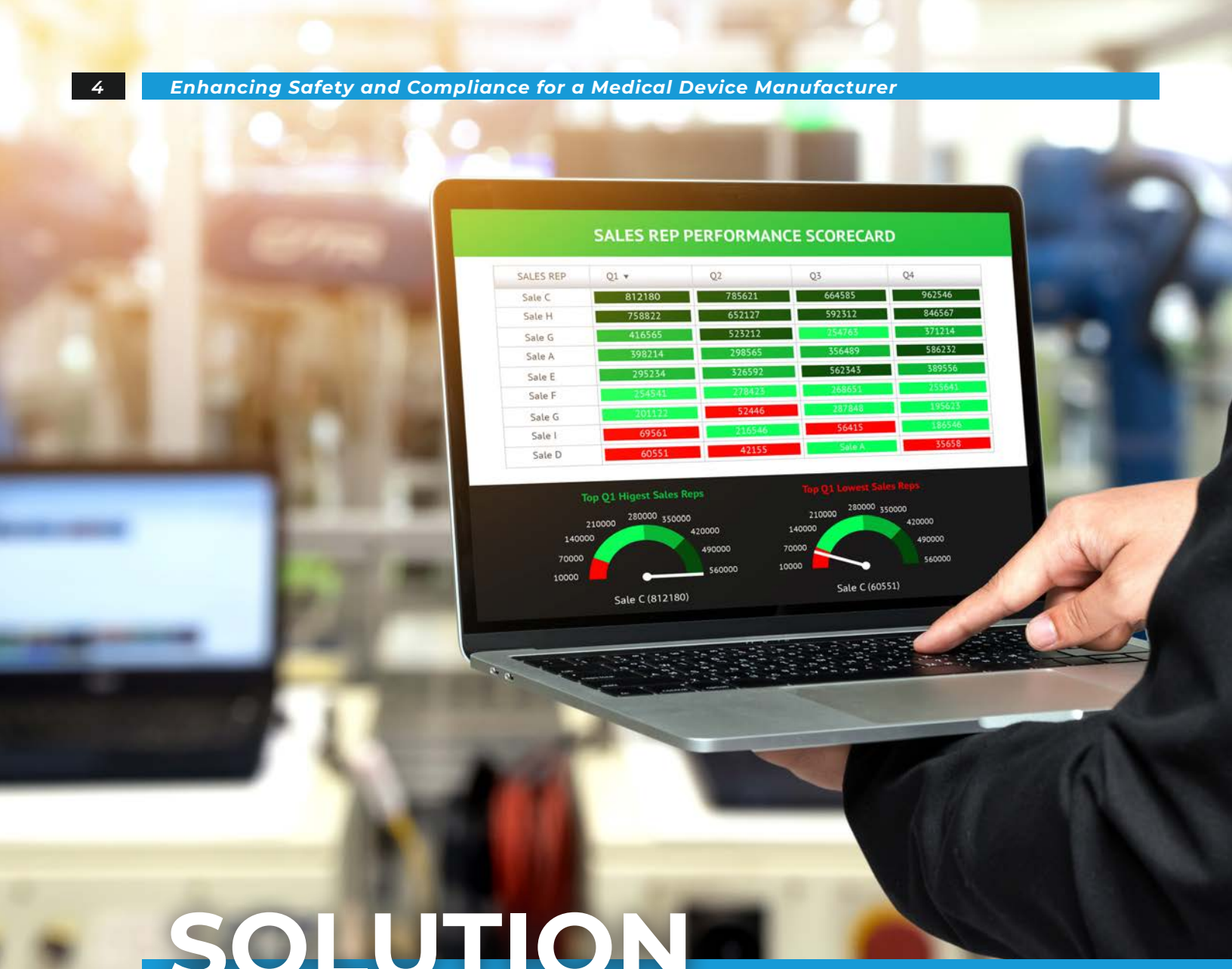
1. Ethylene Oxide is a Potent Sterilant But Poses Significant Safety and Environmental Risks
2. Client Needed a Comprehensive Safety System to Monitor EtO Levels to Stay Within Safety and Regulation Standards.

BACKGROUND

Our client, a leading medical device manufacturer, produces essential medical tools such as catheters, IV needles, and stents. These devices must be sterilized before packaging to ensure they are safe for hospital use. The manufacturer utilizes ethylene oxide (EtO) for sterilization due to its effectiveness in eliminating germs, despite its hazardous nature.

CHALLENGES

Ethylene oxide is a potent sterilant but poses significant safety and environmental risks. It is a carcinogen and a reportable substance under EPA regulations. Our client needed a comprehensive safety system to monitor EtO levels to prevent leaks, ensure worker safety, and maintain compliance with environmental regulations. Initially, they sourced EtO detectors from another vendor but soon realized that a complete monitoring and notification system was also essential.



SOLUTION

The manufacturer approached our team, recognizing our expertise in automation, scada, alarming, and safety systems. We proposed a multi-phase project to integrate a comprehensive monitoring and alarm notification system. The project was executed in three phases to align with the client's budget and operational needs.

1. SCADA System Development
2. PLC Integration
3. Local Annunciator Boxes

01 SCADA SYSTEM DEVELOPMENT

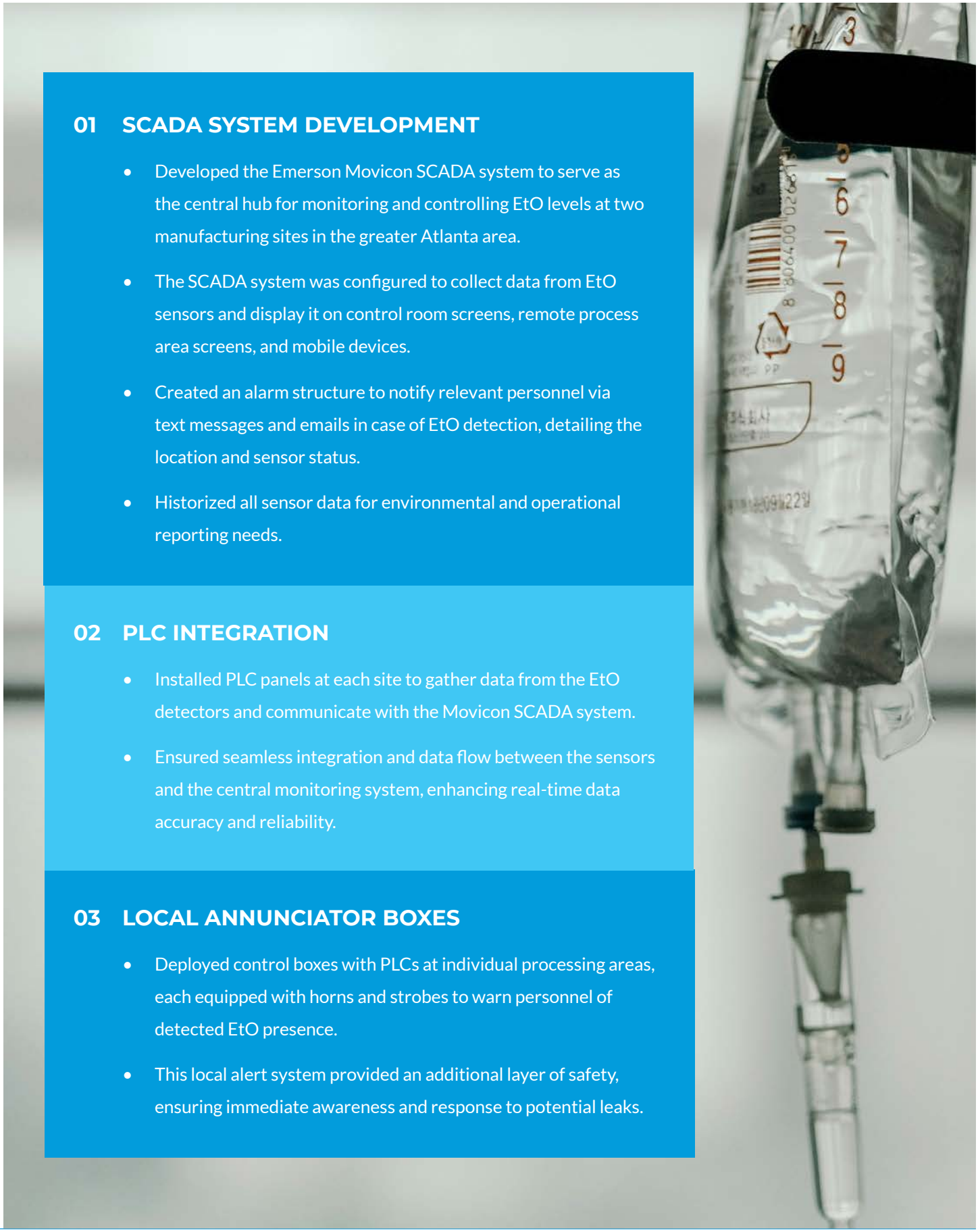
- Developed the Emerson Movicon SCADA system to serve as the central hub for monitoring and controlling EtO levels at two manufacturing sites in the greater Atlanta area.
- The SCADA system was configured to collect data from EtO sensors and display it on control room screens, remote process area screens, and mobile devices.
- Created an alarm structure to notify relevant personnel via text messages and emails in case of EtO detection, detailing the location and sensor status.
- Historized all sensor data for environmental and operational reporting needs.

02 PLC INTEGRATION

- Installed PLC panels at each site to gather data from the EtO detectors and communicate with the Movicon SCADA system.
- Ensured seamless integration and data flow between the sensors and the central monitoring system, enhancing real-time data accuracy and reliability.

03 LOCAL ANNUNCIATOR BOXES

- Deployed control boxes with PLCs at individual processing areas, each equipped with horns and strobes to warn personnel of detected EtO presence.
- This local alert system provided an additional layer of safety, ensuring immediate awareness and response to potential leaks.



RESULTS & FUTURE PLANS

RESULTS

1. Improved Safety and Compliance
2. Operational Efficiency
3. Financial Savings

FUTURE PLANS

1. Further Collaboration With Client
2. Extend the SCADA System to Other Areas

RESULTS

The implemented system significantly enhanced the client's ability to monitor and manage EtO levels, ensuring compliance with safety and environmental regulations. Key benefits included:

01 IMPROVED SAFETY AND COMPLIANCE

The comprehensive monitoring system reduced the risk of undetected EtO leaks, protecting workers and meeting EPA and OSHA standards.

02 OPERATIONAL EFFICIENCY

Real-time data and alerts enabled swift response to potential hazards, minimizing downtime and operational disruptions.

03 FINANCIAL SAVINGS

By preventing fines and enhancing operational safety, the client avoided substantial financial penalties and improved overall cost-efficiency.

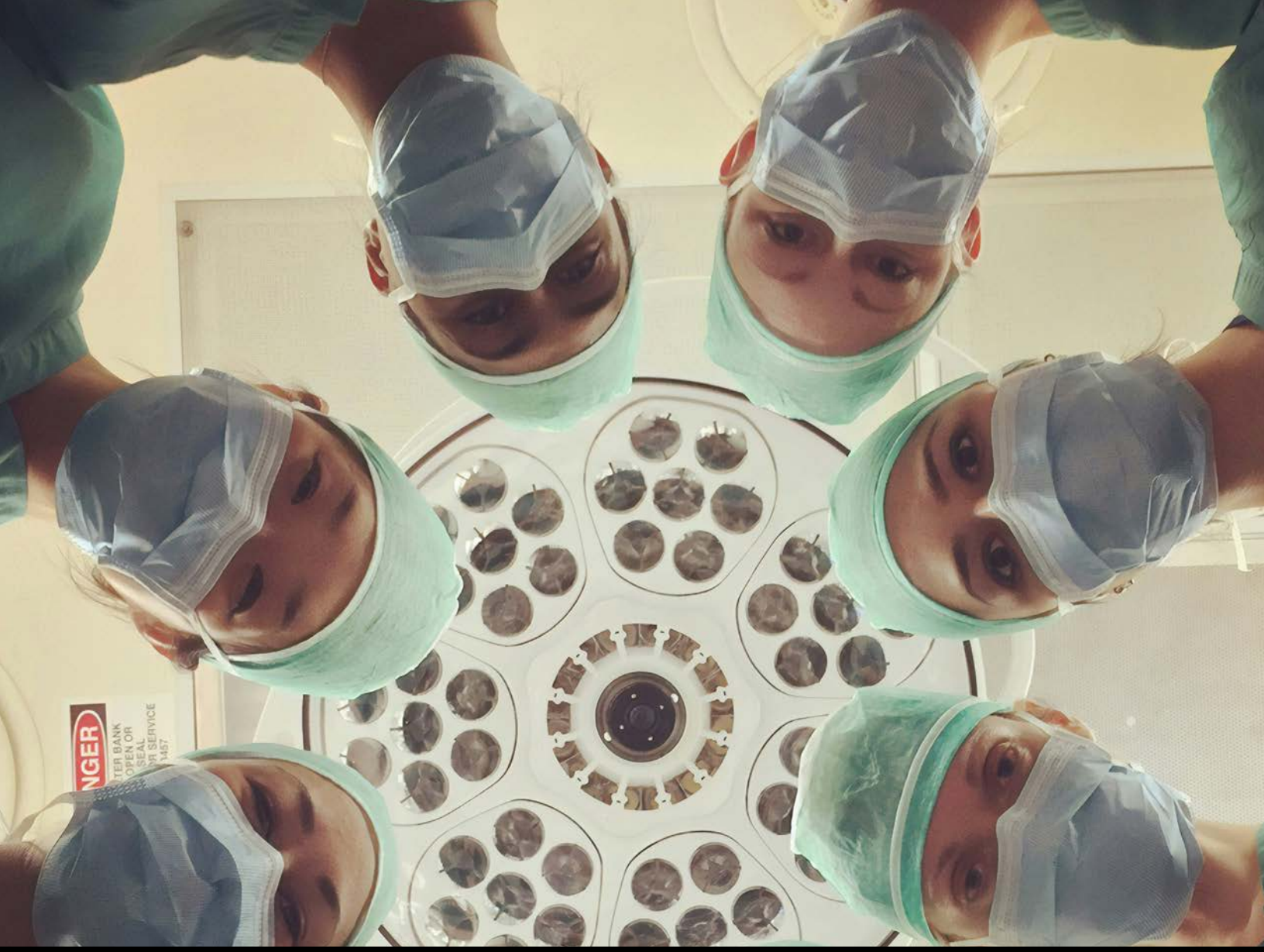
FUTURE PLANS

The client's successful implementation of the EtO monitoring system has paved the way for further collaboration. Plans are in place to extend the SCADA system to other critical areas, including the RTO and boiler room, transforming it into a plant-wide monitoring system.

CONCLUSION

This case study highlights the importance of advanced detection, intelligent alarming, and monitoring systems in managing hazardous substances like ethylene oxide. Through our expertise and complete solutions, we enabled the client to enhance safety, compliance, and operational efficiency. As this manufacturer continues to expand its monitoring capabilities, our partnership demonstrates the value of integrating sophisticated automation systems in industrial environments.

For more information on how our solutions can enhance safety and compliance in your operations, please contact us to discuss your specific needs and challenges.



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