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REDEFINING RESOURCES

CASE STUDY
Manufacturing Industry

DFPCL Monitors NH_3 and Noise Levels at Taloja Plant with Oizom's AQBot

INTRODUCTION: Driving Compliance and Worker Safety at DFPCL's Taloja Plant

Deepak Fertilisers and Petrochemicals Corporation Ltd. (DFPCL) is one of India's leading producers of industrial chemicals and fertilizers. With a strong presence across sectors like agriculture, mining, and pharmaceuticals, DFPCL is committed to sustainable manufacturing, employee safety, and environmental stewardship.

DEEPAK FERTILISERS AND PETROCHEMICALS CORPORATION LIMITED

As part of its ongoing compliance and workplace safety initiatives, DFPCL partnered with Technovalue Solutions Pvt. Ltd. and Oizom to install real-time ambient monitoring systems at its Taloja plant in Raigad, Maharashtra. In January 2025, they installed two AQBot NH_3 monitors and two AQBot Noise monitors, enhancing the plant's ability to track and control emissions and sound levels in line with regulatory standards.

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THE CHALLENGE: Monitoring Critical Parameters in a Complex Manufacturing Setup

Operating in the fertilizer industry involves dealing with sensitive gases and high-capacity machinery. For DFPCL, keeping ammonia emissions and noise levels within permissible limits was essential not just for compliance but also for ensuring a safe and productive work environment.

1. **Managing High Noise:** The machinery used in fertilizer manufacturing must operate under 70 dB, as per industrial guidelines. Continuous noise measurement was necessary to ensure long-term compliance.
2. **Controlling (NH_3) Emissions:** As a by-product of several chemical processes, ammonia levels need to be monitored closely to avoid exposure risks and meet environmental regulations.
3. **Sensor Accuracy and Calibration:** DFPCL required high-range, well-calibrated sensors capable of performing reliably in an industrial environment with fluctuating emission levels.
4. **Remote and Continuous Monitoring:** The environmental team needed online access to real-time data with the ability to track threshold breaches instantly.
5. **Fast Response Time for Safety Events:** A reliable alert system was crucial for taking quick action in case of any deviation in noise or NH_3 levels.
6. **Reliable Onsite Support:** Given the industrial scale and safety standards, having access to fast technical support and system calibration was a critical requirement.

These challenges required a robust, integrated monitoring solution that could deliver real-time data, enable proactive responses, and support regulatory readiness at all times.

THE SOLUTION: Real-Time Monitoring for Better Environmental Control

To address these challenges, DFPCL implemented Oizom's AQBot range of environmental monitoring devices, supported by Technovalue's deployment expertise. The solution was customized to deliver accurate data, seamless reporting, and automated alerts for both NH_3 and noise.

1. **Targeted Deployment Monitors:** Two AQBot NH_3 and two AQBot Noise units were installed strategically across emission-critical and high-noise areas of the plant.
2. **High-Range Sensors:** Each device came factory-calibrated with support for on-field recalibration, ensuring accurate readings even under variable conditions.
3. **Instant Data Access:** All devices were connected to Oizom's cloud platform, enabling DFPCL teams to view real-time data and trends remotely.
4. **Configurable Alerts for Compliance Management:**

INSTALLATION DETAILS

2 UNITS of **AQBOT NH_3 & AQBOT NOISE**

Custom thresholds for both ammonia and noise helped automate alerts, so the team could take action before limits were exceeded.

5. **Integration with Internal Audit Systems:** Data export features and log continuity made it easy to generate reports for compliance audits and internal reviews.

The installed system not only fulfilled DFPCL's monitoring goals but also introduced a level of automation and data visibility that improved overall plant efficiency and regulatory confidence.

THE TRANSFORMATION: Turning Monitoring Data into Actionable Insights

The implementation of real-time noise and ammonia monitoring has significantly improved environmental oversight at DFPCL's Taloja facility. The data generated by the devices has helped the team optimize operations and maintain a safe, compliant work environment.

1. **Real-Time Compliance:** The system ensures that plant operations remain within defined noise and ammonia limits, thereby reducing exposure risks and enhancing regulatory adherence.
2. **Easy Access to Logs for Internal Audits:** Plant managers can now pull historical reports directly from the platform, saving time and enhancing accuracy during audits.
3. **Quicker Responses:** Instant alerts enable safety officers to act in real-time, preventing minor issues from escalating into larger hazards.
4. **Streamlined Operations:** With automated reporting and threshold monitoring, the system has reduced manual tasks and improved process control.
5. **Performance Analytics:** Environmental trends help identify patterns and optimize equipment operation, leading to improved resource utilization and enhanced machinery maintenance.
6. **Proactive Monitoring:** The system introduces a new level of control and transparency, providing leadership teams with the confidence that environmental standards are being consistently upheld.

By turning environmental data into actionable insights, DFPCL has created a smarter, safer manufacturing setup that aligns with its long-term goals for compliance and sustainability.

BROADER IMPACT: Building a Scalable Model for Industrial Monitoring

Beyond solving immediate compliance needs, this deployment supports DFPCL's broader objective of responsible and sustainable chemical manufacturing. The solution lays a strong foundation for replicable and scalable monitoring across other facilities.

1. **Stronger Environmental Responsibility:** The system enhances DFPCL's commitment to worker safety and environmental protection, both of which are central to its ESG goals.
2. **Consistent Alignment with National Standards:** Real-time monitoring keeps operations well within the noise and gas emission norms set by Indian environmental bodies.
3. **Transparent Reporting for Stakeholders:** The solution enables clear communication of

performance with regulators, partners, and internal stakeholders.

4. **Reduced Risk of Non-Compliance Penalties:** Continuous monitoring and automated alerts minimize the chance of breaching environmental regulations, reducing legal and financial exposure.

The project has set a precedent for effective, scalable monitoring in the fertilizer sector. With support from Oizom and Technovalue, DFPCL has demonstrated how data and technology can create long-term value in industrial operations.

CONCLUSION: *Setting New Standards in Industrial Compliance Monitoring*

By deploying Oizom's AQBot NH_3 and Noise monitoring solutions, DFPCL's Taloja facility has enhanced both its compliance posture and operational intelligence. Backed by strong technical support and continuous monitoring, the project is a benchmark in using real-time data to ensure regulatory safety, worker well-being, and sustainable operations.

Oizom is a company specializing in environmental monitoring solutions. They offer products to monitor air quality, weather conditions, and other environmental factors. Utilizing advanced sensor technology and data analytics, Oizom aims to provide actionable insights for construction, industrial compliance, and community awareness. Their solutions can be applied in various sectors including government, industries, and community initiatives.