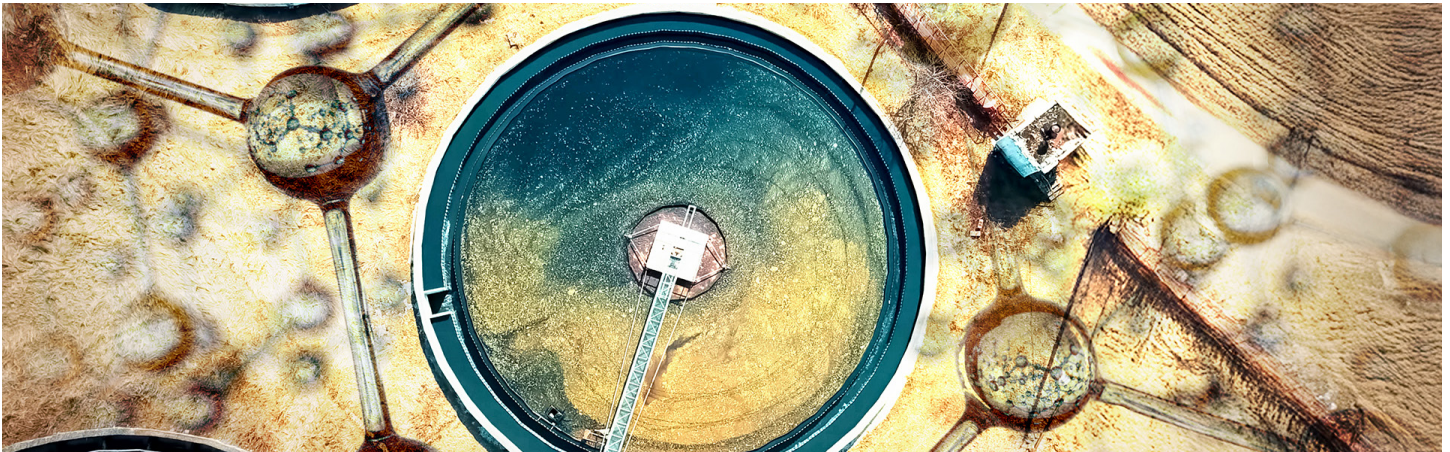


# Navigating New BWON Rule Enforcement Strategies

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The U.S. Environmental Protection Agency (EPA) has introduced a novel enforcement approach for the Benzene Waste Operations NESHAP (BWON) rule, leveraging advanced optical gas imaging (OGI) technology. This cutting-edge technology has revolutionized the process of detecting vapor leaks from waste management systems, providing real-time images based on the infrared signatures of volatile organic compound (VOC) vapors. Unlike traditional handheld vapor leak detection instruments, OGI cameras offer a more efficient and comprehensive method for identifying fugitive emissions.



OGI technology allows EPA inspectors to detect intermittent leaks from multiple points over time, something that was challenging with older methods. Traditional leak detection techniques involved examining individual potential leak points using handheld VOC analyzers, a time-consuming and labor-intensive process. With OGI, inspectors can now swiftly train cameras to scan entire units to detect multiple leaks, significantly improving the accuracy and speed of detecting leaks. This advancement has expanded the EPA's enforcement capabilities, enabling more thorough and frequent inspections.

## Implications for Established BWON Compliance Programs

The introduction of OGI technology has significant implications for facilities with established BWON compliance programs. Many facility owners and operators are now facing increased scrutiny, as the new enforcement approach can uncover compliance

issues that were previously undetectable. Even facilities that have long adhered to the BWON standards may find themselves vulnerable to violations under the new inspection regime.

The consent decree settlements involving the EPA, the U.S. Department of Justice (DOJ) and several petroleum refiners illustrate the impact of the updated enforcement strategy. These settlements have resulted in substantial civil penalties and mandated capital investments that go beyond mere compliance with the rule. The financial and operational burdens imposed by these settlements highlight the necessity for facilities to reassess and potentially enhance existing compliance programs.

## Challenges in Wastewater Treatment Compliance

Achieving consistent no detectable emissions (NDE) compliance in wastewater treatment units remains a significant challenge, particularly for older facilities. The EPA's stricter enforcement of the

BWON NDE standard has prompted many facilities to undertake major capital projects aimed at improving wastewater management systems. Older units, such as separators and tanks, were not originally designed to prevent detectable emissions across the entire operating pressure range, making compliance inherently difficult.

OGI cameras have proven effective in detecting intermittent vapor leaks from various components, including relief valves, overhead vapor collection systems and seam gaskets. However, fixing one leak can often result in shifting emissions to other components, necessitating detailed NDE assessments. These assessments help facilities understand the fundamental drivers of leaks and develop effective solutions, which may include replacing entire units. The EPA's skepticism toward traditional leak detection and repair strategies underscores the need for comprehensive and innovative approaches to maintaining long-term compliance.

## Recent Consent Decree Settlements and the Resulting Impact

The EPA's new enforcement approach has led to several high-profile consent decree settlements, which have set a precedent for future compliance expectations. These settlements typically involve large initial fines, multiple capital projects and aggressive implementation timelines backed by stringent penalties for noncompliance. The financial implications of these settlements are substantial, with several recent civil penalties ranging from \$19 million to \$40 million and mandated capital investments reaching up to \$250 million.

Facilities involved in these settlements are often required to invest in new benzene strippers, upgrade monitoring systems and improve operational practices. Compressed timelines for project implementation add an additional layer of complexity, as operators must quickly execute engineering projects, replace wastewater units, and design and install upstream benzene removal systems. These requirements highlight the need for facilities to adopt proactive strategies to mitigate enforcement risks and manage compliance costs effectively.

## Strategies for Managing Compliance Risks

To navigate the complexities of the new BWON rule enforcement, facilities must adopt a multifaceted approach to compliance management. Developing a robust compliance strategy involves several key steps:

- **Comprehensive evaluations.** Facilities should conduct thorough evaluations of waste management systems, tailoring solutions to the unique operational profiles. This includes assessing components and pathways for benzene removal and considering various upstream treatment options.
- **Internal and external collaboration.** Effective compliance management requires collaboration between internal teams

and trusted suppliers. Aligning on a clear, data-backed plan before engaging with regulatory agencies is crucial for successful negotiations and project execution.

- **Timely implementation.** Facilities must prioritize efficient project execution and scheduling as consent decree implementation deadlines often need to be synchronized with other capital projects and turnarounds. Consent decree implementation may involve project execution in parallel with adopting new technologies, enhancing monitoring systems and improving operational practices to meet compliance deadlines.

## The Importance of a Multidisciplinary Approach

Achieving compliance with the updated BWON rule enforcement necessitates a multidisciplinary approach, involving experience in process engineering, regulatory analysis, permitting, cost estimating, procurement, and project scheduling and execution. Facilities must leverage the knowledge and experience of professionals across various disciplines to develop comprehensive and economical solutions.

A successful compliance strategy depends on effective and durable partnerships between internal teams and external suppliers. By aligning on a clear plan backed by rigorous analysis and modeling data, facilities can deploy capital efficiently and address compliance concerns proactively. This collaborative approach not only helps mitigate enforcement risks but also enhances the overall effectiveness and sustainability of compliance programs.

The EPA's updated BWON rule enforcement strategies present significant challenges and opportunities for crude oil refineries and organic chemical manufacturing facilities. By understanding the implications of these changes and adopting a proactive, multidisciplinary approach, facilities can navigate the complexities of compliance and manage risks effectively. This educational overview underscores the importance of innovation, collaboration and thoughtful planning in achieving long-term compliance with the BWON rule.

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