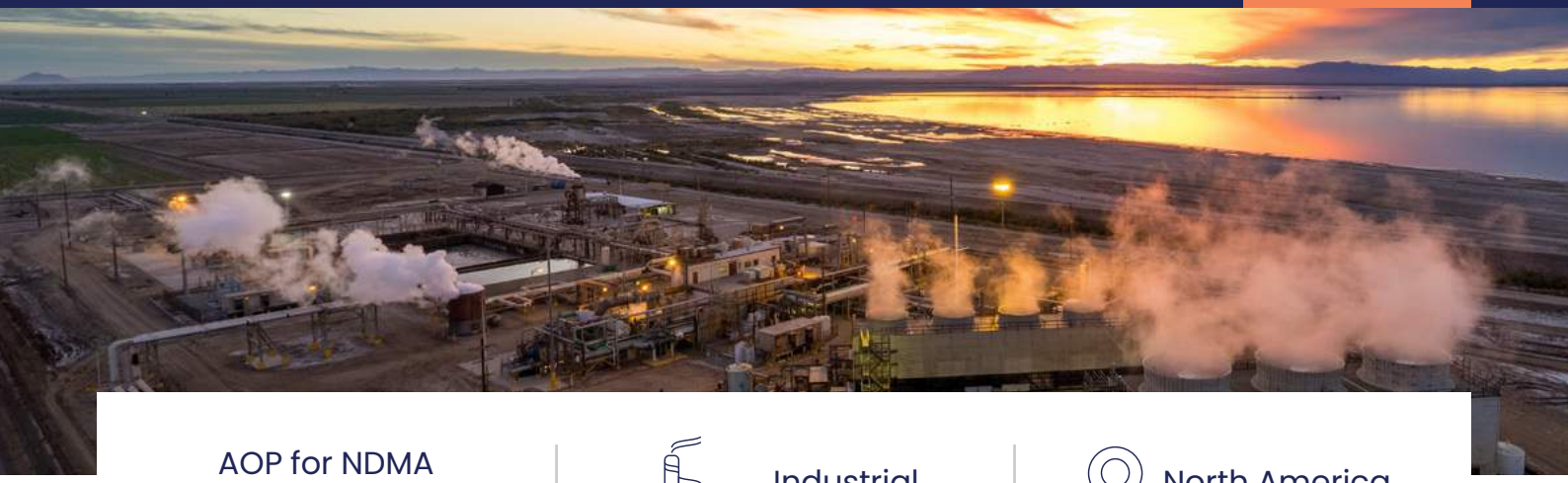


AOP for NDMA Removal

Industrial

North America

NDMA Removal for a Large, Industrial Facility in California

The Challenge

An industrial facility in California engaged in a production process that resulted in the contamination of the surrounding area with N-nitrosodimethylamine (NDMA), a compound known for its high toxicity and carcinogenicity even at extremely low concentrations.

NDMA, classified as a potent environmental contaminant, poses severe risks to public health, particularly in sub-micromolar (sub-ppb) concentrations. The facility was under significant regulatory pressure to mitigate this hazardous issue and comply with strict environmental standards.

Traditional methods, including activated carbon, air stripping, and reverse osmosis, proved inadequate in effectively removing NDMA from the water. Initially, the facility installed low-pressure (LP) UV systems in an attempt to degrade NDMA through UV-photolysis - a process where chemical contaminants like NDMA are exposed to direct ultraviolet (UV) light and broken down into harmless constituents. However, the results were insufficient due to the limitations of LP UV technology, particularly in achieving the required level of NDMA degradation.

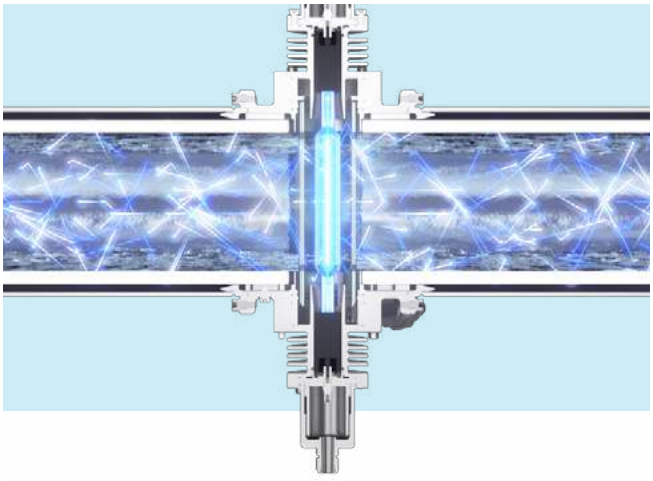
Recognizing these limitations, the facility reached out to Atlantium for a more effective solution. It became clear that only medium-pressure (MP) UV systems, with their ability to generate a broader spectrum of UV light, could achieve the necessary NDMA degradation to ensure compliance with environmental regulations.

The Solution

To address the facility's contamination issue, Atlantium proposed an advanced solution that combined UV-photolysis with elements of the Advanced Oxidation Process (AOP). The RZB Series HOD™ (Hydro-Optic Disinfection) UV system was installed, utilizing medium-pressure (MP) lamps that emit a polychromatic UV light spectrum (200–410 nm), which is essential for effectively breaking down NDMA and other complex contaminants.

This approach not only directly photolyzed NDMA but also enhanced AOP by generating hydroxyl radicals from oxidizing agents like hydrogen peroxide, further degrading the contaminant into harmless byproducts.

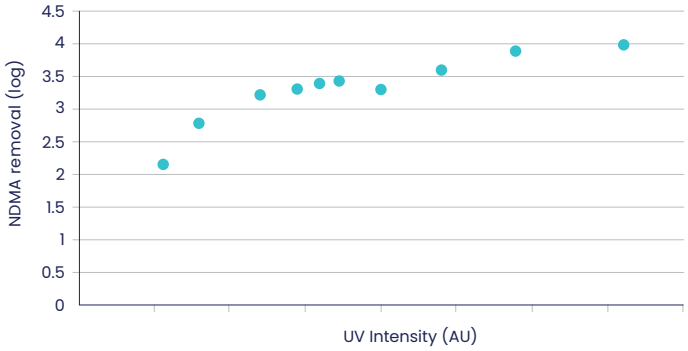
The system's Total Internal Reflection (TIR) technology maximized UV efficiency, reduced operational costs, and ensured compliance with strict environmental standards, providing a comprehensive remediation strategy that successfully eliminated NDMA and protected public health.



Results

Following the installation of the HOD UV system, the facility achieved significant reduction in NDMA concentrations. The HOD UV technology treated influent NDMA reducing them to below the discharge detection limit of 2ppt. This not only ensured compliance with environmental regulations but also positioned the facility as a responsible and proactive entity.

Results of AOP degradation



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About us

For more than two decades, Atlantium Technologies has helped to ensure water safety with its innovative HOD™ (Hydro-Optic Disinfection) UV technology and novel approach to performance, monitoring, and control. Atlantium's superior, environmentally friendly water treatment solutions ensure stable, efficient, and dependable production.

With thousands of full-scale installations for leading brands in various industries globally, we're committed to consistently meeting our customers' water quality needs, ensuring pure results.

Pure Performance

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