

CASE STUDY

MOUNTAIRE FARMS



SITUATION

- The wastewater facility servicing the Company's Millsboro processing plant uses a continuous process reactor and discharges to 900 acres of Company-owned cropland using spray irrigation.



COMPLICATION

- Organically overloaded and unable to address the influent's biological oxygen demand or achieve denitrification, the wastewater facility was consistently challenged to achieve permit requirements before discharging to land, damaging the Company's brand and reputation within the community.
 - Insufficient aeration within the treatment basin + oxidation ditch deteriorated to the point of non-function due to a build-up of solids.
- Legal suit from Millsboro residents for allegedly contaminating groundwater with nitrates.
- Consent decree from the regulatory authority—achieve treatment requirements of discharge permit or shut-down production until a new treatment facility is constructed.



RESOLUTION

- Replaced mechanical surface aerators with SDOX® technology to fulfill the oxygen needs of the various biological treatment processes without interrupting operations. (See figure 1.)
 - Retrofit two containerized SDOX® systems each delivering 8,000-to-9,000 lbs. of oxygen per day.



BENEFITS



- Biomass in the treatment basin increased by 533%.
- Improved treatment—from zero to complete nitrification + virtually 100% removal of ammonia.
- Forego/postpone construction of a larger treatment basin, a \$38 million capital expense.
- Operating within permit requirements.



- Addressed community concerns while maintaining production.
- Enhanced health and safety by virtually eliminating electrical maintenance activities within the treatment basin and the production of aerosols associated with conventional aeration.



- Enhanced water quality discharged to land.
- Enhanced quality of ground water.



Figure 1: Increase Capacity without Disrupting Operations. The side-stream dissolution process of the SDOX® solution enabled Mountaire Farms to retrofit significant treatment capacity to overloaded treatment basins without disrupting operations. The side-stream process draws influent up-and over the basin wall into the SDOX® system and then returns the supersaturated solution back to the basin.



ECONOMIC/OPERATIONAL

- Increased capacity
- Improved treatment
- Superior process control
- Reduced maintenance costs
- Reduced energy costs
- Reduced operating- + brand-risk
- Operational continuity
 - Retrofit without interrupting operations
 - Perform most maintenance outside the basin without heavy equipment



SOCIAL/COMMUNITY

- Enhanced worker health + safety
 - Reduce/eliminate electrical maintenance within the basin
 - Eliminate exposure to aerosols generated using conventional aeration
- Enhanced social license
- Enhanced community health + wellness



ENVIRONMENTAL

- Improved water quality
- Reduced energy use + greenhouse gas emissions

