NELSON, MICHAEL L.[1]* and VIDYASAGAR SUNKAVALLI[2], USP Technologies, 900 Circle 75 Parkway, Suite 1330, Atlanta, GA 30339 and [2]SMBSC, 83550 County Road 21, Renville, MN 56284. **A review of SMBSC's hydrogen peroxide dosing program for hydrogen sulfide emissions control within condenser water and high-strength water stabilization ponds.**

SMBSC's facility is subject to a seasonal H_2S limit of 30 ppb along the property line, set by the Minnesota Pollution Control Agency. Complying with this limit presents a challenge since excess condenser and high-strength water from factory operations must be stored on-site for a period of time due to the facility's NPDES/SDS (National Pollutant Discharge Elimination System/State Disposal System) permit allowing only seasonal discharge of the treated water. Storing water with high organic loading could cause potential for H_2S generation. Due to the nature of industry (food), potential chemical H_2S control methods are limited to those designated Generally Recognized As Safe (GRAS) by the American Food and Drug Administration. Since 2014, hydrogen peroxide has been implemented as the primary control method, dosed across the surface of the ponds when needed using the Peroxidon™ program developed by USP Technologies. In this approach, a mixture of pond water and hydrogen peroxide is pumped across floating dosing lines spanning the entire length of the pond. With this oxygen-rich mixture distributed onto the surface of the pond, a layer of oxygenated zone (typically few inches) is maintained where sulfides are oxidized to elemental sulfur before they can volatilize into the air. Furthermore, hydrogen peroxide effectively decomposes into dissolved oxygen in the presence of naturally-produced catalase enzyme. Dosing rate decisions are guided by near daily data collected by technicians on-site. Monitored parameters include liquid and vapor phase sulfides, dissolved oxygen, oxidation-reduction potential, iron, chemical oxygen demand, pH, water temperature, residual peroxide, precipitation, wind speed and direction, and air temperature. Applying this strategy and when the system is continually dosing, hydrogen sulfide emissions could be controlled and maintained below the limit.