Problem Solver: Pacific Northwest Regional Wastewater Authority

LS Installed System: FLD-60-15-H (Phantom II Omni)

Problem: A Pacific Northwest regional wastewater authority provides wastewater collection, and owns, operates and has maintenance responsibility for a regional treatment plant.

In mid-2013 the authority was receiving a large volume of odor complaints from residents living around the lift station, located directly upstream from the plant, and was experiencing elevated odor levels in the plant as well.

Analysis: The authority requested that Anue Water Technologies conduct a system demonstration, which was completed in August of 2013 to determine if ozone & oxygen treatment at the lift station could effectively treat the odor issues at the lift station and the plant.

Pre-demonstration data collection showed that the odors at the lift station were not being caused by aqueous or vapor phase sulfides but most likely due to elevated levels of mercaptans, sulfur-containing organic compounds that smell like rotting cabbage.

Solution: ANUE set up a demonstration pilot using one of their portable MDU trailers for the first test site. An H_2S baseline was established by ANUE prior to beginning treatment with on-line monitoring using odaloger instruments installed in / around the lift station – levels ranging from 75ppm to 250ppm. The plant had been experiencing frequent odor complaints – in many cases daily especially during the summer months from local residents. Ozone & oxygen treatment was delivered through two Anue HydroSpear conditioning heads in the wet well at the lift station from August 26-30. Soon after the beginning of the demonstration the local odors at the lift station vanished and complaints from local residents ceased – a marked decrease in odor at the plant occurred as well.

Based on the successful results of the system demonstration, Anue recommended the installation of a Phantom FLD-60-15-H wet well system at the lift station to deliver continuous ozone and oxygen treatment to the effluent at its final stop before entering the treatment plant.

Results: The Anue Phantom system which was installed in April 2014 and has been providing the same level of odor abatement as the demonstration system since startup. The authority was so impressed by the performance of the Anue Phantom that they have standardized on it as the odor control treatment system for all future lift station projects within their jurisdiction.

The Phantom ozone pilot was commissioned with ANUE's Hydrospear vapor scrubbing system. H_2S levels dropped immediately to single digit levels and were maintained <10ppm for several weeks. After two 2 weeks of successful odor control – and no odor complaints - the Phantom was shut down to determine if the H_2S problem would reoccur. Within 24 hours the plant received calls regarding 'what happened' and why the odor was back again. The pilot trailer was recommissioned and continued in service until a replacement permanent system could be delivered and installed. The operational duty cycle for a Phantom lift station program averages about 50% - and is tailored specifically for each station based on the severity of the odor problem – at specific times of the day that odor occurs. In general, weekends and night time operations require less Phantom treatment based on limited flow through the station. Industrial connections (especially restaurants and food and beverage operations) to the municipal collections system can also cause changes in the demand for odor control at various times of the week – or when clean in place (CIP) procedures are underway. The average annual maintenance costs for the system are less than $1000 per year. Another benefit of the decreased odor at the treatment plant is the reduced run time of the blowers, which has resulted in a savings of $2,000 to $3,000 per month in energy costs.