

LIFT: Working Together to Advance Innovation

Award for Excellence in Innovation recipients the Metropolitan Water Reclamation District of Greater Chicago (Chicago-MWRD) and the Metro Wastewater Reclamation District in Denver (Denver-MWRD) joined the newly formed LIFT-Technology Evaluation Program (LIFT-TEP) in 2012.

LIFT helps utilities share in conducting demonstrations of new technologies. The program affords participating utilities a platform to directly communicate, collaborate, pool resources, and discuss the experiences in research and initiatives of common interest. The first technology area of interest identified by LIFT-TEP members was sidestream deammonification and both of the MWRD utilities had individually begun to explore this technology.



DEMON pilot reactor at Chicago-MWRD.

return ammonia loads so that centrate management could remain at the Egan WRP site without impact on effluent ammonia concentrations.

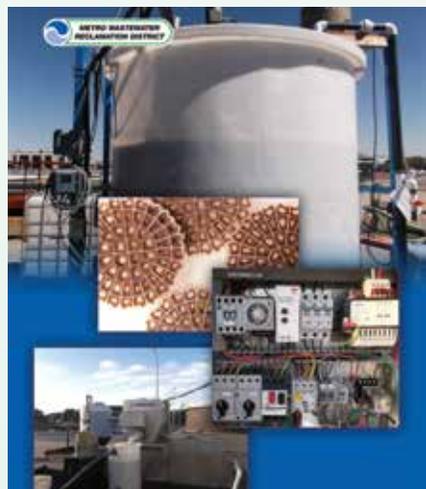
Concurrently, Denver-MWRD, who had implemented sidestream treatment strategies at its Robert W. Hite Treatment Facility several years prior, was beginning to investigate the potential to integrate deammonification into sidestream treatment facilities. Denver-MWRD was interested in investigating sidestream deammonification for its potential benefits toward compliance on tighter effluent ammonia and nitrogen limits, as well improved performance reliability of enhanced biological phosphorus removal in the main process.

Chicago-MWRD pursued the DEMON® technology and scheduled pilot testing of the process on its centrate stream beginning in September 2012. Chicago-MWRD was attracted to this technology due its maturity and energy efficiency with the intention to investigate ANITA™ Mox soon after. Denver-MWRD pursued the ANITA™ Mox technology and scheduled pilot testing on its centrate stream starting in September 2012 as well.

During a 2012 WERF web seminar, a number of utilities discussed their interest in deammonification or actual demonstration projects. Both Denver-MWRD and Chicago-MWRD highlighted their respective pilot studies and realized their common interest. The connection through LIFT-TEP helped the utilities align efforts and leverage benefits from each other's studies. Denver-MWRD

and Chicago-MWRD initiated reoccurring personal communication and information sharing from their respective studies and participated in one another's studies. Through status meetings, phone calls, and email, the two utilities were able to discuss pilot study direction and design criteria, operational guidelines and problems, process control, infrastructure needs, system robustness, and overall performance.

Chicago-MWRD and Denver-MWRD continued to share study progress into 2013 until both studies were completed. Both utilities can now use each other's information to support the basis of proceeding with deammonification and technology selection. From the studies, both utilities were able to compare operating requirements, reliability of performance, volumetric efficiency, and control strategies of the two technologies. From the collaborative effort on technology evaluation, Chicago-MWRD is moving forward with the design and implementation of a full-scale ANITA™ Mox process at its Egan WRP, while Denver-MWRD has benefitted from the efficiency of technology evaluation. Through shared participation in the studies, both utilities were able to reduce research costs and "stretch" resources while accelerating the rate of understanding, building of confidence, and implementation of new technologies. This joint research approach allowed both utilities to realize the benefits of research and new technology on an accelerated basis.



ANITA™ Mox technology at Denver-MWRD.

Chicago-MWRD and Denver-MWRD were chosen for the Award for Excellence because they worked together to advance innovation with their sidestream deammonification pilot tests. This project was an ideal demonstration of the LIFT-TEP process being successful.

For Chicago-MWRD's John E. Egan Water Reclamation Plant (WRP), the high ammonia nitrogen load in its centrate cannot be returned to the mainstream without compromising compliance with its permit limit for ammonia. Nuisance odor issues have plagued residents along this sewer line. Chicago-MWRD began to investigate sidestream nitrogen removal technologies as a means to attenuate