Safety Training Program Fellow Profiles (2018)

Dr. Ahmed Fahmy A. Youssef

Lynn Soby, IUPAC Executive Director and Dr. Ahmed Fahmy A. Youssef, Associate Professor of Chemistry at Cairo University, Egypt, who was hosted by Bayer U.S. Crop Science in May 2015.

Dr. Youssef is a professor of analytical chemistry who also works on numerous projects in his home country of Egypt to address problems related to chemical waste management, environmental protection, and air pollution monitoring. His goal was to increase his practical knowledge of environmental process safety management programs. As a result of the Safety Training Program Dr. Youssef hoped to address the factors that make the implementation of safety programs in the Middle East recycling industry more challenging. These include language, lack of good internet access, and lack of training programs. There is also a lack of hazard awareness.

In advance of his May 2015 visit, members of the Bayer Crop Science Quality, Health, Safety and Environment (QHSE) team, Patrick Ragan, Rehan Baig, and Lennie Scott, developed a detailed agenda with a variety of training sessions and off-site visits, including a Bayer production facility in West Virginia, a local landfill waste disposal facility, and the chemical waste handling facility at North Carolina State University. He participated in spill control training, made a site visit to a hazardous waste treatment facility, and participated in a risk analysis/assessment. Dr. Youssef was invited to attend the Global QHSE North America Spring Community Meeting, where he gave a brief presentation about his work, and he attended the 11th Global Congress on Process Safety in Austin, Texas. He also paid a visit to the IUPAC Secretariat office in Research Triangle Park, North Carolina.

As a result of his training, Dr. Youssef shared photographs of the chemical storage situation in Tripoli for 70 tons on material (5000 individual chemicals). He learned that a large portion of this can be reused. During his training at Bayer Crop Protection, he learned that several valuable things can be leveraged. Upon his return to Cairo, he reviewed the student lab work
and has started replacing hazardous chemicals. They are moving to a scheme of using the prepared materials from one level as the raw material for the next level to reduce waste. He plans to work with CRDF to develop a curriculum on hazardous waste. Regarding the recycling of chemicals, there are two primary commercial programs. Hydrochloric acid can be used with calcium carbonate and rocks containing phosphorous to create dicalcium phosphate. Also, the salt can be recovered from some waste streams and reused (MgCl₂, Bromine salts, etc.). He encouraged the expansion of the program, especially for remediation for chemical contaminated areas. See Dr. Youssef’s final report for more details.