

ABB, Meriam and Olin Upgrade a Chlorine Plant

It all started by being on a salt dome, said Joe McFalls, Olin Chemical's plant manager, recounting the history of the chlorine / caustic plant and the industry it brought to McIntosh, Alabama.

By Ron Kurtz (ABB in the U.S.)

Olin, then known as Mathieson, responded to an Alabama Congressman's offer to come down and see the site where a salt dome one mile in diameter was discovered north of Mobile in the 1940s. Mathieson liked what they saw, built a plant there in 1952 and began processing the salt to produce chlorine, hydrogen and sodium hypochlorite and caustic soda. Soon thereafter other companies needing these products as feedstock for their processes put up plants adjacent to and nearby the Olin Chemicals facility.

Today, the plant is a regional supplier to industries in the southeast like the pulp and paper and the textile industries, primary users of caustic soda. The hydrogen is sent next door to Praxair where it is liquefied to be sold as an industrial gas while some of the hydrogen is used as a fuel to fire a nearby cogeneration plant owned by Alabama Power. Both caustic and chlorine are sent down the road to a McNeil plant, makers of the Splenda® brand sweetener.

Largest shipper of chlorine in N. America

Chlorine produced by the plant is also used in a variety of medical, household, water treatment, safety and national defense products. With three other, smaller chlorine / caustic plants located east of the Mississippi River, Olin has become the largest shipper of chlorine in North America.

After some 50 years, a different market evolved for the McIntosh plant. People like to talk about this as being a commodity business and we still call it a commodity business, but it is not a commodity business anymore. Customers are much more demanding and much more stringent on the specifications that chlorine and caustic need to meet, McFalls noted.

With increasing demands for more and better products and plant expansions and upgrades came an evolution of automation and control systems. At the outset the plant had an automatic control device with panel boards. Next came programmable logic controllers or PLCs, followed by a lot of software and control devices. By the late 1980s, Olin created its own distributed control system, called OMNX. OMNX was developed because there wasn't a good product on the market for continuous operating chemical plants.

Timely delivery

But maintaining and upgrading the system took time, time Olin could use elsewhere. Olin made the decision that it doesn't make sense for us to do that anymore. That's not our core business. McFalls went on to say they began evaluating systems and asked themselves who really is leading the pack? After a six-month evaluation of reliability, ease of maintenance, generation of the most benefit, support, single-source capability, who had the best setup for the long term and other criteria for each system, the McIntosh plant management and technical staff came to the conclusion that ABB offered several advantages over the others. It was ABB.

We had our 1980s vintage system, we didn't want another one, noted Phil Shoemaker, control systems technician. ABB is on what we call the technology crest. One of the reasons we chose ABB is we didn't want to have to migrate with someone while we were migrating.

Migration of the entire plant from the Olin's OMNX system, other legacy systems and a dated analog system controlling the plant's caustic evaporators to the ABB Industrial IT system will take seven years, migrating one loop at a time, on the fly to minimize downtime and lost production. We had to partner with someone who would help us migrate away from our proprietary system without having to do a full rip-out and replace, said Stephen Thomas, associate project engineer. Nobody else was willing to do that. ABB just seemed right in so many ways.

New partnership announced

According to Mark Reed, ABB's sales engineer for the facility, The McIntosh plant is now considering upgrading with the Industrial IT 800xA extended automation solution fairly quickly after it is released. It also will be adding to its control capability with the purchase of Optimize IT Asset Optimization software with a device calibration/management system.

ABB recently announced its partnership with Meriam Process Technologies, Cleveland, Ohio, and the Industrial IT enabling of its Device Management Solution (DMS). Reed noted the integration of ABB optimization products, Meriam's DMS and third party computerized maintenance management systems, or CMMS, provide an unprecedented environment for early detection of field problems and streamlined work processes for remediation activities such as recalibration of field devices by downloading specifications to a hand-held device from a PC so maintenance crews can make their rounds with the latest data.

Asked what demands on the McIntosh plant lie in the future, Joe McFalls replied, more stringent product demands and cost effectiveness. Pressures are going to continue to be there. McFalls pointed to the crucial role control systems will play in keep the facility ahead of these demands. Looking long term, who had the best setup, Joe and his staff turned to ABB.