New Paint Kitchen Improves Paint Processes

By Janet S. Gardner, Public Affairs, and Jason Nold, Directorate of Industrial Operations

Paint flows more efficiently at Letterkenny Army Depot because of a well planned and executed renovation project to install a state-of-the-art paint kitchen on the Depot.

"The business case for this project was easy, all one had to do was drive on the Depot during the height of the High Mobility Multipurpose Wheeled Vehicle (HMMWV) program in 2015," said Jason Nold, Division Chief for the Process Support Division, the division responsible for painting depot customer assets. "Trucks were lined up from one end of the building and around the back to the far side of the building waiting for a final coat of paint." This backlog of trucks was forcing other programs to miss schedules because this was the last operation before a major end item (MEI) is ready to ship out to the customer.

Planning for the project began in March 2015 with a group of depot employees visiting local private industries to observe and learn how their paint systems were set up and utilized for maximum efficiency. Nold was among the group who visited JLG, Volvo Construction and New Holland. The private industries' painting systems could easily be adapted to the depot's workload with one major difference, accommodating the application of the Chemical Agent Resistant Coating (CARC) which is an abrasive coating required on military assets.

Armed with a better understanding of how the automatic delivery systems to paint booths were set up, the group reconvened at the Depot to start work on a plan. A solid business plan was formulated to support the paint kitchen mixing room for the paint booths on depot dedicated to painting the MEIs. The contract was awarded in 2016, installation began in Dec. 2016 and by Jul. 2017, and the system was operational.

As standard practice at the Depot when planning new projects, lean was embedded into the new process which delivers paint 'ready to go' when the painters push the sprayer button. According to Nold, reducing time wasted while waiting the mandatory 20-minutes shake time per can was easy. He explained that under the new system there are individual lines for individual colors eliminating the shake time per can and the time required to flush and clean the lines. Not having to flush lines also results in minimizing wasted paint or thinners.

The new system is more labor intensive because of the required maintenance on the pumps. The CARC paint is harder on the pump system which requires the painters to have extra pumps available while other pumps are being rebuilt.

The mixing room itself is a hazardous material storage building featuring a continuous, one-piece, heavy-duty tube construction that forms both the base and sump wall for added product integrity. Exterior surfaces are protected with a high-quality, weather-resistant coating in neutral white, satin-gloss finish. Interior surfaces are protected with a chemical-resistant coating in white, semi-gloss finish. Explosion-relief vent panels are designed to release, at a maximum, internal pressure of 20 pounds per square foot. Each panel is sealed to prevent gases from escaping to the exterior. The building has an extra-large spill containment that holds 30 percent of the locker's liquid storage capacity.

From the mixing room, the liquid CARC is mixed from 55 gallon drums. All three parts of the water-based CARC product are readily available to the painter inside the paint booth itself. The Depot is currently set up for water based U.S. tan and green topcoats. Other program-specific colors continue to be mixed from single gallon containers within the mixing room. From inside the paint booth, the painter is able to adjust air flow rate based on their personal technique preferences, to compensate for weather conditions, or adjust spray assist levels. This is important for Line 1 specifically as that line is almost entirely dedicated to the route clearance vehicle (RCV)programs and completing one RCV (RG-31) per day.

The total Paint Kitchen Mixing system cost was $1.47M for the installation and construction costs. While this was a large cost for covering installation, the benefits will be realized by the Depot for years to come.

Photo 1 Cutline: Interior pump room of the mixing paint kitchen. Paint mixing takes place here as well as a self-contained storage area.

Photo 2 Cutline: The paint kitchen mixing room was constructed outside of the production areas to minimize loss of production space.

Photo 3Cutline: Paint pump mixing control center for paint mixing ratios, pump controls and paint line data