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## Pollution Prevention in Painting

Camp Dodge Paint Facility  
By Ashley Wendt



Saving time and money while keeping the health of the environment in mind has been the mission at the Camp Dodge paint facility. This objective has been accomplished, spearheaded by their environmental compliance officer, SSG Jeff Edgington, and in partnership with the Iowa Waste Reduction Center at University of Northern Iowa, and the Iowa Army National Guard's Environmental Branch. Pollution prevention control measures have been put to work and the benefits are being realized. Even throughout these very busy times, hazardous waste generation continues to be minimized and the facility's efforts are an excellent example of how the Iowa Army National Guard promotes both environmental compliance and troop readiness.

The most exciting new technology that has been utilized is the CLAWS—Closed Loop Advanced Waterjet System by the Lancorp Group, in place since Summer 2003. This paint-stripping system uses a high-pressured water jet to remove paint effortlessly without all of the hazardous waste generation produced by the baking soda blast previously used. Wastewater flowing into the drains from the paint stripping operation is sent through an extensive recycling process, which turns out clean water for the next use. Because of the closed loop feature, water is not wasted as it continuously runs through the same cycle. In the past, the paint facility disposed of 26,000 pounds of baking soda each year at a cost of almost \$17,000. In addition, to disposal costs, one in every four waste collection drums had to be tested, at \$200 per sample. The sampling costs would add up considering the facility would fill four to eight drums each month. Since 1996, when the paint facility was built, it has cost \$90,000 per year to keep it operational. Not only was the original soda blast method costly, the soda created a lot of problems for the painters and the equipment. Removing all the residual soda from cracks and crevices prior to repainting was difficult. Those expenses have been all but eliminated with the implementation of the new CLAWS process. Operating costs have been reduced to \$1,200 twice a year to replace and dispose of the two filters in the water recycling system. Every other byproduct of this process has been determined non-hazardous after repeated testing. The painters at the facility have really enjoyed the ease and simplicity of the new system saving time and money, and they are



able to concentrate more time on painting than with waste removal.

The PPS—Paint Prepping System, by 3M, is yet another innovative tool being used to decrease wasted paint. About a year ago, the paint facility converted from their



traditional metal paint cup to a disposable version. Clean up of the conventional cups wasted approximately one quart of material costing \$5 each time, however the new disposable



plastic bladders, which go into the newer cups, decrease waste to about two ounces at a cost of only \$1.50. The new system allows more of the material to be utilized yet again cutting down on waste. Liners are also being used in the pressure pots. For about six years now, a \$2.80 disposable liner is used for easy clean up. This saves the cost of using about one gallon of lacquer thinner to clean the pots. Once again, less hazardous waste is generated.

For the last six months, the facility has also begun working with a new air assisted airless high volume, low-pressure paint gun. This new HVLP gun decreases project time by 47 percent and uses 24 percent less paint material, making the painters much more efficient. SSG Edgington commented that switching from the airless to the air-assisted airless ensures they are “hitting the target much better.” The biggest savings come in the filter change-out. Because more paint material is hitting the vehicle, less is being sent airborne—eventually ending up in the paint booth’s filtration system. Before, all 64 filters had to be changed every two to three days, but now, that has been reduced to every two weeks. Filters cost \$300 per set, with even more costs because they must be disposed as hazardous waste. The reduction in filter use and disposal creates another cost savings.



A problem facing the paint facility at Camp Dodge was the mass of empty quart, gallon and five-gallon cans that were being generated. Dumpsters were quickly filled and the waste had nowhere to go but the landfill. This problem has been alleviated with the new Herkules can crushing system, which turns the waste into a useful byproduct, scrap metal. In only four months, the waste going to the landfill has already decreased and the gallon-sized cans are being crushed to about three inches in height.

CARC paints, such as the ones used on military vehicles, have a very short shelf life once opened. Highly reactive to air and humidity, the paint quickly becomes unusable because it gums up and separates. Paint, which costs around \$30 per

gallon, was thrown out because the open cans could not get used fast enough. To extend the shelf life of these paints, a new paint stirrer has been installed at the facility. The Dedoes RJ Thrift-O-Matic allows eight gallon-sized paint cans to all be hooked up to a closed agitator system at once. Even once opened, as long as the paint is attached to this system its shelf life extends from two to three days to seven to eight days. The sealed pour spout lid also keeps the can clean and minimizes the time of exposure.



Other ways the paint facility is trying to minimize waste is with viscosity cup testers and a new paint gun cleaner. Viscosity of the paint is something that must be constantly tested because of how much it varies with temperature and humidity. Using the cup testers enables them to know more precisely how much paint thinner needs to be added. This simplifies the mixing process and eliminates paint wasted when mixing was done incorrectly. The facility is also reviewing a new paint gun cleaner. The waste from the new cleaning process is heated in such a way that the solvent is cooked off and reclaimed as a cleaning solvent whereas the rest of the by-product is cooked into a cake that would then be disposed, likely as a non-hazardous waste.



To keep updated with the new technologies in the painting industry, all five painters from the facility attended a two-day Star Defense course, which was conducted by the Iowa Waste Reduction Center at the University of Northern Iowa. The University has received funding to do research on how military installations can become greener and have worked closely with implementing some of the technology into the facility that they are using today. The majority of the time was spent on teaching the painters how to spray more efficiently. They received hands-on experience and were able to test many different brands of equipment and paints. One day was spent with Sherwin-Williams working with the new water-based CARC

paints, which may become the future of painting at Camp Dodge. Working with the new product before getting it into their own shop enables them to transition into the new paint prior to it becoming a standard in their everyday life.

In a costly business, such as painting, pollution prevention is an invaluable tool to not only minimize the waste stream, but to also minimize costs. As new technologies emerge, the paint facility at Camp Dodge has seized these opportunities, making their shop more efficient and environmentally sound.