

2020 SECRETARY OF DEFENSE ENVIRONMENTAL AWARDS

INDIANA ARMY NATIONAL GUARD SUSTAINABILITY, INDUSTRIAL INSTALLATION

Surface Equipment Maintenance Facility (SEMF) 14 is one of the busiest industrial facilities for the Indiana Army National Guard (INARNG). The shop supports the INARNG's three largest density units in terms of equipment and vehicles among a total of 11 units associated with the facility. At its Lafayette facility, virtually every inch is covered by shop space and motor pool parking. With an incredibly heavy throughput, SEMF staff have recognized how valuable environmental sustainability is to operations. Their work to support more sustainable products and processes saves the shop money, time, and resources. At the same time, the shop has been a proving ground for new sustainability initiatives that can then be rolled out to other industrial sites throughout the state.

-  Program Management
-  Technical Merit
-  Orientation to Mission
-  Transferability
-  Stakeholder Interaction
-  Program Impact



One of the most successful sustainability projects for SEMF 14 has been the introduction of a rechargeable aerosol system for use with a bulk brake cleaner. While the system was acquired several years ago, it is over the past two years that SEMF 14 has been able to demonstrate the positive impacts that have accrued. Based on their example, the INARNG is now rolling this system out to all its industrial facilities. This system was also positively recognized in the INARNG's most recent EPAS audit.



SEMF 14 employs 17 staff, including 12 direct labor mechanics and five support staff, providing maintenance and sustainment for all military equipment and vehicles. In addition to the units assigned to the shop, they also provide service for any unit needing assistance as they



pass through the area along Interstate 65, a corridor supporting many Army Reserve and National Guard movements. As the largest SEMF in the state, this crew also coordinates closely with the Environmental office for the INARNG to ensure that products are sustainable and to protect the shop's compliance record. This relationship includes support with Department of Environmental Management (IDEM), which conducts compliance inspections on a regular basis.

The SEMF took the lead on switching from conventional brake cleaner products to its Wurth system, which involves rechargeable aerosol spray cans that are refilled from bulk drums of product. One of the key



By switching to the Wurth rechargeable system, over 200 cans were eliminated from the waste stream annually from SEMF #14. This came with a 50% cost reduction annually as well.



An employee demonstrating the refilling process. The process recharges the can without taking more than a couple minutes from the employee's day. It is simple enough to only require one person and minimal personal protection equipment.

benefits of this change is the immediate cost savings. The shop had been purchasing and consuming around 220 cans of cleaner each year; now, it requires only a single 55-gallon drum every two years. In terms of direct material costs, this represents a reduction from nearly \$800 a year to \$299 for this product alone. The shop also avoids disposal costs of the single-use cans and the hazardous waste stream associated with the material recovered following can puncturing. The start up costs of the new system were recovered within the first year of use, and the system has been entirely sustainable in meeting the tempo of operations.

Conversion to the new brake cleaner system also represents waste reduction and improved safety. In the past, the shop would use over 200 cans of aerosol brake cleaner each year; when near empty, the cans would be punctured so that the remaining fluid could be captured for hazardous waste disposal and the cans could be diverted as scrap metal. While this is an adequate system for most shops, SEMF 14 wanted to improve safety by eliminating can puncturing as much as possible, eliminated the waste stream, and find a more efficient alternative. The Wurth system they investigated and acquired was the solution for all these goals. Brake cleaner can now be purchased by a

drum and dispensed directly into rechargeable aerosol cans as needed. There is no scrap waste or loss of product. The cleaner itself is also now a low volatile organic compound (VOC) composition, which reduces the intrinsic hazards associated with it. Previous cleaner products, even when they were handled properly, would still produce hazardous waste streams associated with rags used in the shop. Now, even that ancillary waste stream has been eliminated.

The rechargeable brake cleaner system was a positive finding for SEMF 14 on its most recent EPAS. The system is safe and effective for the mechanics to use, and the maintenance costs are virtually nil. Each maintenance staff member is provided with a rechargeable can that they continuously use; the can involves a one-time cost of around \$20.

In all operations, SEMF 14 seeks to reduce waste and increase diversion. The largest waste stream for the shop would be used oil and fuel products, but these are recovered by a vendor, thereby avoiding disposal costs. The shop participates in the Qualified Recycling Plan for the INARNG, which recovers all the cardboard, wood, and scrap metal generated by shop activities. An onsite antifreeze recycler has all but eliminated the need for new antifreeze purchasing. The shop will accumulate used antifreeze and complete a recovery cycle two or three times a year.

Recently, the shop has introduced battery recharging that allows it to reclaim used batteries from its own operations and from other support shops in the area. The Pulsetech technology system conducts a slow recharge on seemingly dead batteries over a seven-day



period. At the end of the charge, the shop either has a working battery or can confirm the battery is fully expired and needs disposal. Over the past two years, the shop has been able to slash the purchase of new batteries by about 50%; this reduction represents avoidance of environmental impacts, disposal costs, and new purchase costs. Based on the success of this system in SEMF 14, several other industrial facilities in the state are being outfitted with the same.



Everything the SEMF 14 does is mission-essential. As the third largest maintenance facility in the state, 11 INARNG units as well as other branches of service rely upon uninterrupted operations at the shop. The facility staff have shown dedication in seeking out ways to become more efficient and sustainable in their day-to-day operations without compromising readiness. Their push to adopt and validate the Wurth brake cleaner system ultimately stands to improve operations throughout all the INARNG's shops. The positive EPAS findings at the shop, moreover, help to redouble the INARNG's credibility in terms of stewardship and environmental awareness. The shop adheres to all the hazardous material and spill prevention and response plans generated by the Environmental office; they work cooperatively with the Environmental staff as well to review practices during internal inspections and trainings. Altogether, this awareness and preparedness helps the shop to prevent any interruptions or limitations related to compliance.



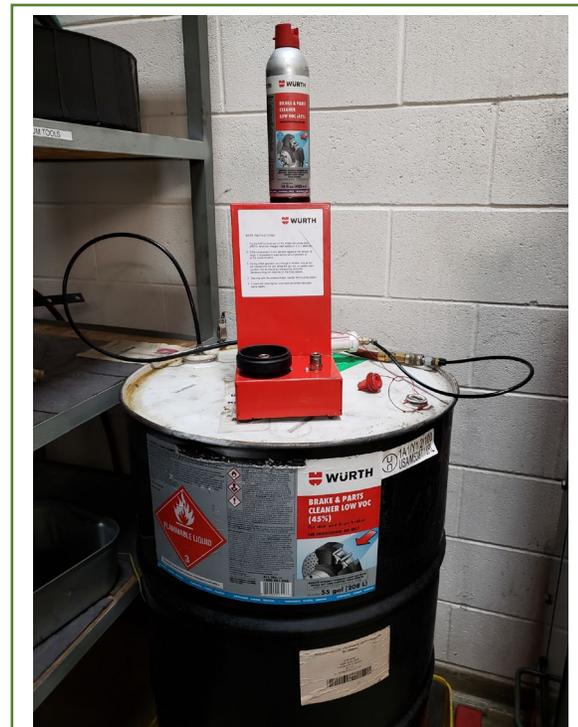
The continuity of activities in the shop is embedded in standard operating procedures and the comprehensive training conducted for all staff. As SEMF 14 continues to demonstrate and validate technologies like rechargeable systems for cleaners and batteries, their work becomes the standard that other INARNG facilities employ. SEMF 14, like the INARNG's other industrial sites, is empowered to seek out innovations and present the case for new processes or equipment with the Environmental office.



Currently, shop staff are working with Environmental to advocate for introduction of the Wurth brake cleaner system into the DLA purchasing system in order to simplify the use of those products throughout the state. The cost savings and environmental impacts of the system are a win-win.



Any time the shop seeks to introduce new products, the shop manager coordinates with the Environmental staff to vet those materials. Currently, the shop manager is proposing process improvements that would involve creating single access points for products that multiple shops use; single storage locations within the USPFO would reduce the oversight for compliance, enhance accountability in ordering and usage, and simplify operations within shops. The SEMF 14 shop manager is currently exploring the possibilities for determining the products that could feasibly be shared across all locations.



This is the whole system with 55 gallons of product and refillable can. One 55 gallon drum of brake cleaner lasts the shop two years.

SEMF 14 has taken on a more public-facing role as well. The local community regularly utilizes facilities surrounding the SEMF, particularly the armory, so there is some visibility for the shop's operations already. The shop is working with INARNG leadership, however, to launch a new internship program that would create opportunities for area high school students to learn more about maintenance careers with the INARNG. The intent in this outreach is not only to expose students to the maintenance operations within the shop, but also to create a baseline of training and familiarity that would allow the INARNG to recruit those interns to join the shop professionally. At the very least, SEMF 14 will be helping those students to acquire valuable skills and exposing them to the sustainable practices modeled within the facility.