

Y-12 National Security Complex's Switch to Biobased Transformer Fluid Reduces Risk of Fires and Damaging Environmental Impacts

The Y-12 National Security Complex (Y-12) is a premier manufacturing facility dedicated to making our nation and the world a safer place and plays a vital role in the Department of Energy's Nuclear Security Enterprise. Y-12 helps ensure a safe and effective U.S. nuclear weapons deterrent. Additionally, Y-12 retrieves and stores nuclear materials, fuels the nation's naval reactors, and performs complementary work for other government and private-sector entities.

Y-12 is committed to advancing the procurement and use of biobased products through integration into contractual requirements. One recent innovative project that contributed to Y-12's sustainable acquisition efforts was the Y-12 Transformer Retrofill Project, in which biobased FR3[®] fluid was used to retrofill 20 transformers. Not only is FR3 biobased, but it is also less flammable than traditional petroleum-based fluids. The project's goals were to conserve natural resources, reduce costs, and comply with Federal Acquisition Regulations mandating the use of biobased products.

The Transformer Retrofill Project also recycled 19,673 gallons of transformer fluid. The existing 16,770 gallons of oil in the transformers were removed and

recycled along with additional fluids. Switching to biobased transformer fluid reduces fire risk and emissions, increases transformer lifetime, and lowers the likelihood of harmful environmental impacts.

Success involved collaboration between several Y-12 teams, including utilities, recycling and procurement, as well as teams at Consolidated Nuclear Security (CNS), the federal contractor leading the facility's Maintenance & Operations efforts.

"We have a goal to introduce 10 sustainable products each year," explained Brad Russell, CNS Sustainable Acquisition Program. "Typically, we start by doing market research in the BioPreferred[®] Program Catalog. We review all our purchasing

data to see where we can do better. We work with folks at Y-12 to see what types of products they want and need. If it's biobased, we'll check the website to make sure we're meeting the regulations."

These widespread efforts resulted in more than \$591,000 of biobased products being purchased in Fiscal Year (FY) 2020 and more than \$384,000 in FY 2021. Given its demonstrated commitment to utilizing biobased products to protect the longevity of the infrastructure they service as well as the surrounding environment, the USDA BioPreferred Program recognized the Y-12 National Security Complex Utilities Department with the 2022 Excellence in Procurement Award.