

2024 Secretary of the Defense Environmental Award
Sustainability, Industrial
Tobyhanna Army Depot

INTRODUCTION

Tobyhanna Army Depot (TYAD) is a recognized leader in providing world-class logistics support for Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) systems across the Department of Defense (DoD). Tobyhanna’s corporate philosophy, dedicated workforce and electronic expertise ensure the depot is the joint C5ISR provider of choice for all branches of the armed forces and industry partners. Capabilities include full-spectrum logistics support for sustainment, overhaul and repair, fabrication and manufacturing, engineering design and development, systems integration, post-production software support, technology insertion, modification, foreign military sales and global field support to our joint warfighters. TYAD is the Army’s Center of Industrial and Technical Excellence for C4ISR, Electronics, Avionics and Missile Guidance and Control. In addition, TYAD has been designated as the Air Force’s Technology Repair Center for Tactical Missiles, Rigid Wall Shelters, and Portable Buildings. TYAD requires 130 job skills to perform its missions, including engineers, electronics-mechanics, computer specialists and industrial trade workers. TYAD is the region’s largest industrial employer, with 3,300 employees and a regional economic impact of \$3.3B. TYAD utilizes Lean principles to efficiently carry out the mission and provide the Warfighter with the highest quality product. In addition, TYAD is third party registered to the International Organization for Standardization (ISO) 14001:2015 Environmental Management System.

1 – Program Management

The Environmental Branch (EB), Public Works Division, Directorate of Installation Services, TYAD is responsible for ensuring that the facility is compliant with environmental regulations and works to reduce the environmental footprint of the facility through pollution prevention, energy efficiency and environmental quality initiatives. EB personnel utilize compliance inspections and ISO 14001 internal and external audits to detect environmental deficiencies and initiate corrective actions. Cross-functional environmental objective and target teams are established to bring in ideas and contributions from across TYAD to tackle environmental challenges. In addition, TYAD has maintained continuous ISO14001 third party registration for over 20 years providing structure and a platform to drive continuous improvement. In Fiscal Year (FY) 2022 and FY23, TYAD received only one minor finding for its ISO 14001 program.



Water

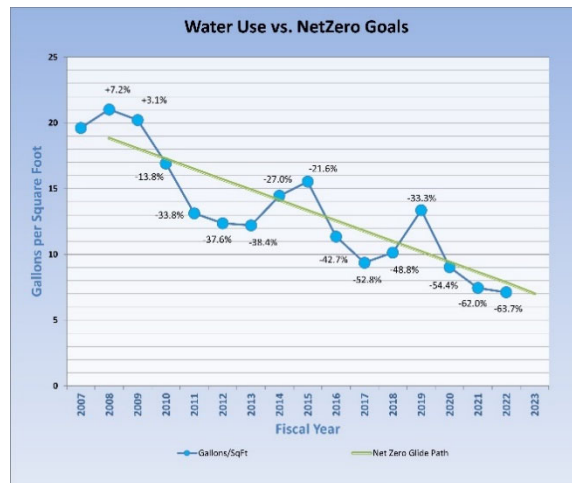
The TYAD EB manages and monitors water usage and the Pennsylvania Department of Environmental Protection (PADEP) Drinking Water Systems Permit. TYAD constantly strives to implement new and innovative technology to achieve the goals established by the Army NetZero Program and Executive Order (EO) 14057 to decrease installation water consumption and strategically identify sources of alternative water to offset the use of freshwater supply. TYAD is an Army NetZero water pilot site since 2011 and has exceeded 50% water consumption reduction compared to the EISA baseline year of 2007. In FY22 and FY23, TYAD has continued



to maintain annual reduction with a current reduction of 63% in 2022 and 66% in 2023. The TYAD vigilant water management program and rigorous inspections lead to continued reduction in water usage.

Some of the measures that contributes to the continued water consumption reduction are:

- Water recycling in the Industrial Operations Facility (IOF) at a 90% reuse rate.
- Rain test facility reuse of water during water tightness testing on military equipment.
- Landscaping and irrigation are solely taken from wastewater effluent reuse tank for non-potable uses (5,600-gal tank).
- New Drinking Water wells have groundwater monitoring equipment installed to include Variable Frequency Drives (VFDs), level transducers, and flow meters. Storage tanks are also equipped with both in and outflow meters for leak detection.
- Acoustic leak detection system use to identify water leak and perform surveys as needed.
- A water utility valve maintenance trailer for more efficient and timely water valve repair.



Hazardous Waste

To properly manage hazardous material (HM) and reduce hazardous waste (HW), TYAD has upgraded from its Hazardous Material Management System (HMMS) to Hazardous Material Inventory and Disposal System (HMIDS). HMIDS allows TYAD to track HM and HW “cradle to grave”, providing a complete audit trail for inventory, disposition and reporting of materials and waste. The upgrade from HMMS to HMIDS has saved TYAD \$190.5K annually without any reduction in capabilities. All HM at TYAD is intensively managed to allow mission material that is beyond its shelf life or off-specification to be repurposed for non-mission needs of various base operations work areas and reduce the disposal of excess HM as HW. TYADs HW reduction goal is to show a continuous improvement in the overall disposal of HW.



Recycling and Solid Waste Diversion

As a large industrial facility, TYADs solid waste streams require intensive management to ensure that material is sorted and directed to its proper destination. TYAD strives to ensure at least 50% of the solid waste is recycled and diverted from the landfill, the current EO14057



recycling diversion target. For the last two fiscal years, TYAD has exceeded this goal. FY22 diversion rate was 54% and the FY23 rate is projected to be 55%

Integrated Pest Management

TYAD maintains the Pest Management Program at TYAD and uses Integrated Pest Management to control pest of all types. Use of herbicides is limited to areas critical for mission or security related issues and does so as minimally as can be. Proper housekeeping, building maintenance and education are used as primary tools to avoid pests from finding harborage in installation buildings. Wildlife exclusion and trapping is also used to reduce human interaction that could cause safety issues or impede the mission. Many native “nuisance” animals are trapped in coordination the Pennsylvania Game Commission to be relocated to nearby game lands for local hunters and trappers. Continued effort to only use chemical controls as the very last resort saw a reduction of pesticide usage of 74% in FY22 and 51% in FY23 as compared to FY20 baseline pesticide usage totals.



2 – Technical Merit

TYAD is continually looking for new and innovative technology to improve the environmental quality. Integrating new technology over FY22 and FY23 has led to improvements in several programs.



Water Consumption reduction

Lack of adequate monitoring hampers effective water management, however, TYAD has pursued alternative infrastructure monitoring technologies versus traditional and costly building meters. TYAD has incorporated acoustical testing to identify water piping leaks early to reduce losses and has modified the controls for the on-site water supply system. Advanced monitoring for the drinking water source wells to include VFDs, level transducers, and flow meters. Storage tanks are also equipped with both in and outflow meters for leak detection. Flow meters are used to accurately read water usage, and to monitor groundwater drawdown as well as groundwater recharge rates.



Wood Waste Reduction and Disposal Efficiency

TYAD spearheaded the effort to reduce the costs of recycling its wood waste from its industrial process. It costs TYAD money to transport wood waste to the wood recycler, so in order to reduce the cost and carbon footprint of the wood recycling program, TYAD purchased a wood auger compactor. The compactor reduces the various sized pallets and boxes, that are no longer reusable to much smaller and easier to handle pieces of wood. The unprocessed wood left significant amounts of space when a roll off container was filled results in a range of two to three and half tons per load. The processed wood results in loads between six to eight tons resulting in the equivalent of three -four loads of unprocessed wood in one trip.



Pollinator Program and Natural Landscapes

TYAD established a Pollinator Program and established an apiary at the south end of the closed Superfund landfill. The purpose of starting the apiary was based on a similar project started by the Delaware National Guard in response to the June 20, 2014, Presidential Memorandum titled, “Creating a Federal Strategy to Promote the Health of Honeybees and Other Pollinators.” Some



of the goals of this initiative are to reduce honeybee colony losses, increase the Eastern population of the monarch butterfly, and restore or enhance land for pollinators.

While the largest mission of the TYAD EB is environmental compliance, the EB also has the responsibility for environmental conservation, sustainability, and resilience. The establishment of an apiary near the closed landfill allows beneficial reuse of this land, which currently cannot be used for any other purpose. This use presents opportunities to restore habitats for pollinators and contributes to plant diversity, and food security. The location provides the honeybees with plenty of sunlight throughout the day, and a tree line provides a natural wind break. The location is far enough away from human interaction that someone is highly unlikely to stumble upon them or easily interfere with the habitat.



Additionally, a native wildflower garden was planted including milkweed to help bolster native pollinators such as the Eastern Monarch Butterfly. Other areas at TYAD, such as an unused softball field was left for native plants to reclaim and is minimally maintained to reduce both fossil fuel use in lawnmowers, limiting the need to water lawn areas, and reduction of pesticide use. The apiary does not just benefit the installation as pollinators can travel several miles and improve areas around TYAD. One honeybee colony can be responsible for pollinating up to 250 million flowering plants per day. Members of the EB inspect the hives periodically, perform some maintenance and prepare the hives for overwintering. Team members have attended courses at the Lackawanna College Environmental Education Center, Covington Township, PA to obtain beekeeping certificates and learn to grow and improve colonies and develop a deep understanding of honeybees and beekeeping.



3 – Orientation to the Mission

The mission of TYAD is to provide full Life Cycle Support for all C5ISR weapons systems for the Joint Warfighter-worldwide. TYAD properly manages hazardous material (HM) and reduces hazardous waste (HW). TYAD maintains and manages the necessary environmental programs and permits needed to ensure environmental compliance and maintain continued operations to support the mission. New initiatives implemented by TYAD are intended to improve environmental quality and sustainability but often also offer an economic benefit. Most of these initiatives have a recurring annual cost savings, which have reasonable payback periods. By striving to reduce energy and water usage to achieve EO 14057 goals, TYAD has also reduced costs. These savings help to lower the cost of producing end items for the Warfighter, representing an additional benefit of TYAD efforts in water and energy management have significantly reduced the usage of potable water and kept TYAD on track to achieve its consumption reduction goals.



In FY22, 34.0 MG of potable water was pumped and the projected final usage of FY23, is 28.9 MG. That is a 11.3 MG average reduction from FY19 water use. It costs TYAD \$5.49 to pump 1000 gallons of water from their wells. That relates to approximately \$31K in savings per year. Then, 80% of that water would have been destined to the WWTP, which costs \$6.07 to treat 1000 gallons. There is an additional savings of approx. \$27K per year. In total, effective water management of the drinking water system saved TYAD approximately \$117K in FY22 and FY23. Also, in FY22, Energy Use Intensity (EUI), which is a measure of electrical and thermal usage normalized to thousand square feet, was 102.7 MMBtu/ksqft. Compared to a baseline 120.7 MMBtu/ksqft in FY19, TYAD saw a reduction in EUI of 15%.

4 – Transferability

TYAD is a large Army installation that consists of 1,336 acres, which includes the 400-acre industrial area. Every year lessons are learned on how to properly manage the environmental programs and resources. Sharing both successes and challenges with other regional stakeholders is a great way for the TYAD to evolve and grow. A regional avenue through which EB disseminates lessons learned is the Army Tier II program. Tier II includes the Environmental Protection Agency (EPA), environmental regulators from each state in EPA Region III and Army Environmental Coordinators for current, Base Realignment, and Closure installations. Region III includes the following states: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. EB meets with this group three times a year at various installations to compare environmental systems and technologies. This group addresses environmental quality issues and concerns that are specific for Army installations.



5 – Stakeholder Interaction



Environmental Justice Pilot Installation

In the beginning of FY22, the EB volunteered for the EPA Federal Facilities Restoration and Reuse Office, Washington D.C. Environmental Justice (EJ) Pilot Project. The pilot team consists of pilot sites from the Navy, Air Force, and Army. TYAD is the pilot site representing the Army and the site EJ team consists of members from EPA Headquarters, EPA Region III, Philadelphia, PA, Army Environmental Command, San Antonio, TX, and PADEP, Wilkes-Barre, PA in addition



to installation personnel. Each site team completed an EJ site characterization, discussed ways to better involve those at-risk communities in remediation activities and the best way to document EJ engagement in the community of each of the federal facility pilot sites. Items identified showed demographic changes have occurred during the past years and nearly a quarter of the population speaks a language other than English. Completion of higher education in the area lags

the national average. There is also a higher-than-average number of single parent households. The groups then met and presented their findings and share lessons learned. EJ implementation is of particular interest to the Office of the President, EPA, the Army, and the Commonwealth of PA. TYADs participation is key to representing the Army's interest in EJ concerns and implementation at other Army sites but also the Department of Defense Organic Industrial Base. The teams developed an EJ Tools Guide and EJ Process Guide that will be shared and can be used by other sites throughout the DoD to aid in improvements in EJ. Some of the areas TYAD has expanded EJ is by adding bi-lingual warning signs for environmental hazards, publishing public notifications in both English and Spanish, reaching out to local township supervisors and local homeowners associations, and working with an EPA Community Involvement Coordinator to best leverage future correspondence with marginalized communities.

Environmental Outreach

The EB understands that ensuring environmental quality at TYAD is a team effort and that all personnel and residents need to be involved. Reaching out to all employees may be a cumbersome task but not for the EB. Several strategies are implemented on the installation to advertise and remind employees about TYAD environmental programs.

As a certified ISO 14001 facility, TYAD posts its own customized ISO 14001 information on the TYAD intranet accessible to all depot personnel. The information is updated annually and includes the following: the Commander's Environmental policy and its key elements, significant environmental aspects, and continuous environmental improvements. The information is non-technical and straightforward, which makes it easy for everyone to understand. Every shop also has a "Star Points" individual who participate in meetings to share critical environmental information. Information is also broadcast on the Public Address and Visual Information System. All these methods give the EB the opportunity to advertise and display the most up-to-date environmental programs at TYAD and is critical for the EB to quickly reach out to all TYAD employees.



EB actively participates on many boards, committees, and organizations to both discover and share lesson learned for sustainable industrial and facility operations. One of these organizations is the Pennsylvania Association of Environmental Professionals (PAEP) which promotes environmental education research, planning, assessment, review, sustainment, and management practices. The PAEP organizes a Pollution Prevention/Energy Efficiency (P2E2) Roundtable. Several EB members belong to and attend P2E2 Roundtable meetings and events in FY22 and FY23. The P2E2 Roundtable allows the EB to network with other companies, government, and academic entities to exchange ideas about successful and unsuccessful environmental techniques and programs and attended training events. Other boards that EB has members on include the Delaware River Basin Commission and the Monroe County Conservation District to learn how we can best protect both local and regional water resources. TYAD is also a member of the Joint Technology Exchange Group, a military organization that provides a forum for exchanging information and lessons learned between installations throughout the DoD.



EB collaborates with the Pennsylvania Department of Transportation (PennDOT) for the Adopt-A-Highway program. The members of the workforce and the community team up to perform clean-up of the Interstate 380, Tobyhanna interchange, and adjacent roads that lead to the main





gate of TYAD four times each year. The EB picks up supplies from PennDOT and informs PennDOT when the clean-up is complete so they can pick up the collected trash.



Each year, TYAD hosts an Earth Day clean-up event where volunteers from across TYAD participate to clean-up in either one of seven designated common areas, or an area adjacent to the building where they work. EB provides gloves and bags to all participants and coordinates the pick-up of the bagged trash and associated debris collected. During the event held on Earth Day each year, volunteers picked up over 95 bags of trash and debris in FY22 and over 150 bags in FY23.



6 – Impact/Outcomes

TYAD strives to implement systems and programs to improve its environmental quality while supporting the Army’s industrial mission activities. The TYAD has a stringent program management that takes pride in ensuring that the facility’s environmental programs are constantly improving. Projects include multiple water conservation and alternate water sourcing projects, installation of the wood auger compactor, upgrade from HMMS to HMIDS, Adopt-a-Highway and community litter clean ups, installation of the apiary to promote declining honeybee population, pollinator gardens, participating in federal and regional committees, and leading improvements in EJ.



Each project helped enable TYAD to make progress towards achieving its environmental goals resulting in:

- Continued reduction in water usage (63% in 2022 and 66% in 2023 compared to 2007 baseline) with an average annual savings of \$117K for the past two years.
- A solid waste diversion rate above 50%; A 300% increase in wood recycling efficiency.
- Energy use intensity reduction of 15% in FY22 as compared to the FY19 baseline.
- Beneficial reuse of land for pollinator habitat and stewarding bee colonies.
- Reduction of pesticide usage of 74% in FY22 and 51% in FY 23 as compared to FY20 pesticide usage totals.
- Transition from Hazardous Material Management System (HMMS) to Hazardous Material Inventory and Disposal System (HMIDS) which allows the TYAD to track HM and HW “cradle to grave”, providing a complete audit trail and saving 190.5K annually without any reduction in capabilities.
- Volunteer as an EPA Environmental Justice Pilot Site and coordinate with other pilot sites as well engagement in several environmental outreach meetings and events.
- TYAD is third party registered to the International Organization for Standardization (ISO) 14001:2015 Environmental Management System and embraces continuous improvement.

