



2023 Secretary of Defense Environmental Awards Environmental Excellence in Weapon Systems Acquisition, Individual/Team Award

Each year since 1962, the Secretary of Defense has honored installations, teams, and individuals for outstanding achievements in Department of Defense (DoD) environmental programs. These accomplishments include outstanding conservation activities, innovative environmental practices, and partnerships that improve quality of life and promote efficiencies without compromising DoD's mission success. The 2023 Secretary of Defense Environmental Awards cycle encompasses an achievement period from October 1, 2020, through September 30, 2022 (Fiscal Years [FY] 2021-2022). A diverse panel of 54 judges with relevant expertise representing Federal and state agencies, academia, and the private sector evaluated all nominees to select one winner for each of the nine categories. These nine categories cover six subject areas including natural resources conservation, environmental quality, sustainability, environmental restoration, cultural resources management, and environmental excellence in weapon systems acquisition.

About the Environmental Excellence in Weapon Systems Acquisition, Individual/Team Award

The Environmental Excellence in Weapon Systems Acquisition, Individual/Team award recognizes efforts to incorporate environment, safety, and occupational health (ESOH) requirements into a weapon systems acquisition program's system engineering, contracting, and decision-making processes. Adhering to these requirements enhances DoD's acquisition process by ensuring that weapon systems programs prioritize the safety of personnel and protection of the environment. The DoD Components may nominate an individual or team that executes ESOH requirements for the program office, including geographically dispersed teams not co-located at the same installation. Installations, laboratories, and other organizations that are not part of an acquisition program are not eligible for this award. The 2023 winner of the Environmental Excellence in Weapon Systems Acquisition, Individual/Team award is the *Acquisition and Logistics-Heavy Metals Working Group, Washington, DC*.

About the Acquisition and Logistics-Heavy Metals Working Group, Washington, DC

Industry, DoD, and the U.S. Army have a history of incorporating hexavalent chromium (Cr6+) into weapon systems and associated repair processes due to its excellent corrosion resistance properties. Cr6+ is an excellent corrosion inhibitor that increases platform life expectancy under the harshest environmental conditions. However, Cr6+ is a known human carcinogen, and there are challenges with its long-term use due to the substance's toxicity to humans and the environment. In 2018, the Army created a Heavy Metals Working Group (HMWG) to address long-standing heavy metals life-cycle issues. In January 2021, in response to HMWG Cr6+ issues related to equipment, parts, and repair processes, the Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT)) Environmental Support Office established an Acquisition and Logistics-Heavy Metals Working Group.



Examples of corrosion during ground vehicle parts inspections. The U.S. Army Combat Capabilities and Development Command researching Cr6+ ground vehicle product alternatives must work closely with the corrosion office to ensure proposed replacement products effectively protect the equipment and soldiers in all environments.

Major Accomplishments in FY 2021-2022

- The Acquisition and Logistics-Heavy Metals Working Group promulgated a new Army Acquisition Executive policy to reduce and/or eliminate the use of Cr6+ in weapon systems and maintenance processes. The ASA(ALT) signed the policy, *Elimination of Hexavalent Chromium in Army Acquisition and Sustainment*, in March 2022. Understanding that there may not be a qualified alternative for every part by the elimination dates, the policy includes a structured waiver process. All waivers must be coordinated through Life Cycle Management Command before being routed for approval through the appropriate acquisition offices for sustainment community awareness. This approach ensures that sustainment processes with Cr6+ maintain environmental compliance and health protection procedures to protect field and depot soldiers and civilians.
- The Working Group implemented a process that clearly codes all system and spare parts with national stock number (NSN) designations for non-heavy metal and heavy metal-containing items. An NSN does not discriminate between chromated and non-chromated parts. The Working Group ensured that Cr6+ and Cr6+-free products with the same military specifications do not share the same NSN. Team members identified NSNs that included both Cr6+ and Cr6+-free products and then worked closely with Defense Logistics Agency personnel to create separate NSNs for Cr6+-free products.
- The Working Group researched and identified alternatives for heavy metal-containing items such as coatings, adhesives, primer, and pre-treatments, and shared successes and setbacks across the Army.
- The Working Group qualified Cr6+-free alternative products and processes on current systems and implemented these at depot and field level repair operations. These efforts result in an immediate reduction of Army civilian and soldier exposure to Cr6+.
- The Working Group revised Army Regulation 750-1, *Army Material Maintenance Policy*, and associated Department of the Army Pamphlets to expand the definition of field maintenance to include damage repair and corrosion prevention. This step ensures that Cr6+ and other heavy metals policies are applicable to all maintenance activities from depot to field level. These efforts ensure that potential Cr6+ worker exposure is clearly documented throughout the depot repair process.



The U.S. Army Combat Capabilities and Development Command Safer Alternatives for Readiness program is conducting research and development to replace Cr6+ containing electrical connectors with a greener, safer alternative. The left photo is an example of a current system Cadmium/Cr6+ connector. The right photo is a connector which uses Black Zinc Nickel as a possible alternative coating.



Three magnesium housings coated with Tagnite. Tagnite is an alternative pretreatment to the legacy Cr6+ conversion coatings. It is not only a safer alternative but it also provides superior corrosion protection over the legacy process.