



Waldorf Former Nike Site (Battery W-44)

What You Need to Know

Site Location

The site is located in the residential community of Mattawoman, Maryland. The 16.5-acre former launch area is transected by the boundary between Charles and Prince George's Counties. The 11.3-acre former control area is located within Charles County about one mile east of the launch site. Country Lane Road connects the two properties.

Site History

The U.S. Army began operation of Waldorf Nike Battery W-44 in the 1950s. This battery was part of an air defense system that was deployed around the United States from the 1950s through the 1970s. Each battery included both a radar control site and a missile firing site situated about 0.25 to 1 mile apart.

The Waldorf launch facility included two missile magazines, a missile assembly and maintenance structure, an acid and fuel storage building, three underground storage tanks (USTs) and support areas including a barracks, kennel, and generator buildings. The Waldorf control area included administrative, missile control and radar structures, barracks, sewage treatment facilities, and five USTs. Wastes generated by the Nike operations included chlorinated volatile organic compounds (VOCs), petroleum solvents, alcohols, unsymmetrical dimethylhydrazine, and acid mixtures.

The Waldorf Nike battery ceased operation by 1965. The Nike missiles, components, fuels and support materials were removed from the property by the Army. Most of the property was transferred to Charles County with smaller portions being transferred to Prince George's County and private parties. The former launch area is currently leased from Charles County by the Maryland Indian Heritage Society. The Melwood Horticultural Training Center leases a portion of the former control area from Charles County.

Environmental Investigations and Actions

Investigations to evaluate the former launch and control areas have been conducted by the U.S. Environmental Protection Agency (EPA), the Maryland Department of the Environment (Department) and the U.S. Army Corps of Engineers (USACE). The USACE's efforts were conducted under the Formerly Used Defense Sites program.

The Department issued a Preliminary Assessment (PA) of the former launch site in 1987. This report included sample results from domestic wells and monitoring wells in the site vicinity. Several samples indicated groundwater contamination by chlorinated solvents, including trichloroethene (TCE) and carbon tetrachloride (CT).

The Department issued the PA of the former control area in 1992. This report indicated that soil was contaminated with polychlorinated biphenyl (PCB) oils (due to 1991 transformer vandalism). Charles County cleaned up the spill using absorbent material. The Department collected soil, surface water and sediment samples from the site and summarized the results in



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the 1992 Level III Site Inspection (SI) Prioritization. These results revealed elevated polycyclic aromatic hydrocarbons (PAH), pesticides, phthalate esters, phenol and inorganic constituents in soils and sediments, but did not reveal any PCBs.

The 1988 Confirmation Study of the former launch area, contracted by the USACE, confirmed TCE and CT in monitoring wells above their respective Maximum Contaminant Levels. Three abandoned transformers were also sampled with field kits and tentatively identified as containing PCBs. Laboratory analysis of the transformer oils was performed in 1995, PCBs were not detected and transformers were removed from the site.

The EPA had an SI conducted in 1992. This study confirmed the groundwater contamination at the former launch site, and revealed pesticides and PAHs in sediments associated with drainage from the site. While lead was also detected in soils and sediments, it was not significantly above the background concentrations. The USACE subsequently performed the 1995 Limited Remedial Investigation (RI) of the former launch area. The RI confirmed the presence of chlorinated solvents in groundwater and PAHs and pesticides in soils and sediments. Total petroleum hydrocarbons were also detected in soil samples. Samples collected from water accumulated in the silos revealed lead at concentrations of 11 to 27 micrograms per liter ($\mu\text{g/L}$) which exceeds chronic exposure values for aquatic life. This effort also included analyses for radiological parameters, ultimately determined to be within background conditions.

Following the RI, the USACE contracted for the 1996 Limited Risk Assessment of the former launch area. The risk assessment identified a marginal potential risk for future residential users of the property due to VOC contamination in the groundwater. The USACE subsequently conducted the 1996 Feasibility Study (FS) and 1997 Revised FS that recommended a natural attenuation remedial strategy.

The USACE met with the Department in 1997 to discuss this alternative. The Department expressed concern over the migration of contaminated groundwater from the property to three undeveloped adjoining residential parcels immediately downgradient from the former launch site. In January of 1999, the USACE issued an Addendum to the RI plan and by April of 2000, published results of the Pre-Final RI Report. In October of 2002, the Final Groundwater Investigation was issued, recommending either a remedial technology investigation to reduce the CT concentrations or, providing blower systems for each basement for homes to be built on adjoining lots.

By 2004, an additional RI established that: (1) the water in the missile silos did not contain VOCs or perchlorate and that silo water was not influencing surrounding groundwater tables; (2) there were no Dense Nonaqueous Phase Liquids or perchlorate in groundwater and the study predicted that CT contamination levels would drop below $43 \mu\text{g/L}$ within 6 years; (3) that the unnamed tributary to Mattawoman Creek had not been impacted by contamination leaving the Launch Area; (4) that groundwater below the adjacent Cedar Tree Development Lots was already below $43 \mu\text{g/L}$ and it was assumed that soil vapors had similarly diminished; (5) that while conditions were not favorable for biodegradation via reductive dechlorination, that some attenuation processes were taking place; and (6) that the primary risk exposure concern



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for vapor intrusion was assumed to be declining as VOC concentrations were lower than they were in 1987.

RI Addenda were published in 2009 and in 2012 delineating the VOC source area and the extent of the groundwater plume. A 2013 Proposed Plan and 2015 Decision Document set forth a plan to remediate the VOC plume with In-Situ Chemical Reduction amendments of micro-scale Zero Valent Iron (ZVI), with ground water monitoring and Land Use Controls to prevent the use of groundwater for drinking purposes.

In December of 2013, the adjacent property to the west of the launch site was investigated by the Department as part of an Expanded SI to confirm the presence and extent of CT off-site. A low level of CT was confirmed in one off-site sample from the monitoring well closest to the launch.

Current Status/Planned or Potential Future Action

As of December of 2017, the USACE has been testing a remediation strategy utilizing injection of ZVI.