Maryland
Department of
the Environment

Naval Research Laboratory – Chesapeake Bay Detachment

What You Need to Know

Naval Research Laboratory-Chesapeake Bay Detachment (NRL-CBD) is a field station for NRL Washington D.C. that provides facilities and support services for radar, electronic warfare, optical devices, materials, communications, and fire suppression research.

Site Location

NRL-CBD is located at 5813 Bayside Rd., Chesapeake Beach, in Calvert County, Maryland. The 168-acre property is identified on Calvert County Tax map 12, parcel 66. Several buildings are present on-site, with scattered wooded areas and streams which empty into the Chesapeake Bay. The site is located on the west bank of the Bay, with the eastern boundary steeply dropping off to the rip-rap-reinforced shoreline, approximately 80 feet below. The site is secured with fencing and a manned guard post. Maryland Rt. 261 (Bayside Rd.) runs north-south through the site, dividing it into western and eastern portions. The facility also includes a 2-acre tract of land on Tilghman Island in Talbot County. In addition, NRL-CBD controls a water range area extending to the east into the Chesapeake Bay.

Site History

The NRL-CBD site is one of several field sites of the NRL, whose main campus is in Washington, D.C. The NRL-CBD site is used to conduct testing involving radar, electronic warfare, optical devices, materials, communications, and fire research. Land for the site was initially acquired in 1941, with major expansion occurring in 1953-1954 with construction of a large laboratory building, shop facilities, and complete utility systems.

Environmental Investigations

In 1984, the Navy conducted an Initial Assessment Study of the site as part of their Superfund equivalent program (the Navy Assessment and Control of Installation Pollutants, or NACIP). In that and subsequent studies, the following Installation Restoration (IR) sites have been identified at NRL-CBD:

- Site 2 (Chemical Burial Site) was used in the 1950s-1960s for the disposal and/or burning area for chemical wastes generated at NRL D.C. and brought to NRL-CBD.

- Site 3 (Landfill #1) was used from 1942-1950 for disposing of household garbage, oily rags, lubricant cans, paint sludge, paper, etc., and open surface storage of equipment.
- Site 4 (Landfill #2) was used between 1950-1958 for disposing of household garbage, oily rags, lubricant cans, paint sludge, paper, etc.
- Site 5 (Landfill #3) was used between 1958-1968 to dispose of household garbage, oily rags, lubricant cans, paint sludge, paper, etc., and open surface storage of equipment.
- Site 6 (Power Plant Oil Spill) occurred in 1973 when a 75-gallon oil spill occurred, which was cleaned up.
- Site 7 (Road Oil Application) is an area used between 1940-1952 to spray waste oils on roads to control dust.
- Site 8 (Well Mercury Contamination) is an area where a one-time mercury release from a flowmeter to the water supply occurred and was cleaned up in the 1970s with no apparent residual effects based on urine testing of on-site well system users and 8 months of drinking water monitoring.
- Site 9 (Photoprocessing Waste Discharge) was used between the 1950s-1975 to discharge of photochemicals to the ground.
- AOC A (Fire Testing Area/Site 10) is an area where NRL-CBD tested fire-extinguishing agents. Starting in the 1980s, infrastructure and modified testing protocols were used to prevent release of agents to the ground.
- AOC B (Quarters) is the location of several former residential buildings (now razed) with lead-based paint and asbestos.
- AOC C (Chemical Burial Site 2) is an area used in the 1960s and has the same operational history as Site 2.
- AOC D (Water Tower) was used between the 1950s-1970s and was painted with lead-based paint on the tower, which has now impacted the surrounding surface soil.

The Military Munitions Response Program (MMRP) sites identified at NRL-CBD are as follows:

- UXO-1 (Hypervelocity Low Pressure Gun) was used between 1967-1995 to study the impact of high velocity projectiles on various target materials.
- UXO-2 (Randle Cliffs Zuni Launch Site) was used between the 1960s-1992 to test and research associated with Chaff rounds.
- UXO-2 (Randle Cliffs Gun Mount) was in operation between 1944-1948 and was used in conjunction with experiments involving Naval vessel gun-sighting.
- UXO-3 (Small Arms Range) was operational between the 1960s-early 1990s as a recreational range for Navy personnel and civilians.

Based on the results of the SI investigation indicating a lack of identified chemical disposal and/or burn pits and the results of the human health and ecological risk assessments and considerations indicating minimal to no risk, Site 2 and AOC C were recommended for no further evaluation, and MDE concurred.

In 2014 and 2017 respectively, soil and groundwater background studies were performed to provide information to aid in the evaluation of remedial alternatives for both IR and MMRP sites. In 2017 the determination was made to take no action on groundwater at the MMRP sites, i.e., groundwater constituents related to previous MMRP use did not pose an exceedance of risk at those sites. For soil at UXO-2, no action was proposed because there was no evidence of munitions/residue at the site and no risks were identified for human or ecological receptors.

In 2017, the Navy completed site-wide sampling for poly- and perfluoroalkyl substances (PFAS), specifically Perfluorobutanesulfonic Acid (PFBS), Perfluorooctane Sulfonate (PFOS), and Perfluorooctanoic Acid (PFOA) in shallow and deep groundwater, and the presence of these compounds was confirmed in the shallow groundwater zone. In 2018, the Navy collected samples from 42 private drinking water wells off-site, which tap deeper groundwater zones, for 14 PFAS compounds. PFAS was detected in only 3 of the wells and they were all at concentrations below the Health Advisory Level of 70 ng/L (for PFOA and PFOS).

Based on additional Expanded Site Inspection activities conducted on IR sites in 2018, Site 7 (Road Oil Application) was recommended for no further action because no human health or ecological risk impacts were identified, and MDE concurred.

In 2019, the Navy completed a removal of 414 tons of lead-contaminated soil from the UXO-3 (Small Arms) Range and MDE has concurred with no further action at this site.

In late 2020, a Sampling and Analysis Plan was approved for Site 10 Fire Testing Area site which has been determined to be the source of the PFAS.

Current Status

Further activities are ongoing or planned for Sites 3, 4, 5, 9, AOC D (Water Tower), and UXO-1. An SI was recently conducted at Site 10 Fire Testing Area and preliminary results confirm the presence of PFAS in groundwater, soil, surface water, and sediment. In the fall of 2021, Site 10 Fire Testing Area will be going into the remedial investigation phase.