

**RISK MANAGEMENT RECOMMENDATIONS FOR
SITE 18, HOG ISLAND
NAVAL SUPPORT FACILITY, INDIAN HEAD
INDIAN HEAD, MARYLAND**

Site 18 Site Screening Process Report Summary

A Site Screening Process (SSP) investigation was conducted for Installation Restoration (IR) Site 18 at Naval Support Facility, Indian Head in Indian Head, MD. A total of 12 locations were sampled to characterize the soil and sediment areas of Site 18. Data from these 12 locations were used to conduct screening-level human health and ecological risk assessments to determine if chemical constituents in the Site 18 fill material potentially posed risks to human health or the environment. A summary of the risk findings is presented here. Specific details of the human health and ecological screening assessments are presented in the Site 18 SSP report.

Human Health Risk Screening Summary

Concentrations of four inorganic constituents (arsenic, iron, thallium, vanadium) in Site 18 surface soil exceeded their respective human health soil screening levels. However, none of these four inorganic compounds were significantly different than Indian Head background concentrations in surface soil, indicating that risk from these constituents was not different than regional background conditions. The maximum concentration of benzo(a)pyrene at Site 18 exceeded the residential RBC. Since the residential RBC is based on a risk level of 1E-06, the maximum concentration of benzo(a)pyrene would result in a cancer risk of 4.25E-06 based on residential exposure, which is within the EPA acceptable risk range of 1.0E-04 to 1.0E-06. Therefore, it was concluded that no unacceptable human health risk exists from chemicals in Site 18 surface soil.

Ecological Risk Screening Summary

The screening level ecological risk assessment evaluated risk to soil organisms, benthic organisms, and upper-trophic level receptors. Chemicals failing the initial screening were evaluated in the screening refinement step, where the list of chemicals of potential concern (COPC) was refined by comparison to regional background conditions and refinement of exposure point concentrations. Following the screening, COPC refinement, and uncertainty evaluation, nickel and silver were the only COPCs identified as potentially posing more than low-level risk, and only to benthic organisms in the wetland area of Site 18. Arsenic, copper, zinc, and DDT and its metabolites were found to pose low-level potential risk to benthic organisms, while copper, mercury, and nickel were identified as posing low-level potential risk to soil dwelling organisms in Site 18 soil. No chemical constituents were found to pose unacceptable risk to upper trophic level receptors.

The Site 18 SSP concluded that based on the limited area encompassed by the potential risk drivers at Site 18 and the lack of unacceptable risk to upper trophic level receptors, a baseline ecological risk assessment was not recommended for Site 18. The SSP recommended that Site 18 proceed to a risk management evaluation due to potential risk from nickel and silver in Site 18 sediment.

Site 18 Risk Management

Only copper, mercury, and nickel were found to pose low level potential risk in Site 18 soil, and only to soil dwelling organisms. Copper exceeded its soil screening benchmark at two of six soil sampling locations, mercury exceeded its soil screening benchmark at three of six sampling locations, and nickel exceeded its soil screening benchmark at all six sampling locations. The copper exceedances were not adjacent to one another, and the mean Site 18 concentration of

copper was equal to the screening benchmark of 15.0 mg/kg. The mean concentration of mercury in Site 18 surface soil (0.12 mg/kg) was slightly less than twice the ecological soil screening benchmark (0.058 mg/kg). Mean concentrations of nickel in Site 18 surface soil were approximately five times the screening benchmark, but it is worth noting that the mean background concentration of nickel at Indian Head is almost three times the nickel soil screening benchmark. The mean Site 18 nickel concentration of 11 mg/kg is just less than two times the Indian Head background mean of 5.8 mg/kg. Nickel exceedances of soil benchmarks are widespread across Site 18, but five of the six nickel surface soil samples fall within the range of background concentrations observed at Indian Head. Because the total terrestrial area of Site 18 is just over 1 acre, the area of exceedances for copper and mercury are limited in areal extent (<~0.5 acres). Because of the limited areal extent of potential risk from copper and mercury, and the relatively low degree of benchmark exceedances and background exceedances by nickel, no risk reduction is deemed necessary for the terrestrial portion of Site 18.

Nickel and silver were the only constituents in Site 18 potentially posing more than low level risk in Site 18 sediment, and only to benthic dwelling organisms. Nickel exceeded its effects range – median (ER-M) value at two of six sediment sampling locations, while silver exceeded its ER-M at four of six sampling locations, all close to the northern and eastern shorelines of Site 18. Mean and median concentrations of nickel in Site 18 sediment were less than the nickel ER-M, while median and mean concentrations of silver exceeded the silver ER-M. The wetland area of Site 18 covers approximately 1 acre. Elevated areas of nickel encompass less than one-third of the wetland area, while elevated silver concentrations cover one-half to two-thirds of the wetland area. While silver and nickel concentrations in Site 18 sediment are higher than concentrations of those constituents in the adjacent area of Mattawoman Creek, the area of potential concern is small, and the Site 18 concentrations are not much greater than those in Mattawoman Creek. As a result, the silver and nickel in Site 18 sediments are not a likely continuing source of nickel and silver to Mattawoman Creek. Site 18 soil concentrations of nickel and silver are similarly not a likely continuing source of nickel and silver to the Site 18 wetland and Mattawoman Creek. Due to the limited area of potential risk and the lack of continuing sources of nickel and silver, no risk reduction is deemed necessary for the wetland portion of Site 18.

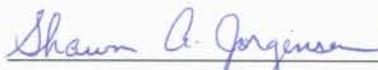
Because no risk reduction is deemed necessary for the terrestrial and wetland portions of Site 18, Site 18 is proposed for No Further Action.

**CONCURRENCE FOR NO FURTHER ACTION
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Site 18 – Hog Island
Naval Support Facility, Indian Head
Indian Head, Maryland**

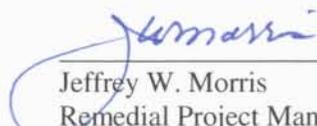
In 2006, in partnership with the U.S. Environmental Protection Agency (USEPA) Region III and the Maryland Department of the Environment (MDE), the Navy prepared this decision document for Site 18 (Hog Island) at the Naval Support Facility, Indian Head, in Indian Head, MD. Based upon a review of available information, it is the consensus of the Department of the Navy, the USEPA Region III, with concurrence of the MDE, and members of the Indian Head Installation Restoration Team (IHIRT), that Site 18 requires no further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. As appropriate, constituent concentrations, pathways, and receptors were evaluated by comparing analytical data to the most recent version of USEPA Region III risk based concentrations (RBCs), conducting a human health risk evaluation, conducting an ecological risk evaluation, and applying best professional judgment supported by scientific logic. Details are provided in the Site Screening Process Report for Site 18. In the event that contamination posing an unacceptable risk to human health or the environment is discovered after execution of this agreement, the IHIRT agrees to reevaluate Site 18 as deemed necessary.


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