

# NPL Site Narrative for Indian Head Naval Surface Warfare Center

## INDIAN HEAD NAVAL SURFACE WARFARE CENTER Indian Head, Maryland

**Conditions at Proposal (February 13, 1995):** The Naval Surface Warfare Center, Indian Head Division (NSWC), formerly known as the Naval Ordnance Station, Indian Head, is located in southern Maryland on the Indian Head Peninsula. It is bounded on the south by Mattawoman Creek, on the west and north by the Potomac River, and on the east by the town of Indian Head. NSWC, which occupies approximately 3,400 acres, was established in 1890 as the Naval Proving Ground, with the mission of conducting proof and acceptance testing of munitions. The facility's mission was expanded to include the manufacturing and testing of explosives and propellants; it later was known as the Naval Powder Factory (1932 to 1949) and the Naval Propellant Plant (1958 to 1965). In 1966, the facility was designated as the Naval Ordnance Station. Over its 100-year history of operations, the facility has manufactured a variety of munitions chemicals, including smokeless powder, ammonium picrate, nitroglycerine, nitrocellulose, and nitroguanidine, as well as sulfuric and nitric acids used in the manufacturing of chemicals.

Manufacturing, testing, loading, and assembly operations at the site have generated a variety of explosive, reactive, and hazardous wastes. Hazardous wastes generated from facility operations were routinely dumped into pits and landfills on the facility or burned in open burning grounds. Industrial wastewaters were routinely discharged to septic systems and to open ditches and storm sewers that empty directly into surrounding bodies of water.

Over a period of 11 years, in 6 separate investigations, more than 100 contaminated source areas have been identified at the NSWC. Only 30 of those areas have been investigated in sufficient detail to be evaluated for CERCLA eligibility. The 30 sources generally fall into 6 categories: (1) releases of mercury from the testing of nitroglycerine and the production of oxidizers; (2) releases of silver from x-ray processes and from the production of acetal formal (a component of propellants); (3) solvent spill and disposal areas; (4) open burning grounds used for the disposal of explosives and solvents; (5) land disposal units and storage units that received hazardous wastes; and (6) discharges of industrial process wastewaters containing hazardous constituents. Only eight sources, those associated with the release of mercury, have been evaluated under the HRS.

The eight sources are located in two clusters, approximately 5,700 feet apart, in the Explosive Process building, the Biazzi Plant, and six laboratory buildings. One of the sources involved the production of hydrazide nitroformate (an oxidizer used in propellants). Over a period of 8 years, waste mercuric nitrate, dissolved in nitric acid, was poured into an unlined 6-by-4-foot bed of limestone chips located along the west bank of a drainage ditch behind the laboratory. The other seven sources consist of mercury releases attributed to more than 80 years of routine spilling of liquid mercury during nitrate-ester analysis of explosives manufactured at the facility. During the analyses, mercury commonly was spilled on the floor and into floor drains; nitrometer bulbs occasionally exploded; mercury vessels often were broken; during the rinsing step, mercury was washed out of the vessels and into sink drains.

Releases to surface water have been documented at all seven of the laboratories that conducted nitrate-ester analysis. Sink and floor drains that routinely received spills elemental mercury are connected to septic systems, sanitary sewers, and storm sewers that discharge to open ditches leading to nearby Mattawoman Creek. Mattawoman Creek converges with the Potomac River. Mattawoman Creek and the Potomac River both provide habitats for several endangered marine and wetland species, including the bald eagle. Both Mattawoman and the Potomac are used for commercial fishing, harvesting of shellfish, and recreation. Numerous private wells in the area draw from shallow ground water, which may be contaminated from site activities.

**Status (September 1995):** The Navy has developed a Site Management Plan for the ongoing Installation Restoration Program. RI/FSs will be initiated at 12 sources and 30 other sources will be screened to determine if further investigation is necessary. Removal actions have been completed at two sources and begun at a third. All of these accelerated actions involve the removal of contaminated soils to prevent the further spread of pollutants.

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at [ATSDR - ToxFAQs](http://www.atsdr.cdc.gov/toxfaqs/index.asp) (<http://www.atsdr.cdc.gov/toxfaqs/index.asp>) or by telephone at 1-888-42-ATSDR or 1-888-422-8737.