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Naval Station Norfolk
Installation Restoration Program

Five-Year Review FACT SHEET

May 2004

Introduction

The Department of Defense (DoD) investigates past hazardous and toxic materials storage and disposal activities at military installations under the DoD Installation Restoration Program (IRP). The mission of the program is to identify and clean up contamination resulting from formerly accepted use and disposal practices to protect human health and the environment.

The DoD conducted a Five-Year Review at Naval Station Norfolk (NSN), located in Norfolk, Virginia, in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Contingency Plan (NCP) requirements. The purpose of the Five-Year Review is to evaluate the current remedies at sites where hazardous substances, pollutants, or contaminants remain above levels that allow for unlimited use and unrestricted exposure. This report was conducted under the review of the United States Environmental Protection Agency. Currently, five sites at NSN were evaluated as part of this review. The site descriptions and findings of the Five-Year Review Report are summarized herein.

Site 1 Camp Allen Landfill (CAL)

Background

CAL consists of two distinct areas (Area A, the 45-acre landfill, and Area B, the 2-acre fire disposal area). The Area A landfill operated from the mid-1940s until 1974 and was used to dispose of metal plating and parts cleaning sludge, paint-stripping residue, chlorinated organic solvents, expired chemicals, pesticides, asbestos, incinerator

ash, bottom and fly ash from the Base power plant, and miscellaneous debris. Area B was used to dispose of wastes from a 1971 fire at the Camp Allen Salvage Yard (Site 22). Investigations at CAL indicated that the surface and subsurface soil, sediment, surface water, and groundwater are contaminated from prior disposal practices. The primary contaminants of concern are volatile organic compounds (VOCs).

Remedial Activities

Remedial activities at the site include a soil removal action that was completed at Area B in 1995 to remove the primary source of contamination as well as the installation of a groundwater extraction and treatment system in both Areas A and B. The groundwater treatment system has been in continuous operation since 1998.

Assessment

The annual Long-Term Monitoring (LTM) at the site indicates that the groundwater remediation system has prevented the VOC plume from migrating towards the residential areas west and southeast of the

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site. In addition, the data shows that the VOC concentrations have significantly decreased (approx. 50%) in some areas of the landfill.

However, some monitoring wells located north of the site and outside of the extraction well capture zone demonstrated elevated levels of VOCs. In addition, two localized areas where elevated VOC levels were detected in Area A and Area B.

Furthermore, a localized area where VOC levels exceed the cleanup goals was observed in the shallow aquifer at well B-20W. Although the VOC plume in the deep aquifer is effectively contained from migrating towards the residential areas, the northern boundary of the plume has not been captured in Area A.

Protectiveness Statement

The current operation of the groundwater extraction and treatment at Camp Allen Landfill was found to be protective of human health and the environment. The extraction system has prevented migration of the contaminant plume to residential areas west and southeast of the site. A subgroup has been developed to continually evaluate the remediation system's effectiveness and optimization.

Follow-Up Actions

As a result of this evaluation, the treatment system is has been expanded with the addition of two new extraction wells to extend the capture zone to contain the plume north of the site and treat the localized area of elevated VOCs in Area B. In addition, the current treatment system has been modified to treat the isolated area of elevated VOCs in at well B-20W.

Site 2 NM Area Slag Pile

Background

NM Slag Pile is a 1-acre disposal area for slag generated by an aluminum smelting operation during the 1950s and 1960s, which resulted in lead contamination in area soils. In addition, fly ash and/or bottom ash was also used as fill material to create a level surface to deposit the slag. Investigations at the NM Slag Pile determined that soil, groundwater, sediment, and surface water were impacted by prior disposal activities. The primary contaminants of concern are metals.

Remedial Activities

In 1999, contaminated sediments were removed from the drainage channel adjacent to the site. Additionally in 2000, soil and asphalt covers were placed over the extent of the site.

Assessment

The combination of an asphalt and soil cover, as the implementation of institutional controls, effectively meets the remedial objectives to prevent exposure to soil, groundwater, surface water, and sediment. Per inspection in 2002, the soil and vegetative cover, asphalt cover, and the bank of the drainage ditch are intact. The concentrations of inorganics in the groundwater, surface water, and sediment have not increased in comparison to the baseline concentrations established prior to the remedial actions.

Protectiveness Statement

The remedy for Site 2-NM Slag Pile is protective of human health and the environment under the current industrial land use.

Follow-Up Actions

No concerns were identified with the remedy at the NM Area Slag Pile. The monitoring program will be evaluated annually to ensure continued protection of human health and the environment.

Site 3 Q Area Drum Storage Yard

Background

QADSY was a 5-acre open earthen yard used from the 1950s to late 1980s to store tens of thousands of drums containing new petroleum products, chlorinated organic solvents, paint thinners, and pesticides. In 1983 the potential for site contamination was identified by the presence of dark stains on the soil and oil-saturated soil throughout the storage yard. The drums have been removed and the characterization of the contamination conducted from 1983 to 1986 indicated soil

and groundwater were contaminated with metals and VOCs. Subsequent investigations identified 2 separate groundwater VOC sources - Area of Concern (AOC) 1 and AOC 2.

Remedial Activities

In 1987, approximately 750 cubic yards of oil-saturated soil was removed and this area of the site was paved. In addition, two air sparge/soil vapor extraction (AS/SVE) systems were installed to treat the separate source areas and prevent migration of site contaminants into the Elizabeth River. These systems began continuous operation in 1998

Assessment

The treatment system has significantly reduced the concentrations of the COCs at the site and prevented further migration of the contaminant plume.

Protectiveness Statement

The current AS/SVE system at the QADSY was found to be protective of human health and the environment. The AS system in AOC 2 is operating and VOC mass continues to be removed. The remediation in AOC 1 has achieved cleanup within the influence of the AS system. However, a hotspot downgradient of the system has shown increases of vinyl chloride as a result of VOC degradation in the environment. A subgroup has been developed to continually evaluate the remediation system's effectiveness and optimization.

Follow-Up Actions

The existing AS system in AOC 1 has been expanded to treat the vinyl chloride hotspot.

Site 6 CD Landfill

Background

CD Landfill covers approximately 22 acres and incorporates two separate areas of landfill operation - the eastern section and western section. The eastern section of the landfill operated from 1974 to 1979 and was used for the disposal of demolition debris, inert solid waste, fly ash, and incinerator residue. The western portion of the landfill was permitted by the Virginia Department of Health (VDH) for disposal of demolition debris and other

inert wastes. The western landfill operated from 1979 to 1987. Blasting grit was deposited in the western section of the landfill until 1981 when the grit was tested and found to exceed the toxicity limit for cadmium. Investigations determined that soil, sediment, groundwater, and surface water were impacted by prior disposal activities. The primary contaminants of concern are VOCs and metals.

Remedial Activities

A selected amount of contaminated sediments was removed in 1997. In 1999, a composite cap for the CD Landfill was installed to cover the contaminated soils and the remaining sediments at the site.

Assessment

The combination of a landfill cover and institutional controls is effective in meeting the remedial objectives to prevent direct contact, inhalation, and ingestion of contaminated soil, groundwater, surface water, and sediment. The results of the monitoring indicated that the remedy has reduced the concentrations of selected VOCs in the groundwater and surface water to below the detection limits.

Protectiveness Statement

The current landfill cap and institutional controls at CD Landfill were found to be protective of human health and the environment.

Follow-Up Actions

The 2002 annual inspection identified minor maintenance issues that did not impact the integrity of the remedy or institutional controls at the CD Landfill. It is recommended that the maintenance issues continue to be monitored

during the inspections to make certain they will not have an impact on the remedy.

Site 20 Building LP-20

Background

Building LP-20 was used for aircraft engine overhaul and maintenance. Previous activities at the building included painting, x-ray facilities, as well as cleaning and blasting. Waste products from these activities were transferred to the industrial wastewater treatment plant via underground piping. In addition, a large fuel storage area, known as the LP Fuel Farm, is also located south of the building. An underground fuel pipeline extends from the Fuel Farm to buildings east of the site. From the 1940s to 1990s numerous spills or releases of wastewater and petroleum have been documented, with significant releases associated with damage to the underground wastewater lines during construction activities, and leakage of the underground fuel pipeline. Investigations at the site determined that the primary contaminants of concern are VOCs.

Remedial Activities

A AS/SVE treatment system was constructed and began continuous operation in 1998.

Assessment

Overall, the concentrations of COCs have decreased from the baseline data. These reduced concentrations indicate that the AS/SVE system is effectively remediating the contaminant plume. However, an increase in some of the VOCs (dichloroethene and vinyl chloride) was observed in certain wells. The increase in these constituents is the likely result from the degradation of VOCs at the site. In addition, one deep aquifer well downgradient of the site has demonstrated increases in some contaminants.

Protectiveness Statement

The current AS/SVE system at Building LP-20 was found to be protective of human health and the environment. The system has been effective in reducing the VOC concentrations within the contaminant plume. A subgroup has been developed to continually evaluate the remediation system's effectiveness and optimization.

Follow-Up Actions

If the VOCs in the downgradient deep aquifer well continue to increase, alternative remedial options should be evaluated.

Next Review

The completion of the next Five-Year Review for NSN is required by November 2007, 5 years from the completion of the current review.

Information Repositories and Administrative Record

NSN has established an information repository so that the Base and the community have access to the IR Program documents. The information repository, listed below, typically contains study reports, fact sheets, brochures, letters, and other items of interest.

The information repository is different from the Administrative Record. The Administrative Record is the legal record of all the information reviewed and considered in order to propose site cleanup actions. The Administrative Record is available at the same location as the information repository.

Information Repository

Kirn Memorial Branch
Norfolk Public Library
301 East City Hall Avenue
Norfolk, Virginia 23510
(757) 441-2173

Point of Contact

John Ballinger
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