

What's Next?

Final Ordnance and Explosives Clearance – The Corps will conduct one final geophysical investigation of the TNT area in early 2004 to confirm that all OE has been safely removed from the site and will prepare a Final Report for the Time Critical Removal Action as specified in the Corps' Interagency Agreement.

Environmental Investigation Efforts- Following the construction of the temporary cover for the contaminated soil in the TNT area, the Corps will conduct a Human Health and Ecological Risk Assessment for the TNT area and prepare a draft report in 2004. These risk assessments and the validated soil and groundwater analytical results will then be incorporated into a draft Remedial Investigation (RI) report for the site that will also be completed in 2004. Following regulatory and stakeholder review of the RI report, the Corps will use the information in the RI report to conduct a feasibility study to determine the most appropriate cleanup strategy for the site. The Feasibility Study is tentatively scheduled for 2005.

Public Participation Opportunities

The Army Corps provides updates on their activities at the Former Nansemond Ordnance Depot at regularly scheduled Restoration Advisory Board meetings. These meetings are open to the public. Anyone interested is encouraged to attend.

Information on the project is available for review at the U.S. Army Corps Norfolk District during regular business hours, on the project web site, and at the Information Repository which has been established at the TCC Portsmouth Campus library.

U.S. Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510
Project Web Site: www.nao.usace.army.mil/Projects/Nansemond/welcome.html

TCC Portsmouth Campus Library
7000 College Drive
Portsmouth, VA 23703
Phone: 757-822-2130

Public Comments

Public Comments should be addressed to:

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Contact Information

For more information about the Former Nansemond Ordnance Depot project please contact the following people:

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Project Web Site

<http://www.nao.usace.army.mil/Projects/Nansemond/welcome.html>

Information Repository

Information about the Former Nansemond Ordnance Depot project is available for public review at the Tidewater Community College Library

7000 College Drive, Portsmouth, VA
Library Hours: 8 a.m. to 9 p.m. Monday through Thursday
and 8 a.m. to 4 p.m. on Friday

This fact sheet was created by Chaloux Environmental Communications, Inc. (CEC) for the U.S. Army Corps of Engineers.



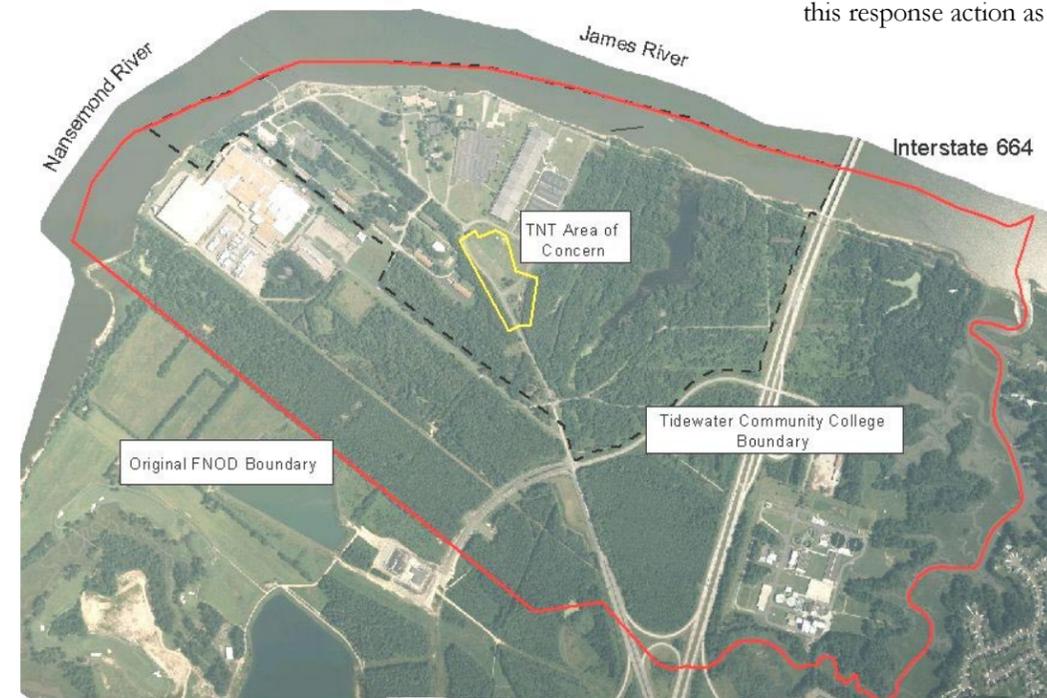
TNT Area Fact Sheet

Corps Implements a Time-Critical Removal Action at the TNT Area

The TNT Area is located on the Tidewater Community College Portsmouth Campus property at the intersection of College Drive and Jamestown Road. The site is estimated to be approximately 9.8 acres.

In June 2003, Zapata Engineering finished excavating and disposing of the larger pieces of TNT from the TNT Area pit location. Zapata recovered approximately 500 pounds of bulk TNT during their removal effort. Once all the bulk TNT and associated soils were removed, USACE collected four (4) samples from the bottom of the pit and collected a representative sample from the stockpiled material prior to backfilling. The excavation was then lined with a minimum of 6 mil liner, the soil was placed back into the excavation, and the liner was folded over on top of the soil.

The results of the analytical data indicate the soil contains high concentrations of lead and TNT. The Corps has notified TCC, the Restoration Advisory Board, the area soccer league, and the regulators, and has posted signs around the affected area. As an interim measure, the Corps is proposing to place a geofabric material and a layer of clean soil on top of the excavated area to prevent anyone from coming into contact with the contaminated soil until the Corps can complete a full Remedial Investigation/Feasibility Study of the entire site. The Corps has placed a public notice in the *Virginian-Pilot* newspaper notifying the community about the proposed removal action, the availability of the administrative record and associated work plan, and the 30-day public comment period that will run from November 4 through December 4, 2003. The regulators have requested that the Corps complete this response action as soon as possible.



Site Map

— FNOD Boundary
— TNT Study Area

Site History

The original 2 to 3-acre site was discovered in April 1987 when a piece of crystalline TNT was found by a child on the ground along the entrance road to the College. The child's parent reported it to the State Police. The original site was fenced off by an EPA emergency response team. Several weeks after the initial discovery, the Army Corps of Engineers assumed responsibility for the site under the Formerly Used Defense Site program. The Army Corps then contracted with Engineering, Design and Geosciences Group to conduct an ordnance survey of the site in June and July 1987. This investigation led to the discovery of bulk explosives, small arms ammunition, other ordnance items, and a several ton slab of crystalline 2,4,6 Trinitrotoluene (TNT). It also revealed several abandoned burn pits that the Army used to dispose of miscellaneous ordnance items and a steam-out area that was used to remove TNT from projectiles and ammunition casings.

The 1987 discovery was the primary event prompting the EPA investigation of FNOD. In 1999, EPA designated the TNT Area along with five other sites at the Former Nansmond Ordnance Depot as contaminant "Source Areas" for the Superfund National Priorities List (NPL).

What's Been Done?

Since the 1987 discovery, the Army Corps has completed several removal actions and rounds of soil and groundwater testing in the TNT area.



TNT found in pit 18

Ordnance & Explosives (OE) Removal Actions

1987

In May 1987, the Army Corps conducted the first OE surface sweep in the TNT area. Approximately 10 lbs of high explosives (TNT), 170 lbs of ordnance material, and 400 lbs of scrap metal were collected and disposed of off-site. The next ordnance survey was conducted in June and July 1987. This effort involved a geophysical survey, 15 test excavations, installation of seven groundwater monitoring wells, groundwater sampling, and soil sampling. OE was discovered in six out of the 15 test excavations along with hundreds of 30 & 45 caliber rifle ammunition, explosive boosters, 100 -150 cubic feet of crystalline TNT, burnt out tear gas canisters and fuses, and scrap metal.

1988

The Corps conducted another surface and subsurface OE clearance at the site in December 1988. OE was removed from several of the previously identified pits as well as some newly discovered pits. Approximately 5,500 lbs of OE was removed from the site.

1999

In May 1999, the Corps entered into an Interagency Agreement (IAG) with the EPA to perform a Time Critical Removal Action for OE at several locations within FNOD including the TNT area. The Corps proceeded with a geophysical survey of the TNT area in July 1999 that identified several new magnetic anomalies to investigate.

2000-2002

From January 2000 through April 2001, the Corps completed an OE removal at the TNT area based on the findings of the 1999 geophysical survey. The OE field team removed and disposed of assorted OE items, scrap metal, creosote, and miscellaneous non-OE related waste such as pipes, bricks, marsh matting, and utility poles offsite. In all, the field team investigated twenty-five 100-foot square grids in the TNT area. They removed adaptor boosters, fuses, TNT bags, raw TNT, small arms and rifle grenades, 337 lbs of OE scrap along with 11 tons of non -OE related scrap. They also discovered a solid slab of TNT approximately 6 feet below the surface that was left in place to be addressed after the OE investigation was complete.

2003

In June 2003, approximately 500 pounds of TNT were excavated and removed. This was the final OE removal effort in the TNT area.

Soil & Groundwater Sampling

1987

The Corps began soil and groundwater sampling in the TNT area in June and July 1987 as a part of the Ordnance survey of the site. The Army Corps contractor, Engineering, Design & Geosciences Group (EDGe) collected 36 soil samples from the 15 test excavation areas. The soil was visibly contaminated. It was tested for explosives (TNT, RDX, HMX, 2,4 DNT, TNB, and DNB), Total Petroleum Hydrocarbons (TPH), and heavy metals (Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, and Selenium). These soil samples exceeded EPA's Residential Risk Based Concentrations (RBCs or screening levels) for Arsenic, TNT, Cadmium, Copper, 2,4-Dinitrotoluene, and Lead in several locations. EDGe also installed six groundwater monitoring wells around the perimeter of the TNT area and one south of the area to provide background data. The groundwater was tested for explosives (TNT, RDX, HMX, 2,4, DNT, TNB, and DNB), Semi-Volatile Organics Compounds (SVOCs), Volatile Organic Compounds (VOCs), and heavy metals (Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, and Selenium). Barium was detected in 3 monitoring wells above EPA's RBCs for tapwater. Explosives were detected in two monitoring wells at concentrations above EPA's RBCs (screening level) for tapwater. Arsenic, Copper, and Dichloromethane were detected in one monitoring well at concentrations above EPA's RBCs for tapwater.

1989-1991

Between November 1989 and February 1991, the Corps began conducting more soil and groundwater sampling in the TNT area to further understand the characteristics of the site, the extent of the contamination, movement patterns, and to assess potential human exposures. Soil samples were collected from 35 soil borings and ten surface locations. Several soil samples exceeded EPA's RBCs for metals such as Arsenic and lead, and TNT. Five new monitoring wells were installed. Groundwater samples from several of these wells contained high concentrations of explosives and exceeded EPA's RBCs for tapwater.

1993

The final boundary of the TNT area was established by EPA following a review of historical aerial photographs and suspicious topography (changes in elevation and disturbed areas) north of the original removal site. (Archives Search Report, December 1993)

1994

In August 1994, five new monitoring wells were installed, two were abandoned, and one was replaced. Soil samples were collected during the installation of the new monitoring wells. Groundwater samples were collected from the existing and newly installed wells. Several groundwater samples contained high concentrations of explosive compounds and lead.

1998

During November 1998, soil samples were collected from the southern portion of the TNT area, where the ordnance and bulk TNT had been discovered. Several of the soil samples contained high concentrations of Arsenic, Dieldrin, TNT, Metals, and VOCs exceeding EPA's RBCs.

2003

In March and April 2003, the Corps conducted more soil and groundwater sampling in the TNT area to determine the extent of contamination. The Corps is currently in the process of validating the 1998 and 2003 analytical data for the soil and groundwater sampling efforts.



Soil sampling locations

Soil Sampling results – Metals were detected in all the soil samples at various concentrations. Dioxins were detected in three subsurface samples approximately 4 feet below the surface. Explosives were **not** detected in any of the subsurface soil samples but were detected in one surface sample.

Groundwater results – TNT was detected in 4 wells at concentrations ranging from 2.6 ppm to 97.2 ppm above EPA's RBCs of 2.23 ppm for tapwater. Arsenic, Iron, and Manganese were also detected in several wells above EPA's RBCs along with Dioxins which do not currently have an EPA standard established.