



# Ordnance & Explosives Removal Actions

## Site History

The former Nansemond Ordnance Depot (FNOD) occupied 975 acres overlooking the Nansemond and James Rivers in Suffolk, Virginia, over a 43-year period (1917 to 1960). It played a major role in the storage, shipment, inspection, reconditioning, and disposal of munitions during World War I and World War II.

The original depot (circa 1917) included 28 standard ammunition magazines, 25 high explosive magazines, 13 smokeless powder magazines, 8 primer and fuze magazines, a large warehouse, 16 barracks buildings, 2 officers quarters, hospital, garage, fire house, machine shop, electric storage battery charging station, and other support buildings. Other construction included jetties, guard towers, pier, water tower, and renovation and salvage plant as well as railroads and roads within the site.

**Magazines** – a military storage area for arms and ammunition

In 1960, the Department of Defense (DoD) declared the FNOD property excess. Various land transactions have taken place within the 975 acres since the initial release of the property in 1960.

Today the site is occupied by Tidewater Community College (TCC), Portsmouth Campus; Dominion Land Management (Bridgeway Commerce Park); General Electric; Continental Properties; the Hampton Roads Sanitation District; and the Virginia Department of Transportation, including a portion of Interstate 664.

## Ordnance Work Completed 1987 - 1998

In spring 1987, bulk explosives, small arms munitions, and other ordnance were discovered in a 2- to 3-acre area at the entrance of TCC. This area is known as the TNT disposal area.

In December 1988, the Corps removed 4,400 pounds of boosters, 260 pounds of bulk explosives, 1,360 pounds of small arms and miscellaneous components, and 30,275 pounds of contaminated soil from this site.

In 1992, the Corps conducted an additional removal in the TNT disposal area. Approximately 15 tons of soil laden with bullet casings and slugs, and approximately 80 tons of contaminated soil were removed.

In 1993, an Archive Search Report was completed to identify the types, quantities, and probable locations of ordnance and explosive (OE) waste at the site.

In 1996, the Corps completed another removal that involved the sifting of 500 cubic yards of soil stockpiled on TCC property. Approximately 31,450 pounds of ordnance-related items and 351 pounds of scrap metal were found in the soil. The ordnance-related items consisted of fuze adapters, booster cups, 20 mm target-practice ammunition, 37 mm armor-piercing ammunition, and 60 mm mortars.



Grenade Fuze and Detonator



Mortar Fuze

1996-1998 Foster Wheeler Environmental Corporation conducted geophysical surveys on Dominion Lands property to investigate the presence of OE. In late 1997, Foster Wheeler completed the sitewide geophysical field work for the draft Engineering Evaluation/Cost Analysis (EE/

# Ordnance Work Completed

1987	TNT discovered & removed from disposal area at TCC entrance
1992	Second Removal Action at TNT disposal area
1993	Archives Search Report
1996	OE investigation for Dominion Land Management; Ordnance removal of soil stockpiled on TCC
1996-1998	Engineering evaluation/cost analysis (EE/CA) study
March 1999	Ordnance investigation around piers
May 1999	EPA and USACE sign Technical Memorandum to address ordnance
July 1999	FNOD listed on NPL
March 2000	Began OE investigations at Continental Properties
April 2000	Began excavations at 33 Pits & Trenches at TCC
May 2000	Began OE investigations at Dominion Lands II
June 2000	Began OE work at GE
July 2000	Completed excavations at Building E410 (TCC)
Sept 2000	Completed excavations at Building L-11 & L-12 (TCC)
Sept 2001	Completed removal actions at James River & Nansemond River Beachfronts
Nov 2001	Completed excavations at 33 Pits & Trenches at TCC

CA) report. Approximately 40 grids (30 x 30 meters in size) across the site were studied. These grids were selected based on the archive search report, aerial photo reviews and input by property owners, regulatory agencies, and other interested parties.

Approximately 1,966 anomalies were identified; 926 of these were excavated. Five ordnance-related items were found, including an empty 40 mm projectile, a partially empty 37 mm projectile, a 75 mm projectile, and two 20 mm projectiles. Three additional items were found outside the grids: two M-18 smoke grenades and one 4.5 barrage rocket. Additional test pits were dug in areas that had numerous anomalies including the James River beachfront area, the GE Main Burning Ground, the Impregnite Kit area, and the brick vault area.

The only ordnance-related materials found were in the GE Main Burning Ground, where the pits confirmed the presence of ordnance burn and burial trenches to the depth of about 6 feet. Geophysical studies were also conducted at the TCC lake, the Horseshoe Pond, select areas of the James River beachfront, the Main Burning Ground Area, Tracts A, B, H, I, J, K, and Area J Pond. The EE/CA report was completed in 1998.



*Geophysical Study on James River Beachfront*

## Ordnance Work Completed 1999 - 2002

**In March 1999**, the Corps enlisted the help of Yorktown Naval weapons/ordnance experts and divers to search for potential ordnance around the World War I and II era piers. The investigation lasted 3 days and no explosives were detected.

**May 1999-November 2001**, EPA and the Corps signed a Technical Memorandum to address additional ordnance concerns at the site. The objective of the agreement was to remove OE in designated areas of FNOD including the beachfront, Dominion Lands, and the GE Main Burning Ground (kickout areas and burial/burn trenches). In addition, the Corps initiated surface clearances and geophysical

# Ordnance Work Completed

investigations at five areas of concern on TCC property including: the TNT Removal Area, the Athletic Fields, the Renovation Plant Area, Buildings L-11 and L-12, and Building E410.



*Clearing Anomalies*

Between April 2000 and November 2001, the Corps excavated a total of 33 pits and trenches in the TNT Removal area, Athletic Fields, and Renovation Plant area. The following is the status of each area:

- ◆ **TNT Removal Area** – This investigation area was enlarged beyond the original removal site to ensure that no other OE was present. The geophysical investigation was completed in July 1999.



*Hand sifting through soil for OE items.*

Twenty-six anomalies were detected. Four pits were excavated in the TNT area including Pits 12, 15, 18, and 19. No OE was found in pits 15 or 19. The Corps removed a number of OE items in Pit 12 including: 396 British Stokes Mortar Fuzes, an assortment

of items that included a MK-2 hand grenade, several projectiles, booster cups, burster tubes, a 3-inch Stokes Mortar, several other types of fuzes, a very small amount of TNT, and black powder. No OE was found in Pit 18; however, 13 adapter boosters, a British MK 146 fuze, and a shot gun shell were



*WWI Adapter Booster*

found within 50 feet from the pit. The Corps will be conducting additional surveys in the area surrounding Pit 18 in the summer of 2002.

- ◆ **Athletic Field (South and North)** – A geophysical survey was completed in July 1999 due to concerns about the area's terrain. Twenty-eight anomalies were detected. No OE was found.

- ◆ **Renovation Plant Area** – This area was previously used to renovate shells. The geophysical investigation was completed in July 1999. Fifty-eight anomalies were detected. No OE was found.
- ◆ **Building L-11 and L-12** – These magazine buildings were destroyed in the 1920s by fire. The geophysical investigation was completed in May 2000. The Corps completed excavations at approximately 800 anomalies between August and September 2000. No OE was found.
- ◆ **Building E410** – This magazine building was destroyed by fire in 1937. The geophysical investigation was completed in May 2000. Five hundred and fifty to 600 anomalies were detected. The Corps excavated approximately 200 anomalies between June and July 2000. No OE was found.

The following is a summary of the status of the OE removal efforts on Dominion Lands, Continental Properties, General Electric's property, James River Beachfront, and Nansmond River Beachfront.

- ◆ **Dominion Lands I (now Continental Properties)** – The Corps began to investigate for OE at this site in March 2000. Approximately 11 acres have been completed. OE clearance efforts are still required on 1.15 acres. The following OE items have been found here to date: M-96 20 mm incendiary projectiles, grenade fuzes, partial 40 mm, and 75 mm projectiles, a M66 base fuze, and a booster.



*Site map showing areas of concern and surface sweep locations*

# Ordnance Work Completed

- ◆ **Dominion Lands II-** The Corps began to investigate for OE at this site in May 2000. This investigation involves approximately 11 acres. The Corps has completed 8.5 acres and has plans to clear an additional 2.3 acres. The following OE items have been found here to date: 20 mm and 40 mm projectiles, grenade fuzes, projectile fuzes, and a 12-gage shotgun shell.
- ◆ **GE Main Burning Ground** – The Corps began investigating OE in this area in June 2000. The investigation involves approximately 30 acres. There are 16 acres left to clear. To date, the Corps has found mostly 20 mm High Explosives (HE) projectiles and grenade fuzes in this area. However, a few other OE items have been found, such as 37 mm, 40 mm, and 75 mm HE; 75 mm shrapnel; 3-inch HE Projectiles, HE and smoke rifle grenades; and various caliber small arms.
- ◆ **James River Beachfront** – The Corps completed a removal action at the beachfront in September 2001. No live ordnance was found; however, the Corps did find a 9-inch civil war cannon ball, as well as a number of empty 170 mm German projectiles, and an empty 8-inch projectile. These items were opened with an explosive charge to ensure that they did not contain any explosive residue.
- ◆ **Nansemond River Beachfront-** In September 2001, the Corps completed a removal action involving slag material on the beachfront. No OE items were found.



OE Investigation at GE

## OE Removal Efforts to Date

The original EE/CA study identified only 133 of the 975 total acres at FNOD as potential OE concerns. Of those, the Corps has investigated 70 acres that were proven to be free of OE and cleared 31 acres that did contain OE. From 1975 through the end of 2001, the Corps removed the following from FNOD:

- ◆ 1,381 OE items (partial or whole items containing unexpended explosives)
- ◆ 38,410 pounds of miscellaneous munitions (small arms ammunition, primers, detonators, tracers, etc.)
- ◆ 8,271 pounds of bulk explosives (Crystalline TNT from the TNT area)
- ◆ 15,128 pounds of OE scrap (shrapnel, fragments, and burned-out ordnance)
- ◆ 421,607 pounds of non-OE scrap (construction debris, etc.)
- ◆ 1,940,275 pounds of contaminated soil

## What's Next?

There are approximately 30 acres left to clear at FNOD. OE work is expected to continue through 2004. The Corps will focus its efforts in 2002 on completing OE investigations on Dominion Lands property, Continental Properties, and its final survey on TCC property in the vicinity of Pit 18. The Corps will also continue its efforts on General Electric's Property.

## Community Input

The Corps has prepared a draft Land Use Controls Implementation Plan to address any residual risk of ordnance that may exist at the site. The Corps is seeking public comment on this plan until April 7, 2002. Copies of the draft plan can be obtained from the project website at <http://www.nao.usace.army.mil/Projects/Nansemond/welcome.html>. Written public comments should be submitted to Ken Hafner at [Kenneth.W.Hafner@usace.army.mil](mailto:Kenneth.W.Hafner@usace.army.mil).

### Contact Information

For more information about the Former Nansemond Ordnance Depot project or Institutional/Land Use Controls, 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