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NCBC GULFPORT
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FACT SHEET NUMBER 17 REMOVAL ACTION OF DIOXINS IN SOIL SEDIMENT AND
SURFACE WATERS AT 28TH STREET CONSTRUCTION PROJECT NCBC GULFPORT MS
10/1/1995
NAVFAC SOUTHERN



NAVAL CONSTRUCTION BATTALION CENTER

Gulfport, Mississippi

Installation Restoration Program

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This fact sheet is one in a series informing interested citizens of the environmental investigations and remedial actions at Naval Construction Battalion Center (NCBC) Gulfport. Fact sheets will be produced at program milestones and in response to other items of public interest. Distribution is coordinated through the Public Affairs Office at NCBC Gulfport, (601) 871-2393.

FACT SHEET 17: Removal Action, 28th Street Construction Project

Introduction

Environmental studies at the Naval Construction Battalion Center identified very small amounts of dioxin in soil, sediment (soil trapped under water), and surface water (water in ditches). Immediate steps were taken in response to these findings, including (1) installing sediment recovery traps in ditches on the base to prevent further movement of dioxin and (2) removing sediments from the ditches along 28th Street (on the north side of the base where road construction was planned). This fact sheet describes the removal of the sediments near the planned road construction.

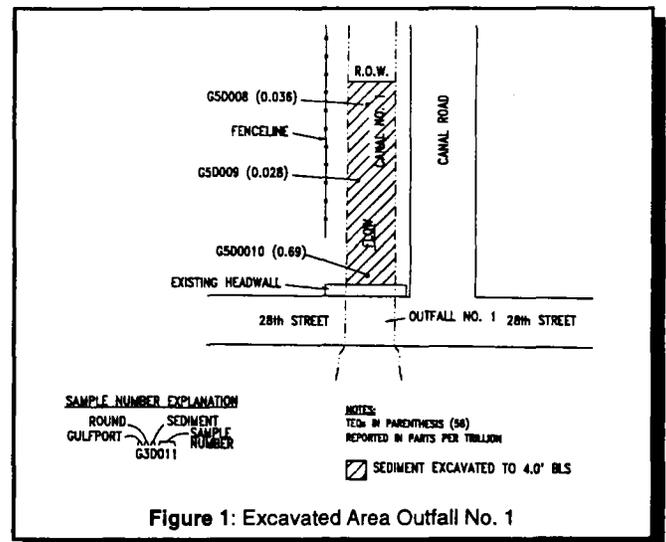
Prior fact sheets provided information about environmental investigations and planned responses to the presence of dioxin.

- ❑ Fact Sheet 3 discussed the results of the December 1994 sampling effort.
- ❑ Fact Sheet 4 discussed the results of the basewide sampling.
- ❑ Fact Sheet 5 described the Naval Construction Battalion Center's immediate response to the sampling results.
- ❑ Fact Sheet 14 discussed the results of the offbase sampling completed in April 1995.
- ❑ Fact Sheet 15 described the installation of sediment traps, also completed in April 1995.

This fact sheet discusses how sampling results were used to aid the removal of sediment near 28th Street where road widening and other improvements were to be completed. The "Background" section summarizes events that led to the sediment removal.

Background

Very small amounts of dioxin were found in ditch sediment on the north side of the Naval Construction Battalion Center in December 1994. Sample results showed dioxin levels from 0.1 part per trillion to 116 parts per trillion (116 parts of dioxin in 1,000,000,000,000 parts of soil) present in sediments. Further testing in February 1995 confirmed these results. Additional testing was completed in April 1995, providing information to determine dioxin distribution in the ditches. Three areas requiring removal of sediment were identified: Outfall 1 (Canal 1), Outfall 2, and Outfall 4 (Figures 1 through 3). In these areas, dioxin in the



sediment was higher than concentrations permitted by the State of Mississippi (4.7 parts per trillion). Fact Sheet 5 discussed these sample results in detail. The extensive environmental sampling information, described earlier, was used to guide the removal of the affected sediments.

Dioxins include an entire family of chemically similar compounds, including furans. Laboratory procedures used to identify dioxin detect and measure all chemicals in the family. The amount of each dioxin compound in a sample is added, producing a sum presented as a single dioxin value called the Toxicity Equivalence Quotient (TEQ). The dioxin value for each sample location is compared with levels of dioxin determined to be safe in the environment. These levels are set by the Mississippi Department of Environmental Quality. Dioxin values higher than the safe level set by the State must be cleaned up.

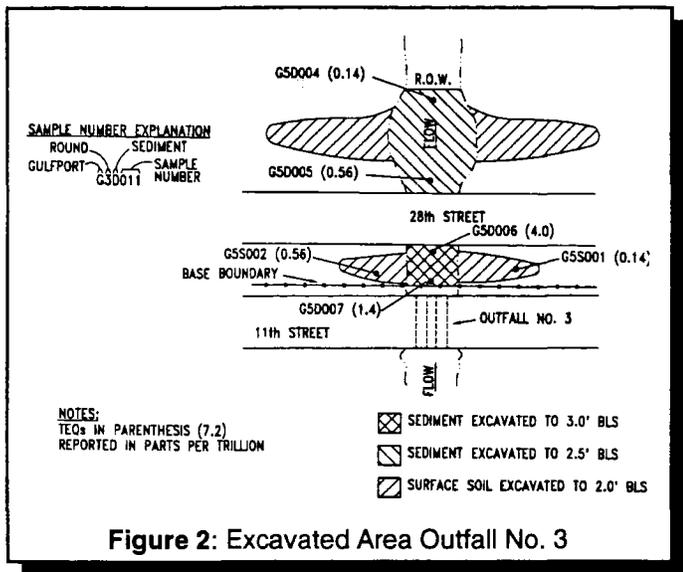


Figure 2: Excavated Area Outfall No. 3

Removing Affected Sediments

The Seabee Center worked closely with the State of Mississippi to plan the removal of the affected sediments. State-approved plans were followed throughout the process, and excavation and removal were completed in July 1995. The excavated areas are shown in Figures 1 through 3.

How the Sediments Were Removed

Like any other construction project, safety boundaries were set up at the site before work began, with only authorized persons allowed inside the boundary. The affected sediments were under 1 to 5 feet of flowing water. The first step in removing the sediments was to divert the flow of water in the ditches. After diverting the water flow, the remaining standing water was pumped off until the ditch was dry. Sediments were excavated with ditch-digging equipment (no special equipment was required). Excavated sediments were placed into large dump trucks and transported to a specially prepared handling area on the base. Every truck bed was lined with plastic to prevent the wet sediment from leaking out during transport.

Air samples were collected in and around the area of the excavation 24 hours a day during the removal process. The samples were analyzed for all dioxin and furan compounds. Results of this testing show that the health and safety of both the workers at the site and the general public was protected.

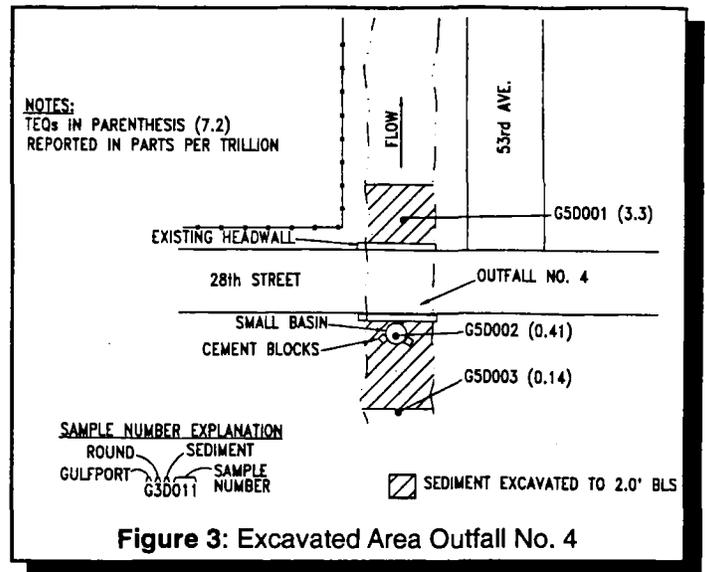


Figure 3: Excavated Area Outfall No. 4

Sediment Handling Area

The sediment-handling area on the base consists of a large (85' x 65') trench lined with plastic to prevent the sediment from draining into the ground. In all, about 300 cubic yards of excavated sediment was placed in the trench. A plastic cover was placed over the entire area to prevent rainwater from entering the trench.

Confirmation of a Successful Dioxin Removal

After the excavation was completed, samples of the soil that remained in the bottom of the ditches were collected to ensure that all sediment with dioxin concentrations above State health and safety standards was removed. Confirmation sampling showed that the remaining soil met or was cleaner than standards set by the State. Confirmation results are shown in Figures 1 through 3.

For More Information

Additional information, including a complete report of findings, will be placed at the Naval Construction Battalion Center Installation Restoration program information repository. The information repository is located as follows:



Gulfport-Harrison County Library
Reference Section
21st Avenue
Gulfport, Mississippi 39501
(601) 863-6411