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FACT SHEET 23 FOR RESULTS OF ON BASE GROUNDWATER SAMPLING NCBC GULFPORT MS
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NAVAL CONSTRUCTION BATTALION CENTER

Gulfport, Mississippi
Installation Restoration Program

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, (228) 871-2393.

FACT SHEET 23: Results of Onbase Groundwater Sampling

Introduction

Fact Sheet 23 presents the results of a groundwater study completed on the Seabee Center from October 1998 through March 1999. The purpose of the study was to find the limits of dioxin and related contaminants in the groundwater.

How Samples Were Collected

Groundwater sampling was completed on the Seabee Center using two different sampling techniques:

- **Direct push technology** that involves pushing a sampling device below the ground.
- **Monitoring well installation** that involves drilling and installing a permanent well from which a water sample can be taken.

The Seabee Center groundwater study used the less expensive direct push technology as the first step in the investigation (Phase I). Permanent monitoring wells were then installed where contamination was very likely to be found (Phase II). Samples from both techniques were sent to a laboratory for analysis. The analyses looked for dioxins as well as other common contaminants.

How Dioxin Results are Interpreted

Groundwater results are compared against standards, the most common being the Federal Maximum Contaminant Level or MCL. The MCL for dioxin is 30 ppq.

Dioxin Findings

Dioxin was found above EPA MCLs in one sample at Sites 5 and 7. All other sites-1,2,3,4-had samples below the MCL for dioxin. Dioxin findings are shown in the figures on the next two pages. The results are shown in parts per quadrillion, or ppq. A part per quadrillion of dioxin is equal to one particle of dioxin in 1,000,000,000,000,000 particles of water. The ability to measure these extremely small concentrations is a fairly recent advance in laboratory techniques.

Other Findings at Site 4

In addition to low concentrations of dioxins found at the site, organic compounds (generally referred to as "chlorinated solvents") were found at concentrations higher than Federal MCLs. The source of these compounds is most likely buried chlorine-containing cleaning solvents.

Other Findings at Site 5

In addition to the one sample containing an elevated concentration of dioxin, a different sample contained benzene (an organic compound commonly found in gasoline fumes) at a concentration higher than the MCL. Benzene was found in a sample during the first phase of the investigation but was not found again during the second phase. Further investigations will be conducted to confirm the absence of benzene at the site.

Next Steps

Additional sampling will be completed at Sites 4 and 5 to further evaluate the presence of organic compounds. In addition, the higher than anticipated levels of dioxin in one well on Site 5 and one well on Site 7 will require further study.

Definitions:

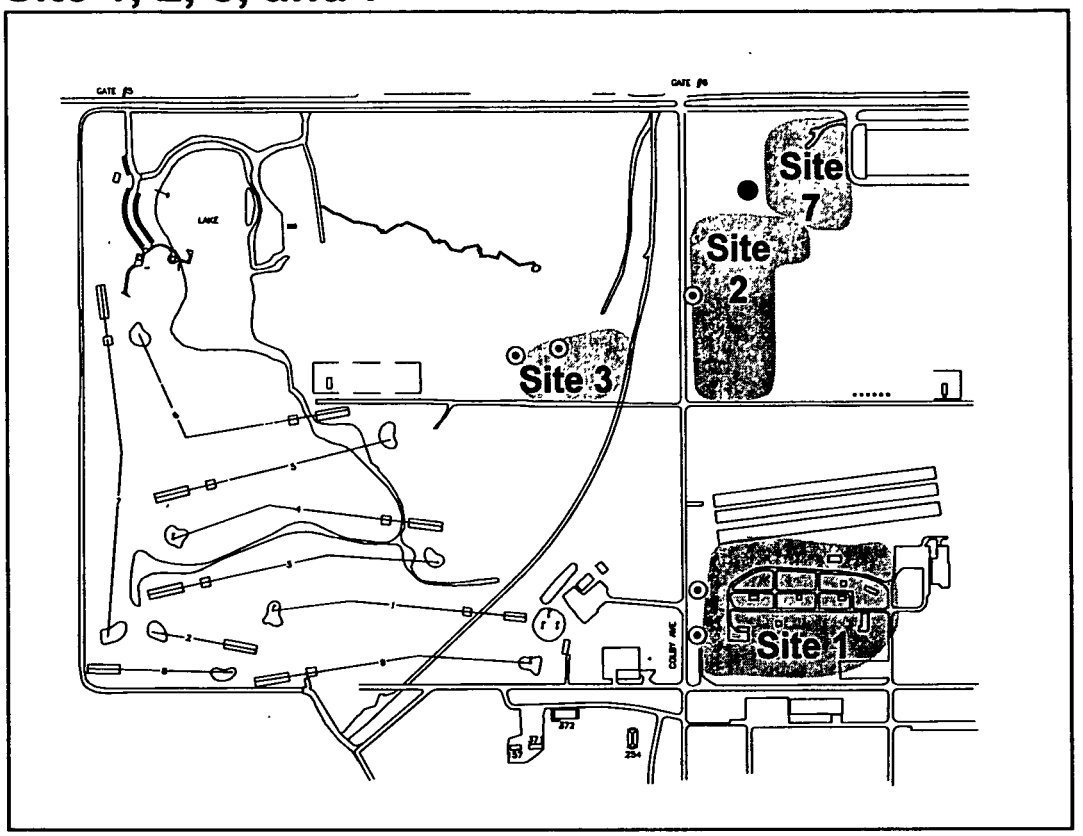
Groundwater: Water that fills the empty cracks and spaces in the soil. Wells are drilled to remove groundwater.

Maximum Contaminant Levels (MCLs): Federal standards for acceptable concentrations of chemicals in drinking water.

Monitoring Wells: Wells that are designed specifically for the collection of groundwater samples.

Parts per Quadrillion (ppq): A measurement equal to one particle of dioxin in 1,000,000,000,000,000 particles of water.

Site 1, 2, 3, and 7



Site 7: former rubble disposal area

- Dioxin was found at 77.01 ppq in one well.
- Dioxin concentrations in all other samples were below MCLs.
- Further sampling is needed to determine the source and extent of dioxin contamination.

Legend

- ⊙ Less than 30 ppq
- ● Greater than 30 ppq (Exceeds MCL)

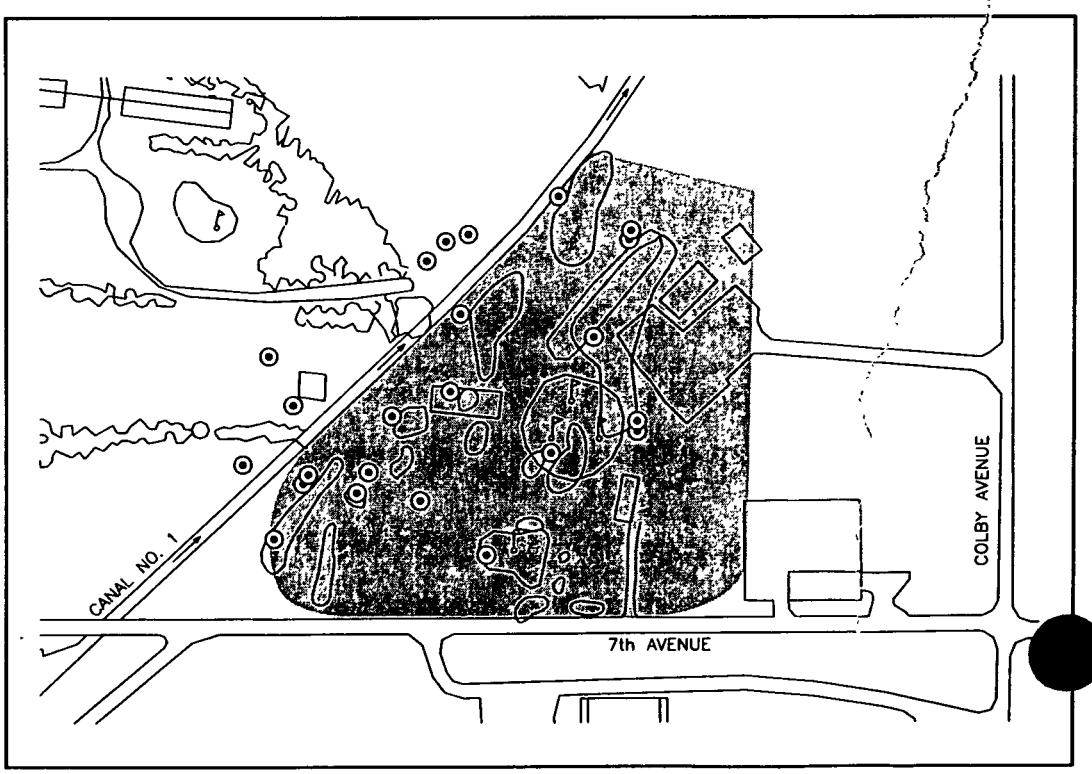
Sites 1, 2, and 3: two former landfills and a former burning pit, respectively

- Dioxin concentrations were below the Federal standard called the Maximum Contaminant Level, or MCL.
- No evidence links these sites to the storage of Herbicide Orange.

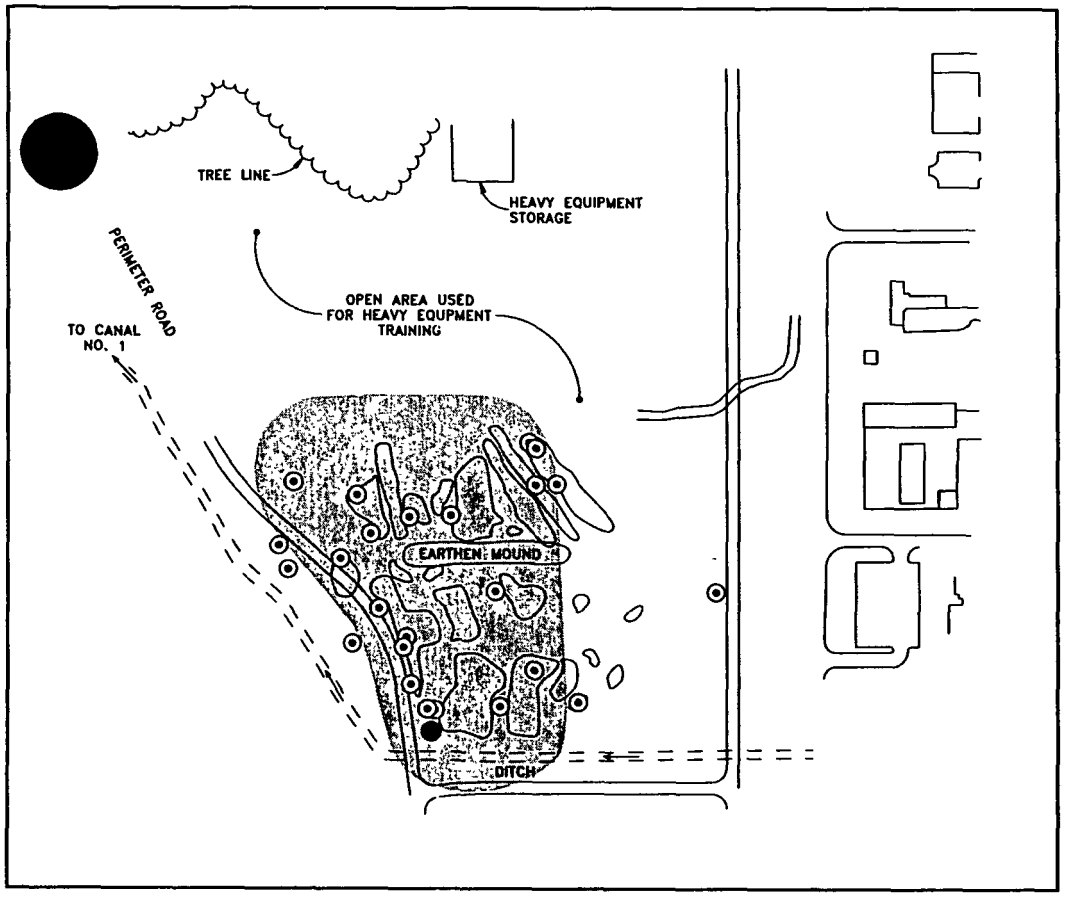
Site 4

Site 4: former landfill beneath current golf course

- Dioxin was found at low concentrations (less than 7.7ppq) below MCLs.
- Organic compounds containing chlorine were found at the site at concentrations higher than MCLs.
- Organic contaminants were most likely from disposal of cleaning solvents.
- Additional sampling is planned next year to determine the extent of the organic compounds.



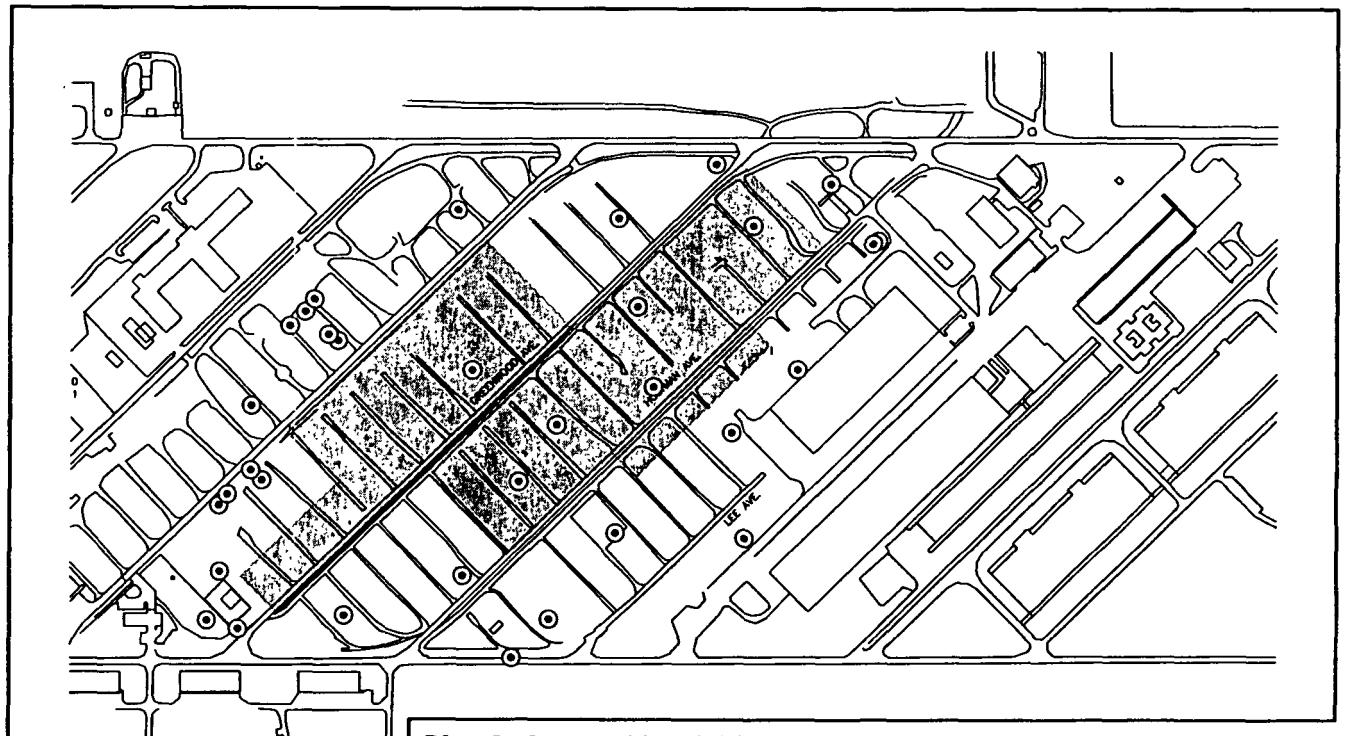
Site 5



Site 5: former landfill currently used as an equipment training area

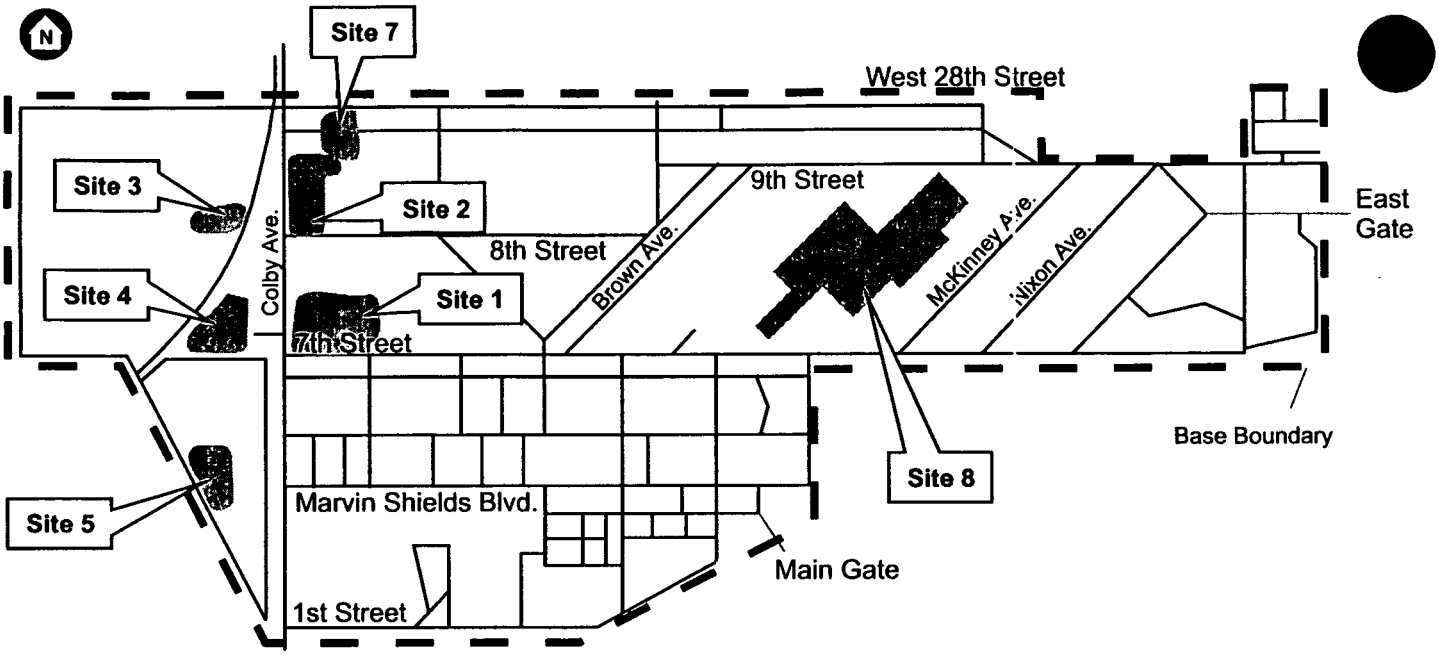
- One sample had an elevated level of dioxin (80.83 ppq).
- Dioxin in other samples was less than 14.7 ppq below MCLs.
- Dioxins at the site are probably from burning chlorine-containing solvents.
- Benzene above the MCL was found in one sample.
- Additional samples will be needed in the southern and western parts of the site.

Site 8



Site 8: former Herbicide Orange storage site

- No samples from this investigation exceeded MCL.
- Some samples collected from previous investigations within the boundary of Site 8 exceeded the MCL for dioxin
- Dioxin concentrations ranged from non-detect to 66 ppq.



For More Information ...

If you have any questions about the groundwater sampling results or any other associated activities, please contact the Seabee Center's Public Affairs Office at (228) 871-2393 for additional information.

The complete report of the results will also be placed in the Seabee Center's local information repository at the following location:

Gulfport-Harrison County Library
Reference Section
21st Avenue
Gulfport, MS 39501
Telephone: (228) 863-6411