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FACT SHEET NUMBER 22 RESULTS OF PHASE II DIOXIN SAMPLING NEAR SEABEE CENTER NCBC GULFPORT MS
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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, (228) 871-2393.

FACT SHEET 22: Results of Phase II Dioxin Sampling

Introduction

Fact Sheets 3, 4, 5, 14, 19, and 20 discussed the results of earlier rounds of sampling at the Seabee Center. This fact sheet provides a brief summary of the results of the Phase II dioxin sampling completed in May 1997.

Background

The earliest rounds of sampling showed that dioxin is present on Site 8, the Former Herbicide Orange Handling and Storage Area, and may be moving through the storm drainage ditches on the base (see Fact Sheets 3, 4, 5, and 14).

The current sampling program was designed to test the soil and water in the ditches to find out if contamination is present. This program was divided into two phases. The first phase, completed in May 1997, examined the entire base drainage area to determine where more study is needed (see Fact Sheets 19 and 20). The second phase of sampling focused on the areas where contamination was of concern based on the results of Phase I.

How Samples Were Selected

Scientists have observed that dioxin concentrations are usually highest in rich, dark soils, and particularly in slow-moving water where dioxin can settle out. They also know that nearby locations with lighter-colored sandy soils or soils in areas of faster-moving water may not contain dioxin. Using this information, and based on the results of the first round of dioxin sampling, samples were collected from rich sediment in slow-moving areas of streams and ditches.

What Was Found

The results for this phase of sampling for each drainage area are shown on the attached pages in parts per trillion, or ppt. A part per trillion of dioxin is equal to one particle of dioxin in 1,000,000,000,000 particles of soil or sediment.

Surface Water and Sediment Dioxin Delineation Study Area (Figure 1)

Figure 1 shows the ditches and streams included in both phases of the study. Phase II surface water and sediment samples were collected from all ditches and streams highlighted on the map. Samples were collected from areas most likely to contain dioxin (see How Samples Were Selected). This method of sampling ensured that locations likely to contain the most dioxin were tested.

Samples were sent to a specialized laboratory and analyzed for dioxin. The laboratory is able to detect dioxin at very low levels. For surface water samples, the laboratory can detect dioxin at 1 part in one quadrillion (1/1,000,000,000,000,000). For sediment samples, the laboratory can find almost as little dioxin (1 part in one trillion [1/1,000,000,000,000]). Although the laboratory can measure extremely small quantities, the results can only be relied upon as accurate above 15 parts per trillion.

On Base: Nearly all of the ditches and streams on the Seabee Base were sampled and analyzed for dioxin as well as many other constituents. The on-base ditches were broken up into six drainage areas, and samples were collected within each drainage area.

Although the primary focus of the sampling program was to look for dioxin in sediment, some water samples were collected. This included collection of water in ditches

Off Base: The sampling program was broken up into six ditches and streams known to receive water from the Seabee Center. The streams that were sampled included

- Canal No. 1
- Turkey Creek
- Brickyard Bayou
- Bernard Bayou
- Outfall 3 Swamp
- Outfall 4 Ditch

Surface Water and Sediment Dioxin Delineation Results (Figure 2)

Figure 2 is a summary from the nearly 200 locations where surface water and sediment samples were collected and analyzed for dioxin both on and off the base. The three symbols on this map represent the different range of dioxin amounts that were found. The amount of dioxin found usually depended on how close the sample was to the original Herbicide Orange storage area - Site 8. Also, surface water sample results are not shown on this map because all of the surface water samples were at or below the concentrations that the laboratory could detect. For more information and complete sample data refer to the complete report located in the Seabee Center's local information repository.

On Base: The elevated dioxin levels were only found on Site 8 and in ditches leading away from Site 8. Samples from other ditches on the base had much lower levels of dioxin. The other results on base, as indicated by the other two symbols, show that dioxin levels significantly decrease away from Site 8 in all directions.

Off Base: Most of the off-base samples had virtually no dioxin contamination, with the exception of the Outfall 3 Swamp. The ditches and streams with virtually no dioxin contamination were (1) Turkey Creek from just north of the base to Bernard Bayou, (2) Canal No. 1 north and south of the base, (3) Brickyard Bayou from south of the base to Bernard Bayou, and (4) Bernard Bayou from Turkey Creek to the confluence with Bernard Bayou. Only the swamp area north of the base (Outfall 3 Swamp) had significant levels of dioxin, and the levels appear to be contained in just that area. Additional work in the Outfall 3 Swamp is taking place to ensure a complete understanding and delineation of this area.

What's Next?

Plans for future activities include a remedial plan and a biological monitoring plan that will address the dioxin discovered during this program. These plans will focus on determining the best course of action to clean up this dioxin and protect human health.

For More Information ....

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

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

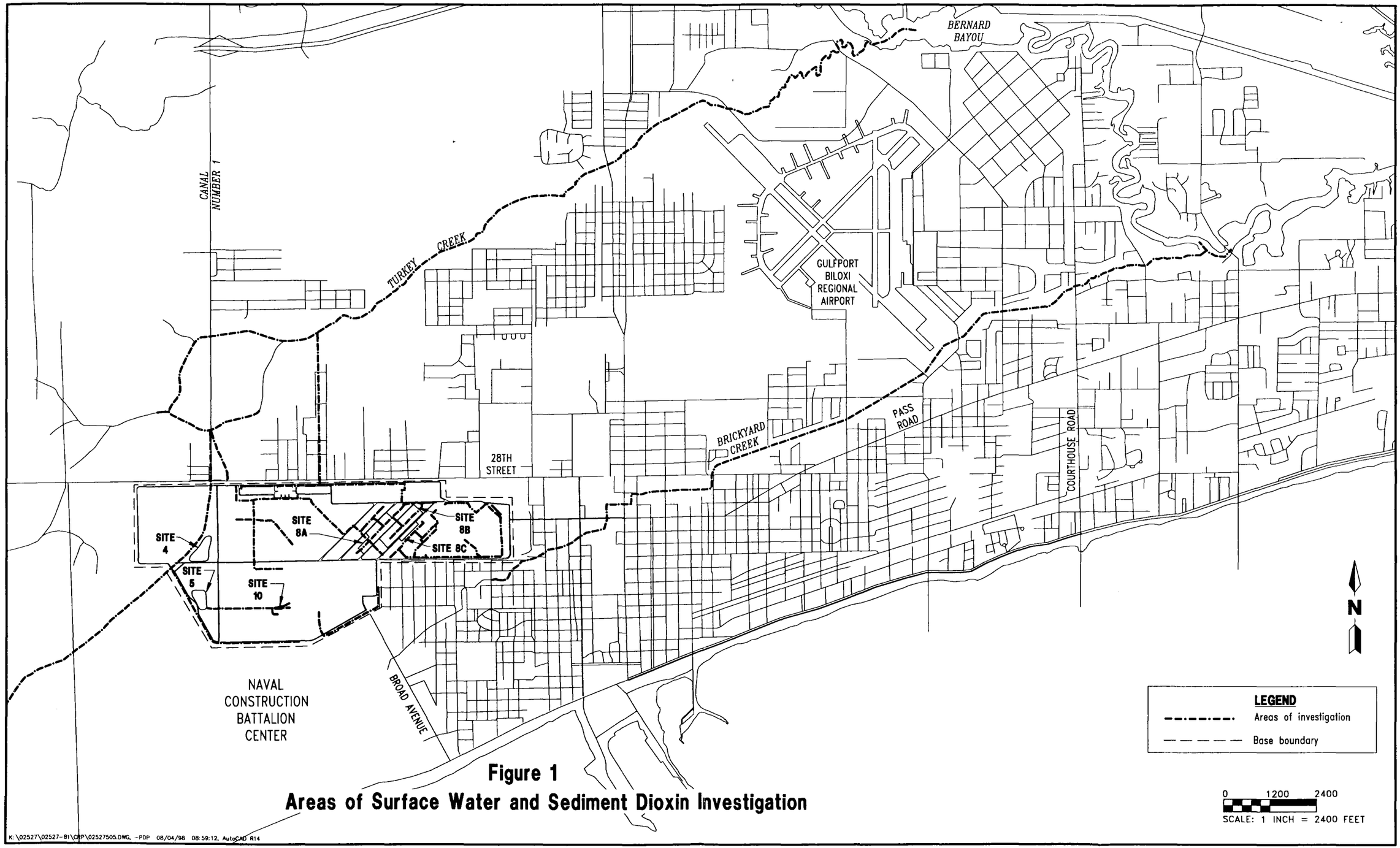

Figure 1
Areas of Surface Water and Sediment Dioxin Investigation

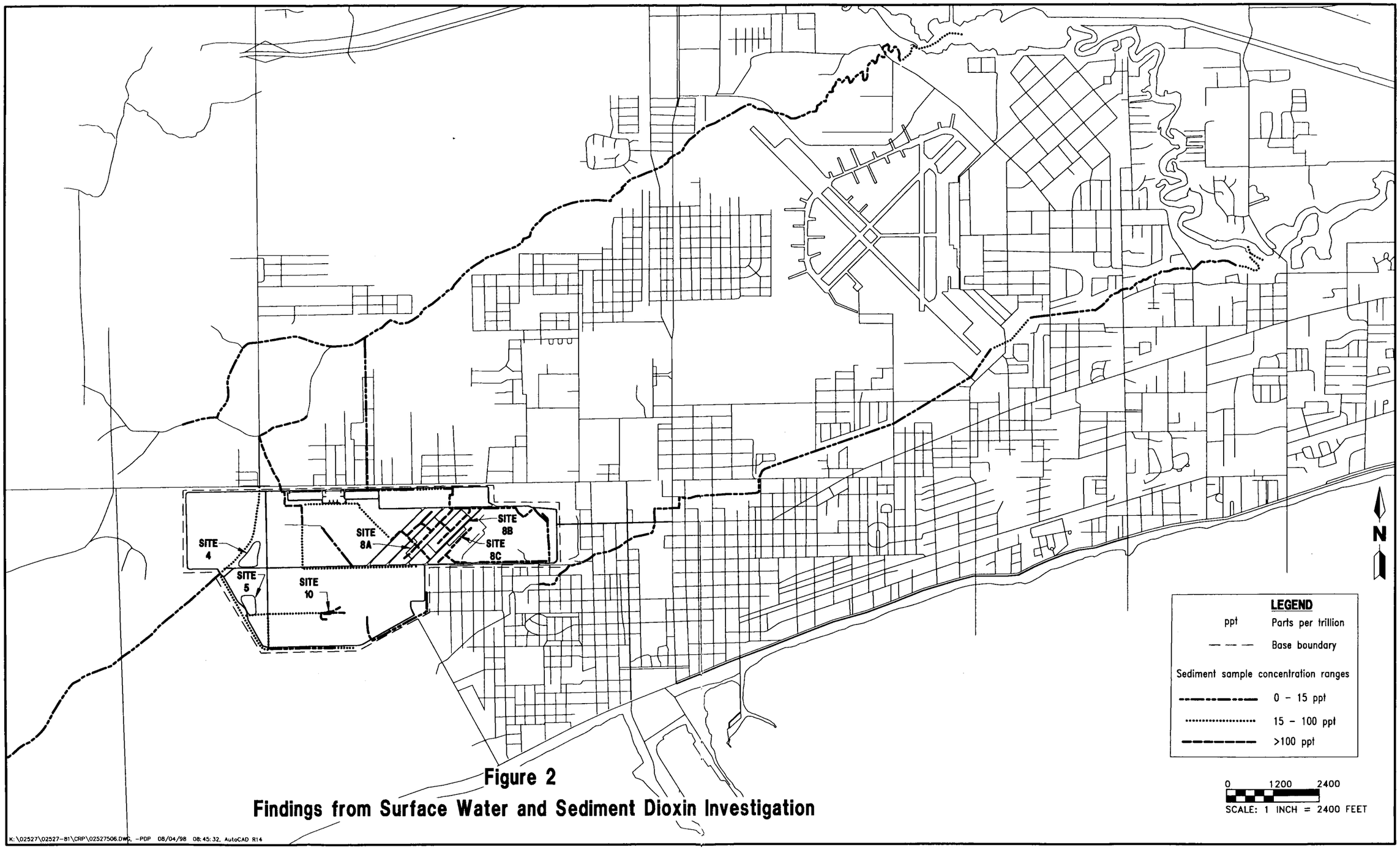

Figure 2

Findings from Surface Water and Sediment Dioxin Investigation