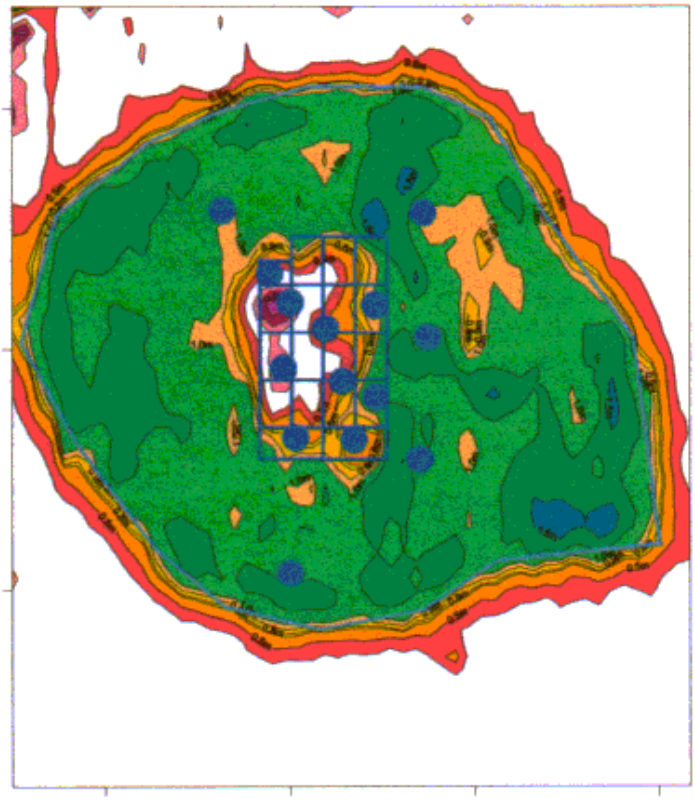
THE 1997 CATEGORY II CAPPING PROJECT AT THE NEW YORK MUD DUMP SITE: SUMMARY OF FIELD OPERATIONS FOR THE APRIL 1998 POSTCAP SEDIMENT CORING SURVEY



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ACKNOWLEDGMENT

This report presents a summary of field operations during the April 1998 Postcap sediment coring survey for the 1997 Category II Capping project at the New York Mud Dump Site. This survey was conducted by Science Applications International Corporation (SAIC) of Newport, RI, under Delivery Order 11 of SAIC's Indefinite Quantity Contract No. DACW51-97-D-0014 with the U.S. Army Corps of Engineers (USACE) New York District (NYD). Mr. Brian May is the manager of technical activities under the USACE contract; Dr. Scott McDowell is SAIC's program manager.

Logistical and planning support for the survey were provided by Mr. May of the NYD, with assistance from Mr. Tim LaFontaine of the Corps' Caven Point facility.

The following SAIC staff participated in the coring survey: Mr. Ed DeAngelo, Mr. Jason Infantino, Ms. Kate Pickle, and Ms. Melissa Swanson. SAIC staff were responsible for DGPS navigation, selection of coring stations, and handling/custody of core samples. Ocean Surveys, Inc. (OSI), under subcontract to SAIC, was responsible for providing coring equipment and an experienced coring technician, Mr. Mike Engels.

Survey operations were conducted aboard the NYD's M/V *Gelberman*. The crew of the M/V *Gelberman* is commended for their skill in vessel handling while anchoring and conducting coring operations, as well as their dedication during long hours of operations at the Mud Dump Site.

Ms. Kate Pickle prepared the text and graphic data products presented in this survey report. Mr. Ray Valente provided technical review of the report, while Ms. Ellen Bellagamba Bliss was responsible for report production.

BACKGROUND

During the period from May 27, 1997, through August 10, 1997, an estimated 700,000 yds^3 of Category II dredged material were placed in the southeastern portion of the New York Mud Dump Site. Following the completion of dredging and disposal activities, all of the project material was capped with a 1-m thick layer of sand from Ambrose Channel. In order to assess the topography of the disposal mound development and subsequent capping, a series of precision bathymetric surveys were conducted in the disposal region to acquire data for depth-difference and volumetric analyses. The baseline bathymetric survey of the region was conducted in April 1997 (SAIC 1997).

In May 1997, additional baseline monitoring activities were conducted in the area selected for the 1997 Category II Capping Project. These sampling activities include sediment coring for geotechnical analysis, seafloor video reconnaissance, REMOTS® sediment profile imagery, seafloor planview photography, sediment grab sampling for physical analyses, and collection of polychaete worm tissue for chemical analysis. The sediment core samples obtained during this phase served to provide an initial assessment of the 1997 Category II Capping Project area (1998a).

During the disposal phase of the 1997 Capping project, the development of the disposal mounds was monitored through a series of interim bathymetric surveys and a sediment coring survey performed in July 1997. This interim disposal coring survey was performed to provide geotechnical information from which long-term changes in the dredged material can be tracked (SAIC 1998b). A second sediment coring survey was performed at the conclusion of the disposal operations in August 1997 (SAIC 1998c). The cores for both coring surveys were collected with a gravity corer, and no chemical analyses were performed on the samples.

Placement of the sand cap also was monitored by a series of precision bathymetric surveys and a subbottom profiling survey. A final postcap bathymetric survey was completed on April 8, 1998 (SAIC 1998d), and the data were used in the preparation of this report. This report presents a summary of field sampling operations during the April 1998 postcap sediment coring survey.

SEDIMENT CORING OBJECTIVES

The objective of the postcap coring survey was to acquire sediment vibracores at specific locations throughout the 1997 Category II Capping Project area. The number and location of stations occupied during this survey were similar to those from previous coring surveys of this project. All 14 stations occupied during the postcap coring survey are presented in Figure 1.

One core was successfully collected from each of the 14 stations, and later delivered by SAIC to GeoTesting Express in Boxborough, MA, for the geotechnical analyses. Duplicate cores were successfully collected from seven of the 14 stations and shipped by the NYD to the U.S. Army Engineer Waterways Experiment Station (WES) for geotechnical analysis of consolidation properties. This Delivery Order entailed only the collection of the 21 sediment vibracores; geotechnical testing and analysis of the cores will be conducted under a separate delivery order.

The laboratory results for the core sample analysis will be used to monitor any physical/geotechnical changes in dredged material properties over time and to assess the long-term effectiveness of capping as a technique for isolation of dioxin-contaminated sediments. All cores collected contained a sand cap layer of at least three feet.

SURVEY OPERATIONS AND SAMPLE HANDLING

Survey Schedule

The sediment coring survey was conducted aboard the NYD's M/V *Gelberman* on April 15, 16, and 18, 1998; survey operations were suspended on April 17 due to rough seas at the Mud Dump Site.

Sediment cores were acquired at a total of 14 stations; Table 1 presents a list of core samples, sampling locations, and core lengths. One core from each station was retained by SAIC personnel and transported to GeoTesting Express in Boxborough, MA, for geotechnical analysis. Additionally, a second core was acquired at seven of the fourteen stations and shipped to WES for consolidation tests and geotechnical analysis. In all, 21 cores were collected.

Sampling Procedures and Equipment

Survey procedures were identical to those used on the May 1997 baseline vibracoring survey of the 1997 Category II Project at the Mud Dump Site (SAIC 1998a).

Vessel positioning and data integration were achieved with SAIC's Portable Integrated Navigation Survey System (PINSS). This PC-based system provides real-time navigation, and collection of position, time, and depth soundings for subsequent analysis. Vessel positioning was determined using a Trimble GPS receiver. One to five meter accuracy was achieved by applying differential correction to the GPS signal, which was acquired from the US Coast Guard broadcast station located at Sandy Hook, NJ. The survey vessel was anchored, in a 2-point configuration, during all coring operations.

An Ocean Surveys Inc. vibracorer with an internal diameter of 2 5/8-in was used to acquire the sediment core samples. This device was selected because of its demonstrated ability to acquire sediment core samples of at least 2-m in length on sand-capped mounds residing within the Mud Dump Site (SAIC 1996).

Sample Handling

Immediately following retrieval of the vibracoring device at each station, the core liner was removed from the core barrel, carefully capped to prevent loss of sediment and/or water, marked with a unique station identifier, and placed horizontally in a refrigerator aboard the survey vessel. Cores remained refrigerated either aboard the vessel or ashore at the Corps' Caven Point facility.

Once back at Caven Point, cores that were stored and refrigerated for WES analysis were packed and shipped vertically in a container provided by WES. Because this container did not have sufficient height for storage of the entire core lengths, each of the WES cores was cut at a

position of approximately 178 cm from the core base. Cutting the cores in this manner resulted in all cuts being made within the sand cap layer, and ensured that the sand cap-dredged material interface remained undisturbed. Both core sections were shipped to WES.

CUSTODY OF SEDIMENT CORES

Upon completion of the survey, the custody of the seven WES cores was relinquished from SAIC to Mr. Tom Wyche of the Dredged Material Management Section of the NYD at the Caven Point facility, for later shipment to WES. SAIC retained custody of the remaining 14 cores, which were later delivered to GeoTesting Express in Boxborough, MA, for geotechnical analyses under a separate delivery order. The chain of custody for these cores was relinquished to GeoTesting Express upon arrival at the laboratory. Table 1 lists the cores that were shipped to WES and those that were delivered to GeoTesting Express.

REFERENCES

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Table 1. Sediment Cores Acquired During the April 1998 Postcap Coring Survey

Cores provided to GeoTesting Express						
Survey Identifier	**Core**	**Replicate**	**Latitude (N)**	**Longitude (W)**	**Date Acquired**	**Length (cm)**
0498	97A	A	40° 22.3956'	73° 50.5902'	4/15/98	292.1
0498	97B	B	40° 22.3308'	73° 50.5254'	4/15/98	279.4
0498	97C	A	40° 22.2737'	73° 50.4498'	4/15/98	288.3
0498	97D	B	40° 22.2018'	73° 50.3819'	4/15/98	287.0
0498	97E	B	40° 22.1376'	73° 50.3220'	4/18/98	256.5
0498	97L	B	40° 22.2978'	73° 50.3832'	4/16/98	289.6
0498	97O	A	40° 22.2186'	73° 50.4270'	4/15/98	248.9
0498	97P	A	40° 22.1585'	73° 50.4114'	4/16/98	285.8
0498	97Q	A	40° 22.1604'	73° 50.4899'	4/18/98	283.2
0498	97R	B	40° 22.2642'	73° 50.3112'	4/16/98	288.3
0498	97S	B	40° 22.3007'	73° 50.4978'	4/15/98	289.6
0498	97T	B	40° 22.2330'	73° 50.5068'	4/18/98	284.5
0498	97U	A	40° 22.3932'	73° 50.3178'	4/16/98	284.5
0498	97V	A	40° 22.0194'	73° 50.4978'	4/16/98	266.7
Core replicates for WES						
Survey Identifier	**Core**	**Replicate**	**Latitude (N)**	**Longitude (W)**	**Date Acquired**	**Length (cm) ***
0498	97B	A	40° 22.3308'	73° 50.5260'	4/15/98	276.9
0498	97C	B	40° 22.2737'	73° 50.4498'	4/15/98	288.3
0498	97E	A	40° 22.1388'	73° 50.3220'	4/18/98	269.2
0498	97Q	B	40° 22.1609'	73° 50.4960'	4/18/98	284.5
0498	97R	A	40° 22.2636'	73° 50.3112'	4/16/98	170.2
0498	97S	A	40° 22.3007'	73° 49.9050'	4/15/98	281.9
0498	97T	A	40° 22.2330'	73° 50.5062'	4/18/98	280.7

Coordinates in NAD 83

* WES cores greater than 178 cm were cut into two pieces for shipping purposes (see text).

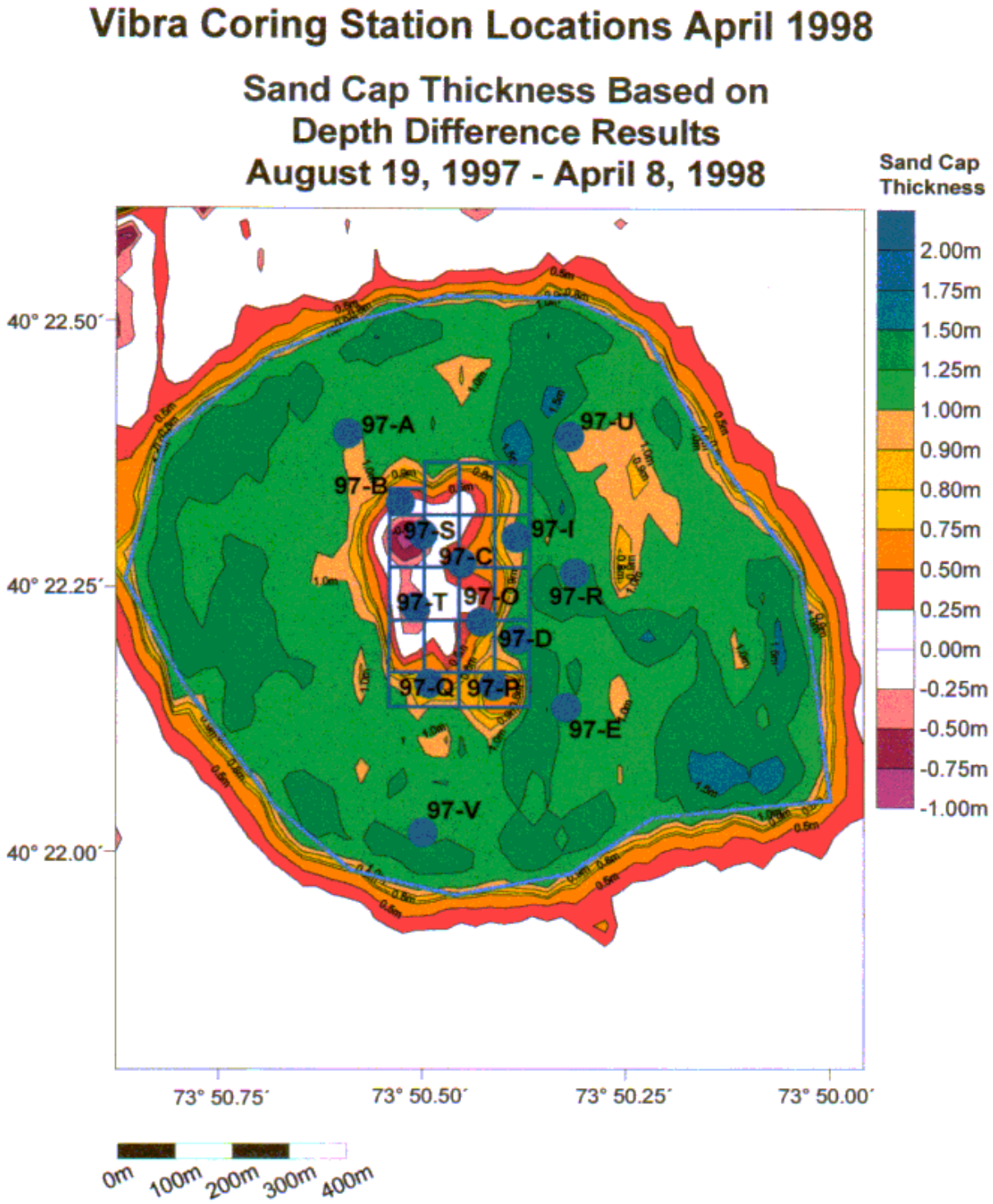

Figure 1. Stations Occupied in the April 1998 Postcap Coring Survey.