I. INTRODUCTION

A. BACKGROUND

Cedar Lake, also referred to as Nashua Impoundment, is the first impoundment downstream from the LaBounty waste disposal site. It provides the first opportunity for capture of any sediments contaminated as a result of releases from the LaBounty site. Four sampling surveys have previously been conducted on the sediments in the lake. Two were conducted by the U.S. Environmental Protection Agency (EPA) (1977 and 1985), one by the University Hygienic Laboratory (UHL) (1978) and one by the Iowa Department of Water, Air and Waste Management (IDWAWM) (1985). The EPA survey in 1977 and UHL's 1978 survey collected limited lake sediment samples. In 1985 the EPA and IDWAWM both conducted more extensive surveys employing cross-sectional sampling techniques throughout the lake. Results of these surveys were discussed in reports prepared by each agency.

On March 18, 1986, officials from Eugene A. Hickok and Associates (EAH) met with city officials in Nashua to discuss plans for a sediment survey to obtain samples from the lower lake sediments. Analytical results of this survey were considered in developing recommendations for dredging and disposal of the contaminated sediments.

B. SOURCES OF CONTAMINATION

The contaminants found in Cedar Lake are believed to have originated from the LaBounty waste disposal site located in Charles City, Iowa, on and adjacent to the Cedar River flood plain. Salsbury Laboratories disposed of wastes from the production of animal pharmaceuticals at the LaBounty site between 1953 and 1977. It has been estimated that 6,4000,000 cubic feet of waste are buried at the site. In 1977 a study by E.A. Hickok and Associates estimated

VI. CONCLUSIONS

Field work for the site investigation of the Nashua Impoundment was completed during the week of July 22, 1985. The field investigation included sampling of sediments and surface water. Fifty-five sediment samples and fourteen surface water samples were collected.

The metals arsenic and zinc were detected in the sediments at concentrations significantly higher than background. The highest metal concentrations were detected in sediments collected from a depth of 0 to 18 inches. Highest concentrations were found in area within the lake that were most removed from the major Cedar River channel in area that would by hydraulically more quiescent. Sediment sample AKJ5M-025 collected from location #8 (see Figure 3) showed the highest arsenic concentration at 120 mg/kg. Typical concentration ranges for these metals collected from similar floodplain sediments in Missouri are 2.4-170 mg/kg for arsenic and 18-153 mg/kg for zinc (Ref. 15). Sediments collected during this investigation are within these ranges.

Eighteen semi-volatile organics were detected in the Nashua Impoundment sediments at trace concentrations. These consisted mainly of polynuclear aromatic hydrocarbons (PAH's). The concentrations range from 19-300 ug/kg. The PAH's are found ubiquitously throughout the Impoundment and in the background sample, AKJ5M-064. Polynuclear aromatic hydrocarbons could have been introduced to the lake through natural and/or anthropomorphic causes.

Four pesticides were detected in five sediment samples, including the background sample, at trace concentrations. These pesticides were most likely derived from agricultural sources and carried into the lake via sediment runoff from farmland.

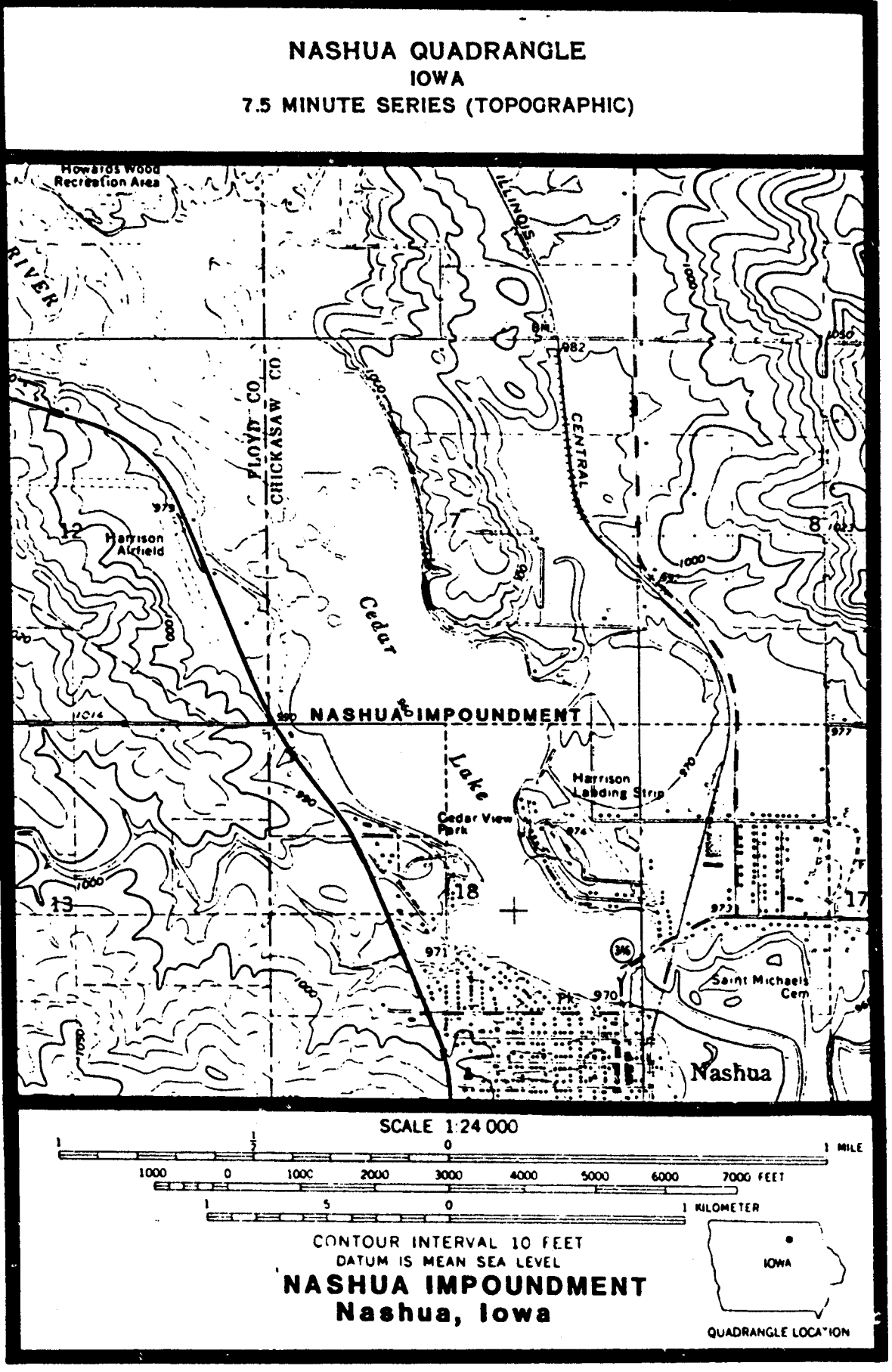
NASHUA QUADRANGLE
IOWA
7.5 MINUTE SERIES (TOPOGRAPHIC)
Howards Wood Recreation Area
ILLINOIS
RIVER
FLOYD CO
CHICKASAW CO
CENTRAL
Harrison Airfield
Cedar
NASHUA IMPOUNDMENT
Lake
Harrison Landing Strip
Cedar View Park
Saint Michaels Cem
Nashua
SCALE 1:24 000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL
NASHUA IMPOUNDMENT
Nashua, Iowa
IOWA
QUADRANGLE LOCATION

FIGURE 1

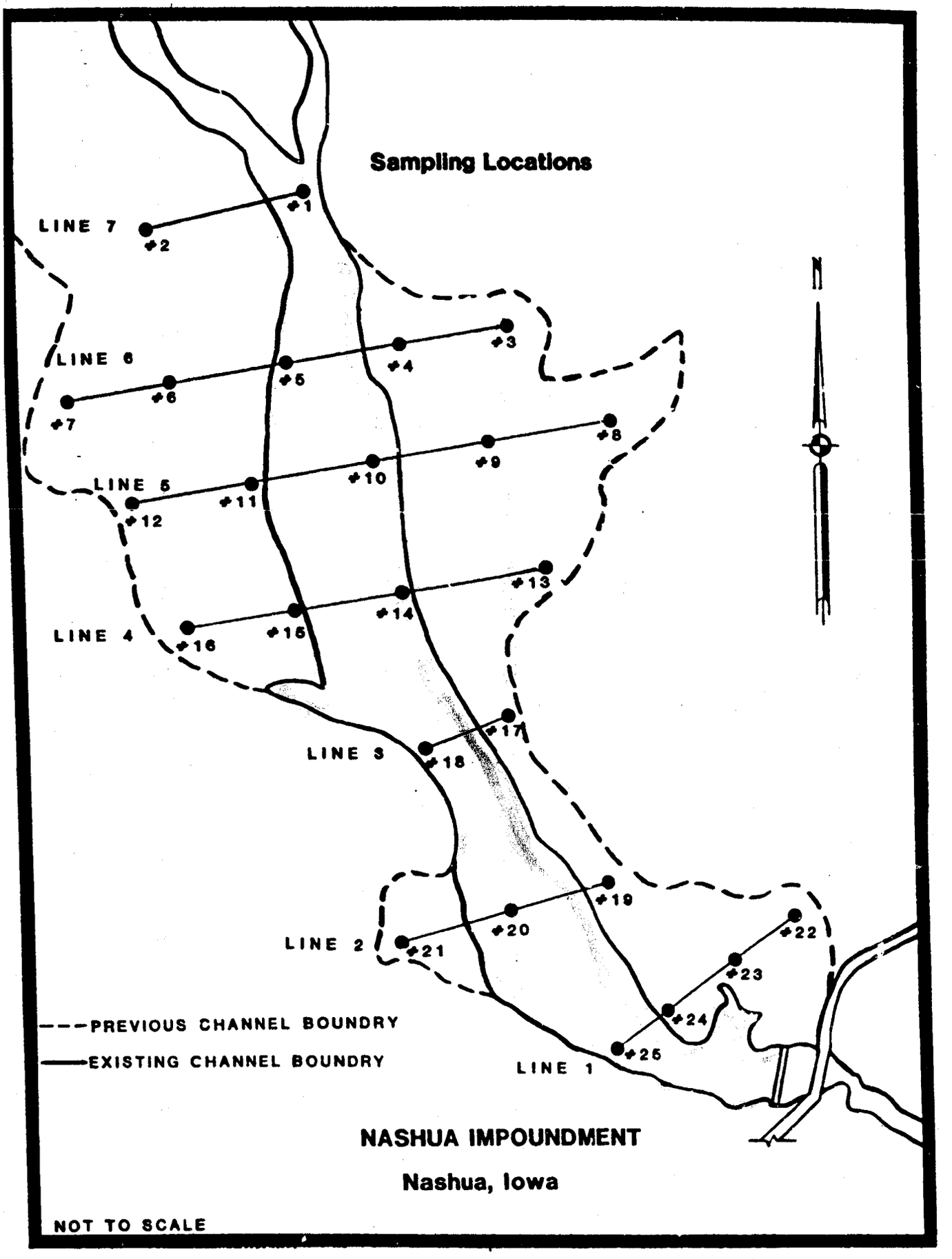
Sampling Locations
LINE 7
LINE 6
LINE 5
LINE 4
LINE 3
LINE 2
LINE 1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
---PREVIOUS CHANNEL BOUNDRY
—EXISTING CHANNEL BOUNDRY
NASHUA IMPOUNDMENT
Nashua, Iowa
NOT TO SCALE

FIGURE 3