

TOLEDO HARBOR CONFINED DISPOSAL FACILITY CDF CELL 1
DREDGED MATERIAL TESTING ANALYSIS AND USE
TOLEDO HARBOR, LUCAS COUNTY, OHIO

FINDING OF NO SIGNIFICANT IMPACT

The Buffalo District, Corps of Engineers has assessed the environmental impacts of the subject project in accordance with the National Environmental Policy Act of 1969 and has determined a Finding of No Significant Impact (FONSI). The attached Environmental Assessment presents the results of the environmental analysis.

As part of the Toledo Harbor confined disposal facility (CDF) management and beneficial use of dredged material pilot program, the U.S. Army Corps of Engineers, Buffalo District intends to solicit competitive bids in the Spring of 1994 for removal and use of dredged material from the Toledo Harbor CDF Cell 1. The District expects the successful bidder to remove about 50,000 cubic yards of dredged material over a two year period, down to a maximum cut of about three to four feet below the existing contour. The material would likely be excavated, stockpiled, and loaded into trucks by mechanical means (i.e. bulldozer, front-end-loader, etc.) and hauled from the CDF site to use sites.

Dredged material land application will need to comply with applicable Federal, State, and/or local regulations pertaining to any contaminants, pathogens, nutrients, etc.

Dredged material and soil testing data indicate that subject project area CDF soil quality levels are generally within the range for Humid Region Soils. Data, as compared to "USEPA standards for the Use or Disposal of Sewage Sludge" indicates that subject project area CDF soil quality levels are well within the levels set for land application of sludge material; considering standards for material contaminant ceiling concentrations, annual loading rates, and cumulative loading rates. Therefore, it appears that general land applications (i.e. construction fill, landscaping, non-food chain soil mix, etc.) would not present any problem relative to contaminant levels. The most apparent constraint, as compared to "USEPA Regulations on Criteria for Classifications of Solid Waste Disposal Facilities and Practices - Part 257.3-5 - Application to Land Used for the Production of Food-Chain Crops (Interim Final)", pertains to application limits on agricultural food-chain crop lands pertaining to annual and cumulative levels of cadmium and possibly PCB's, as prescribed. Even this application; however, would not be expected to present a significant problem considering the low cadmium and PCB contamination levels of the tested dredged material/soils. CDF soils leachate testing indicates acceptable compliance with maximum contaminant levels promulgated under the Safe Drinking

Water Act. Associated application limitations would be directed, as prescribed. The Contractor will have responsibility for final compliance with any applicable Federal, State and local land application and development regulations.

The Contractor would be required to comply with the Corps of Engineers Civil Works Construction Guide Specification entitled "Environmental Protection" (CW-01430 - July 1978), which requires measures to minimize construction/operations impacts to water and associated land environmental resources (i.e., noise, dust, erosion, and turbidity).

The project is not a major Federal action, and analysis has shown that it would have no significant adverse effect on the quality of the natural or human environment. Public coordination to date has uncovered no areas of significant environmental controversy. Based on these factors, it has been determined that an Environmental Impact Statement will not be required.

Project environmental assessment material has been coordinated with pertinent agencies and interests for 30 day review. No comments were received that alter this finding.


WALTER C. NEITZKE
Colonel, U.S. Army
Commanding

16 Jun 94
(Date)

TOLEDO HARBOR CONFINED DISPOSAL FACILITY CDF CELL 1
DREDGED MATERIAL TESTING ANALYSIS AND USE
TOLEDO HARBOR AND VICINITY, OHIO

SUMMARY
ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL SETTING

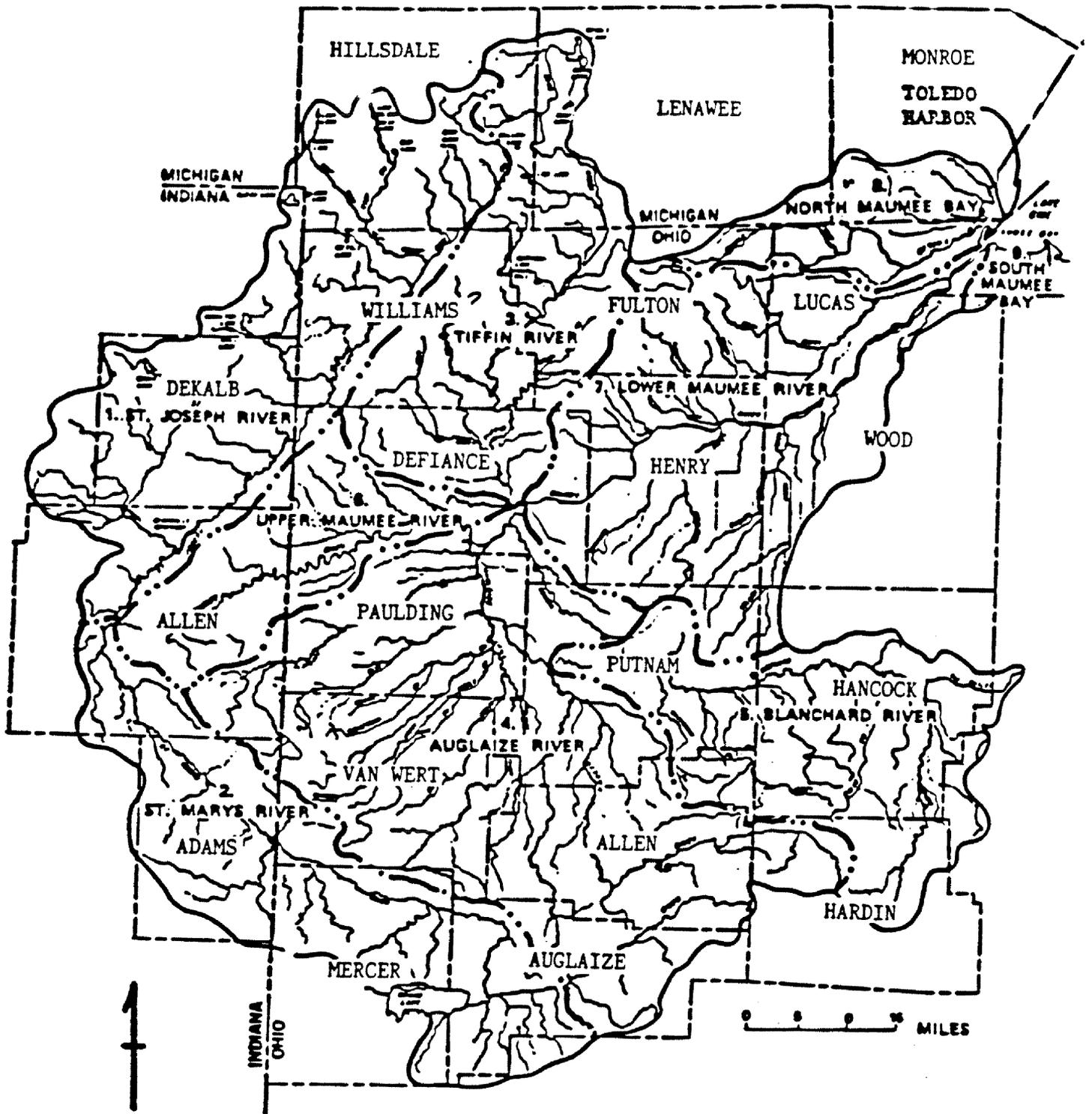
Toledo Harbor is situated on the southwestern shore of Lake Erie at the mouth of the Maumee River in Lucas County, Ohio. Reference Figure 1. Toledo Harbor is an important domestic and international port along the Great Lakes and Saint Lawrence Seaway system. Primary commodities shipped through the port include: coal, petroleum, iron ore, steel products, stone, gravel and sand, grain, and various general cargoes.

The city of Toledo is an urbanized area with a population of about 333,000. Lucas County has a population of about 642,000. The Maumee River watershed is depicted on Figure 2. It drains an area of about 4.2 million acres. It is relatively flat and consists primarily of farmlands; 3.3 million acres of cropland, 50,000 acres of pasture, 100,000 acres of farmsteads, and 300,000 acres of forest land. The population within the watershed is about 1.4 million. Maumee Bay and Maumee River and watershed provide a diversity of fish and wildlife.

Sediments from the Toledo Harbor federal navigation channels are periodically sampled and analyzed for contaminants (approximately every 3 to 5 years). Accordingly, some dredged material may be considered not suitable for open-lake disposal and disposed of in a confined disposal facility (CDF), while other dredged material may be considered suitable for open-lake disposal and disposed of at an open-lake site.

In recent years, approximately 900,000 cubic yards of material has been dredged from Toledo Harbor federal navigation channels. Approximately 500,000 cubic yards of material dredged from the river channel and considered to be not suitable for open-lake disposal has been disposed of in a CDF, while approximately 400,000 cubic yards of material dredged from the lake channel and considered to be suitable for open-lake disposal has been disposed of at an open-lake disposal site.

Harbor federal CDF sites include Grassy Island 18 located just northeast of the mouth of the river, and those located just southeast of the mouth of the river. The current open lake disposal site is located just north of the federal lake navigation channel about 12 miles northeast of Toledo Harbor. Reference Figures 1 and 3.



TOLEDO HARBOR - OHIO
 BASIN & COUNTIES
 USA - COE BUFFALO

Grassy Island 18 was constructed and utilized from about 1962 through about 1977 for CDF disposal of dredged material from federal navigation channels. Generally, it was filled and left to natural emergent vegetation. CDF Cell 1 was constructed and utilized from about 1976 through the present for CDF disposal of dredged material from federal navigation channels. Generally, it is essentially filled and subject to natural emergent vegetation. CDF Cell 2 was recently constructed and is being utilized for CDF disposal of dredged material from federal navigation channels.

Regional efforts are currently underway: 1) To reduce contaminant loads; 2) to reduce sedimentation loads from the watershed therefore reducing dredging quantities; 3) to improve management of CDF Cells to increase capacities and facilitate beneficial use of dredged material; and 4) to promote beneficial use of dredged material and reuse of CDFs; all to reduce or eliminate the need for open-lake disposal and additional CDFs.

THE PROJECT

As part of the Toledo Harbor confined disposal facility (CDF) management and beneficial use of dredged material pilot program, the U.S. Army Corps of Engineers, Buffalo District intends to solicit competitive bids in the Spring or Summer of 1994 for removal and use of dredged material from the Toledo Harbor CDF Cell 1. Reference Figure 3. The proposed limits of the removal area are shown on Figure 4. The District expects the successful bidder to remove about 50,000 cubic yards of dredged material over a two year period, down to a maximum cut of about three to four feet below the existing contour. The material would likely be excavated, stockpiled, and loaded into trucks by mechanical means (i.e. bulldozer, front-end-loader, etc.) and hauled from the CDF site to use sites.

The Contractor would be required to comply with the Corps of Engineers Civil Works Construction Guide Specification entitled "Environmental Protection" (CW-01430 - July 1978), which requires measures to minimize construction/operations impacts to water and associated land environmental resources (i.e., noise, dust, erosion, and turbidity). The Contractor will have responsibility for final compliance with any applicable Federal, State and local land application and development regulations.

ENVIRONMENTAL EFFECTS

• Land Application(s) (Reference Attachments which follow this Summary Assessment) -

Dredged material land application will need to comply with applicable Federal, State, and/or local regulations pertaining to any contaminants, pathogens, nutrients, etc.

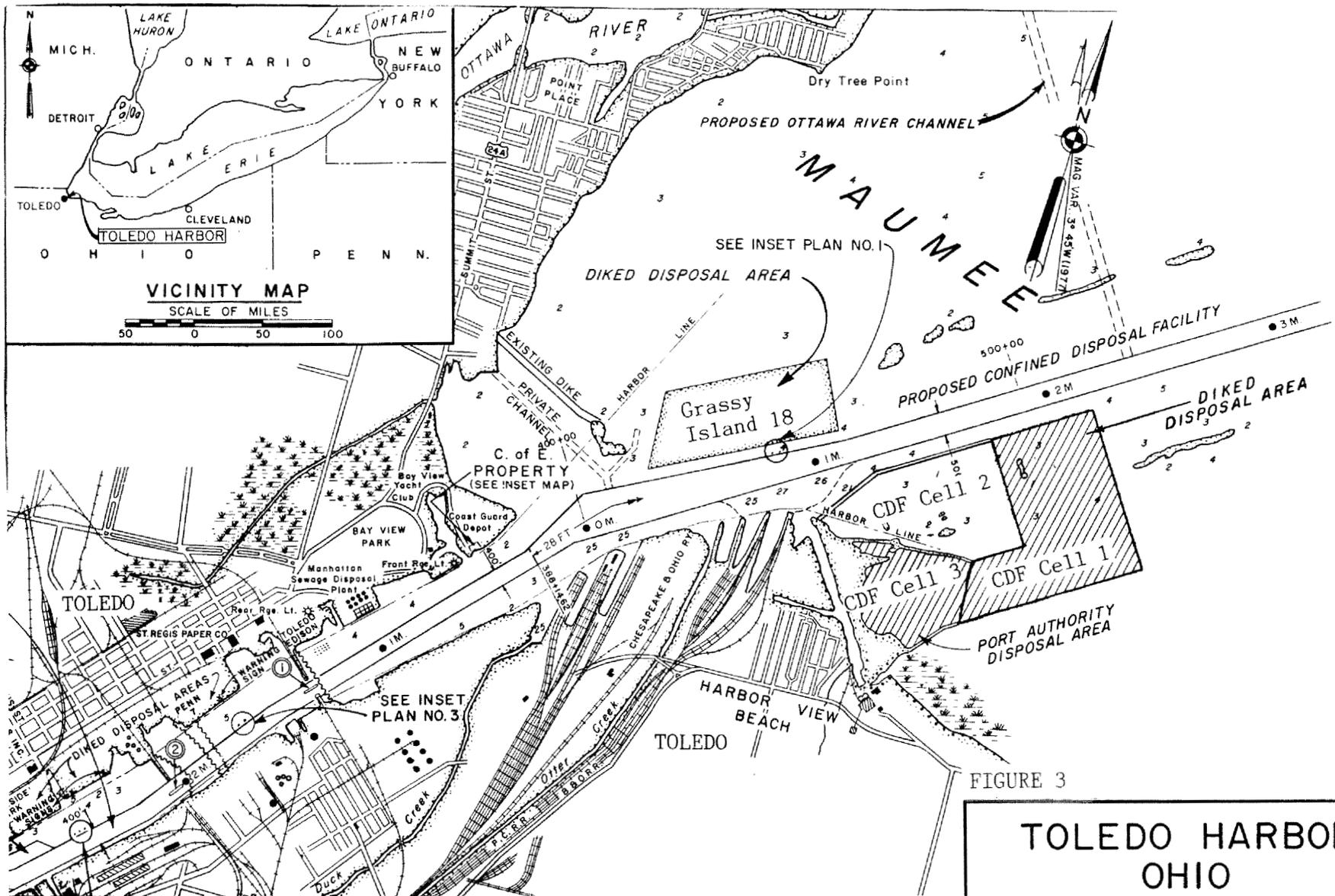


FIGURE 3

**TOLEDO HARBOR
OHIO**

SCALE OF FEET

2000 1000 0 1000 2000 3000

U.S. ARMY ENGINEER DISTRICT BUFFALO

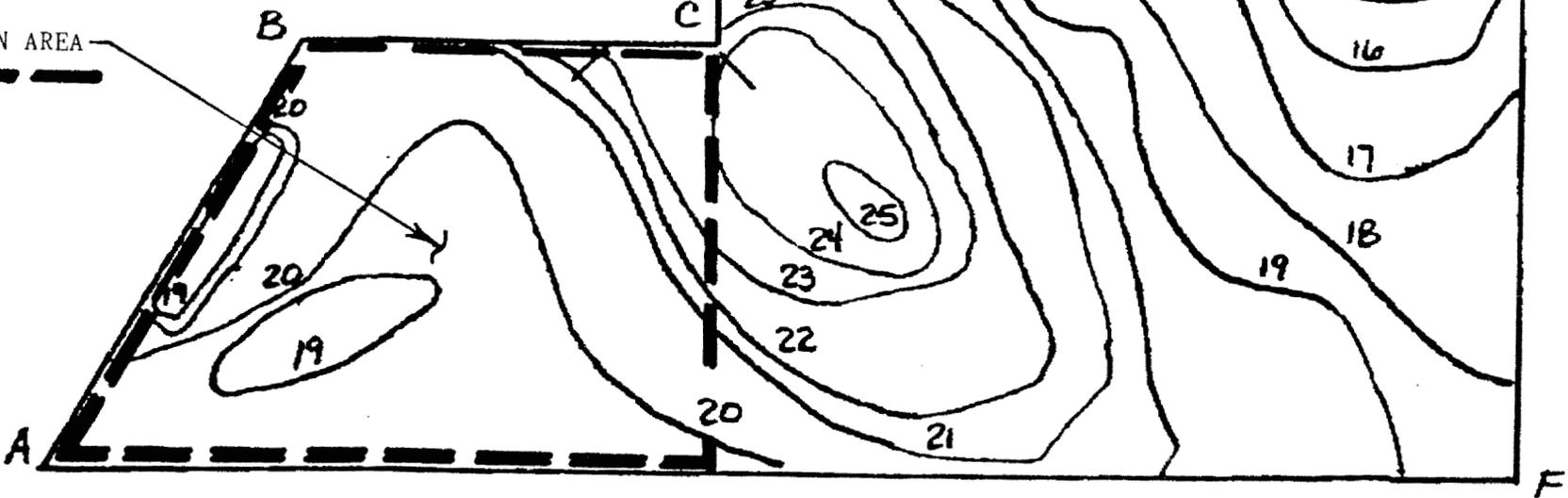
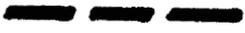
TOLEDO HARBOR
OHIO
CDF CELL 1 PROJECT AREA
U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE 4

SCALE
1"=500'



EXCAVATION AREA



Material characteristics testing data most representative of dredged material in the subject project site is presented as letter Attachments 3 and 4. Attachments follow this Summary Assessment. Attachment 3 presents a summary of material characteristics based on 1993 soil samples taken specifically from the Toledo CDF Cell 1 subject project area. Attachment 4 presents a summary of material characteristics based on analysis of 1988 sediment samples from Toledo navigation channels that were dredged, and 1984 soil samples taken from Toledo CDF sites.

Dredged material and soil testing data indicate that subject project area CDF soil quality levels are generally within the range for Humid Region Soils (Attachment 3 - Tables 1 and 2). Data, as compared to "USEPA Standards for the Use or Disposal of Sewage Sludge" indicates that subject project area CDF soil quality levels are well within the levels set for land application of sludge material; considering standards for material contaminant ceiling concentrations, annual loading rates, and cumulative loading rates. Therefore, it appears that general land applications (i.e. construction fill, landscaping, non-food chain soil mix, etc.) would not present any problem relative to contaminant levels. The most apparent constraint, as compared to "USEPA Regulations on Criteria for Classifications of Solid Waste Disposal Facilities and Practices - Part 257.3-5 - Application to Land Used for the Production of Food-Chain Crops (Interim Final)", pertains to application limits on agricultural food-chain crop lands pertaining to annual and cumulative levels of cadmium and possibly PCB's, as prescribed. Even this application; however, would not be expected to present a significant problem considering the low cadmium and PCB contamination levels of the tested dredged material/soils (Attachment 3 - Table 3). CDF soils leachate testing indicates acceptable compliance with maximum contaminant levels promulgated under the Safe Drinking Water Act (Attachment 4). Associated application limitations would be directed, as prescribed.

• Standard Environmental Evaluation Parameters (Reference Attachments which follow this Summary Assessment) -

Table I which follows, briefly identifies anticipated proposed project impacts for general environmental evaluation parameters relative to use of the CDF site and transport of material. The assessed plan would incorporate recommended environmental protection consideration/measures to the degree possible.

Table I - Anticipated Proposed Project Impacts

<u>Evaluation Parameters</u>	<u>Proposed Plan Impact Significance Indication</u>	<u>Impact/Remarks</u>
Economic B/C	- NA -	
<u>Physical/Natural Environmental Resources</u>		
• Air Quality	ST: Minor Adverse LT: Not Significant	Equipment operation related.
• Water Quality	ST: Not Significant LT: Not Significant	
• Benthos	ST: Not Significant LT: Not Significant	
• Fisheries	ST: Not Significant LT: Not Significant	
• Wildlife	ST: Minor Adverse LT: Minor Adverse	Disruption/use of the CDF borrow area.
• Vegetation	ST: Moderate Adverse LT: Minor Adverse	Disruption/use of the CDF borrow area.
• Endangered Species	ST: Not Significant LT: Not Significant	
• Wetlands	ST: Not Significant LT: Not Significant	Fill elevated CDF area.
<u>Human Environment & Man Made Resources</u>		
• Community and Regional Growth	ST: Minor Beneficial LT: Minor Beneficial	Facilitates reuse of the CDF and harbor maintenance.
• Displacement of People	ST: Not Significant LT: Not Significant	
• Displacement of Farms	ST: Not Significant LT: Not Significant	
• Business/Industry & Employment/Income	ST: Minor Beneficial LT: Minor Beneficial	Soil fill business trade-off. Facilitates reuse of the CDF and harbor maintenance.
• Public Facilities and Services	ST: Minor Beneficial LT: Minor Beneficial	Facilitates reuse of the CDF and harbor maintenance. Transport of material.
• Property Value and Tax Revenue	ST: Minor Beneficial LT: Minor Beneficial	Facilitates reuse of the CDF and harbor maintenance.

Table I - Anticipated Proposed Project Impacts
(continued)

<u>Evaluation Parameters</u>	<u>Proposed Plan Impact Significance Indication</u>	<u>Impact/Remarks</u>
• Noise	: ST: Minor Adverse : LT: Minor Adverse	: Equipment operation related.
• Aesthetics	: ST: Minor Adverse : LT: Minor Adverse	: Disruption/use of the CDF borrow area and transport of materials
• Community Cohesion	: ST: Minor Beneficial : LT: Minor Beneficial	: Facilitates reuse of the CDF and harbor maintenance.
<u>Cultural Resources</u>		
• Cultural Resources	: ST: Not Significant : LT: Not Significant	: Previously disrupted CDF area. Existing roads. Permitted site developments.

<u>KEY</u>	<u>RANGE</u>
ST: Short-Term	Major Beneficial
LT: Long-Term	Moderate Beneficial
	Minor Beneficial
	Not Significant
	Minor Adverse
	Moderate Adverse
	Major Adverse

ENVIRONMENTAL COORDINATION AND COMPLIANCE

In order to characterize the resource base of the project area and to facilitate project assessment, information has been obtained from existing literature and coordination with those Federal, State, and local agencies charged with administering fish and wildlife resources, environment and land use plans, and cultural resources. Agencies, interest groups, and publics which have been and/or are being coordinated with include: the U.S. Environmental Protection Agency, the U.S. Department of Agriculture - Soil Conservation Service, the U.S. Department of Interior - Fish and Wildlife Service, the Ohio State Clearinghouse, the Ohio Department of Natural Resources, the Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Historic Preservation Office, the Toledo Metropolitan Area Council of Governments, the Toledo-Lucas County Planning Commission, the Toledo-Lucas County Department of Health, the City of Toledo, and the City of Toledo - Department of Health. Reference Attachments.

As Summarized in Table II, compliance with pertinent Federal and State environmental statutes is as follows.

- Land Application(s) (Reference Attachments) -

U.S.E.P.A. Standards for the Use or Disposal of Sewage Sludge; U.S.E.P.A. Regulations on Criteria for Classifications of Solid Waste Disposal Facilities and Practices - Part 257.3-5 - Application to Land Used for the Production of Food-Chain Crops (Interim Final); Safe Drinking Water Act (Maximum Contaminant Levels). Subject project soil testing data and evaluation as compared to the subject guidelines demonstrate that subject soil contaminant levels are well within those established for land application(s). Reference the previous section ENVIRONMENTAL EFFECTS - Land Application(s) and Attachments. Project coordination has been conducted with agencies including: the U.S. Environmental Protection Agency, the U.S. Department of Agriculture, the Ohio Environmental Protection Agency, and the State and Local Health Departments in this regard. No discontending comments were received. Reference Attachments.

- Standard Environmental Compliance Statutes (Reference Attachments) -

Preservation of Historical Archaeological Data Act of 1974, 16 USC et seq.; National Historic Preservation Act of 1966, as amended, 16 USC 470 et seq.; Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971. Project coordination was conducted with the Ohio Office of Historic Preservation in this regard. The Ohio Office of Historic Preservation indicated in their letter response that considering the nature of the project site (a CDF) and existing

access roads, they have no concern with removal of dredged material from the confined disposal facility. They stressed however, that the user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations. Their concern is from the placement of material. They recommend a programmatic agreement to facilitate the implementation of the proposed undertaking.

Clean Air Act, as amended, 42 USC 7401 et seq. Project coordination was conducted with the U.S. Environmental Protection Agency, the Ohio Environmental Protection Agency, and the Ohio Department of Natural Resources. No significant adverse impacts to air quality would be expected with implementation of the project, as described. No concerns were expressed in this regard.

Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 USC 1251 et seq. Project coordination was conducted with the U.S. Environmental Protection Agency, the Ohio Environmental Protection Agency, and the Ohio Department of Natural Resources. No placement of fill in the U.S. Waters is associated with the project, as described, and therefore, no associated Public Notice and Section 404(b)(1) Evaluation was prepared. Drainage from the project area would continue to be contained within the CDF, and any discharges from the CDF would continue to be controlled via the CDF facility processes. No significant adverse impacts to water quality would be expected with implementation of the project, as described. No significant concerns were expressed in this regard. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

National Environmental Policy Act, 42 USC 470a, et seq. Project plans are developed and evaluated in accordance with environmental considerations as set forth by this Act, as promulgated by the Department of the Army's: Principles and Guidelines; ER 200-2-2 Environmental Quality - Policies and Procedures for Implementing NEPA; and COE Section 122 Guidelines. The project environmental assessment was/is coordinated with numerous agencies and interests in this regard.

River and Harbor Act, 33 USC 401 et seq. This is a key authority for the Corps of Engineers. Requirements of this authority are fulfilled via the Corps planning, design, operations and maintenance, and permitting authorities and processes. Project plans are developed and evaluated in accordance with considerations, including Section 122 Guidelines, as set forth by this Act. The project was/is coordinated with numerous agencies and interests in this regard.

Fish and Wildlife Coordination Act, 16 USC 661 et seq. Project coordination was conducted with the U.S. Department of

the Interior - Fish and Wildlife Service, and the Ohio Department of Natural Resources. Considering the scope of the project and nature of the project site (a CDF) and associated continual disruption and marginal value to fish and wildlife, no significant adverse impacts to fish and wildlife resources would be expected with implementation of the project, as described. No significant concerns were expressed in this regard. It is generally understood that USFWS and ODNR support efforts which contribute to reuse of CDF facilities versus proliferation of CDF developments along the shoreline. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Endangered Species Act, as amended, 16 USC 1531 et seq. Project coordination was conducted with the U.S. Department of the Interior - Fish and Wildlife Service and the Ohio Department of Natural Resources. The U.S. Fish and Wildlife Service indicated in previous area project correspondence that except for occasional transient species, no Federally listed or proposed for listing endangered or threatened species or habitat under their justification are known or expected to exist in the project area and no significant adverse impacts to threatened or endangered species would be expected with implementation of the project, as described. ODNR did not identify any potential significant adverse impacts to State threatened or endangered species. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Executive Order 11990, Protection of Wetlands, 24 May 1977. Project coordination was conducted with the U.S. Department of the Interior - Fish and Wildlife Service, the U.S. Environmental Protection Agency, the Ohio Department of Natural Resources and the Ohio Environmental Protection Agency. Generally, the project area has been elevated with discharged dredged material above CDF wetland conditions and considering the scope of the project and nature of the project site (a CDF) and associated continual disruption, no significant adverse impacts to any significant wetland areas would be expected with implementation of the project, as described. No significant concerns were expressed in this regard. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Wild and Scenic Rivers Act, 16 USC 1271 et seq. Not applicable to the project, as described. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Federal Water Project Recreation Act, as amended, 16 USC 460-1(12) et seq. Project coordination was/is conducted with the U.S. Department of the Interior, the U.S. Fish and Wildlife Service, and the Ohio Department of Natural Resources for review in this regard.

Land and Water Conservation Fund Act, 16 USC 4601 et seq. Project coordination was/is conducted with the U.S. Department of the Interior for review of conformance with their comprehensive outdoor recreation plan.

Watershed Protection and Flood Prevention Act, 16 USC 1001 et seq. Project coordination was conducted among numerous agencies and interests with interest in water shed protection and flood prevention including the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Interior, the U.S. Department of Agriculture - Soil Conservation Service, the Ohio Environmental Protection Agency, the Ohio Department of Natural Resources, and State regional and local interests. Based on assessment/evaluation of the project, no significant adverse impacts to watershed protection or flood prevention would be expected with implementation of the project, as described. No significant concerns were expressed in this regard. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Executive Order 11988, Flood Plain Management, 24 May 1977. Project coordination was conducted among numerous agencies and interests with interests in flood plain management including the U.S. Army Corps of Engineers and State and local interests. No significant adverse impacts to flood plain management would be expected with implementation of the project, as described. No significant concerns were expressed in this regard. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Farmland Protection Policy Act (PL 97-98), and Executive Memorandum - Analysis of Impacts on Prime and Unique Farmlands, CEO Memorandum, 30 Aug 76. Project coordination was conducted with the U.S. Department of Agriculture - Soil Conservation Service. Based on assessment/evaluation of the project, no significant adverse impacts to farmland and/or prime and unique farmland would be expected with implementation of the project, as described. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

State and Local. Project coordination was initiated with State and local agencies. The project appears to be consistent with State and local environmental legislation and local land use plans. To date, coordination indicates that the State and local interest are supportive of the proposed project. The user/developer(s) shall comply with any applicable Federal, State, and local land application and development regulations.

Table II - Relation of Plan to Environmental Protection Statutes and Other Environmental Requirements

• Land Applications:

USEPA Standards for the Use of Disposal of Sewage Sludge.	Full
USEPA Regulations on Criteria for Classification of Solid Waste Disposal Facilities and Practices - Part 257.3.5 - Application to Land Used for the Production of Food-Chain Crops (Interim Final).	Full
Safe Drinking Water Act (Maximum Contaminant Levels).	Full

• Standard Environmental Compliance Standards:

Federal Statutes

Archaeological and Historic Preservation Act, as amended 16 USC 469, et seq.	Full
National Historic Preservation Act, as amended, 16 USC 470a, et seq.	Full
Clean Air Act, as amended, 42 USC 7401, et seq.	Full
Clean Water Act, as amended (Federal Water Pollution Control Act), 33 USC 1251, et seq.	Full
National Environmental Policy Act, as amended, 42 USC 4321, et seq.	Full
Rivers and Harbors Act, 33 USC 401, et seq.	Full
Fish and Wildlife Coordination Act, as amended, USC 661, et seq.	Full
Endangered Species Act, as amended, 16 USC 460-1(12), et seq.	Full
Wild and Scenic Rivers Act, as amended, 16 USC 1271, et seq.	N/A
Federal Water Project Recreation Act, as amended, 16 USC 460-1(12), et seq.	Full
Land and Water Conservation Fund Act, as amended, 16 USC 4601-11, et seq.	Full
Watershed Protection and Flood Prevention Act, 16 USC 1001 et seq.	Full
Farmland Protection Policy Act (7 USC 4201) et seq.	Full

Executive Orders, Memoranda, Etc.

Protection and Enhancement of the Cultural Environment (EO 11593)	Full
Protection of Wetlands (EO 11990)	Full
Flood Plain Management (EO 11988)	Full
Analysis of Impacts on Prime and Unique Farmland (CEQ Memorandum, 30 Aug 76)	Full

State and Local

Full

The compliance categories used in this table were assigned based on the following definitions:

- a. Full Compliance - All requirements of the statute, EO, or other policy and regulated regulations have been met for this stage of the study.
- b. Partial compliance - Some requirements of the statute, EO, or other policy and related regulations, which are normally met by this stage of planning, remain to be met.
- c. Non compliance - None of the requirements of the statute, EO, or other policy and related regulations have been met.

TOLEDO HARBOR CONFINED DISPOSAL FACILITY CDF CELL 1
DREDGED MATERIAL TESTING ANALYSIS AND USE
TOLEDO HARBOR, LUCAS COUNTY, OHIO

DREDGED MATERIAL TESTING ANALYSIS
AND
LAND APPLICATION ASSESSMENT/EVALUATION
AND
CORRESPONDENCE

ATTACHMENTS

1994

17

Environmental Analysis Section

MAR 24 1994

SUBJECT: Toledo Harbor Confined Disposal Facility Dredged
Material Testing Analysis and Use

See Attached List of Addresses

Dear :

As part of the Toledo Harbor confined disposal facility (CDF) management and beneficial use of dredged material pilot program, the U.S. Army Corps of Engineers, Buffalo District intends to solicit competitive bids in the Spring or Summer of 1994 for removal and use of dredged material from the Toledo Harbor CDF Cell 1. Reference Attachment (Figure) 1. The proposed limits of the removal area are shown on Attachment (Figure) 2. The District expects the successful bidder to remove up to 50,000 cubic yards of dredged material over a two year period, down to a maximum cut of about three to four feet below the existing contour. The material would likely be excavated, stockpiled, and loaded into trucks by mechanical means (i.e. bulldozer, front-end-loader, etc.) and hauled from the CDF site to use sites.

Dredged material land application will need to comply with applicable Federal, State, and/or local regulations pertaining to any contaminants, pathogens, nutrients, etc.

Material characteristics testing data most representative of dredged material in the subject project site is presented as Attachments 3 and 4. Attachment 3 presents a summary of material characteristics based on analysis of 1993 soil samples taken specifically from the Toledo CDF Cell 1 subject project area. Attachment 4 presents a summary of material characteristics based on analysis of 1988 sediment samples taken from Toledo navigation channels subsequently dredged with most of the material deposited in CDF Cell 1, and analysis of 1984 soil samples taken from Toledo CDF sites.

Dredged material and soil testing data generally indicate that subject project area CDF soil quality levels are generally within the range for Humid Region Soils (Attachment 3 and Tables 1 and 2). Data, as compared to "USEPA standards for the Use or Disposal of Sewage Sludge" indicates that subject project area E

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility Dredged
Material Testing Analysis and Use

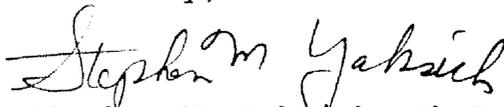
CDF soil quality levels are well within the levels set for land application of sludge material considering standards for material contaminant ceiling concentrations, annual loading rates, and cumulative loading rates. Therefore, it appears that general land applications (i.e. construction fill, landscaping, non-food chain soil mix, etc.) would not present any problem relative to contaminant levels. The most apparent constraint, as compared to "USEPA Regulations on Criteria for Classifications of Solid Waste Disposal Facilities and Practices - Part 257.3-5 - Application to Land Used for the Production of Food - Chain Crops (Interim Final)", pertains to application limits on agricultural food - chain crop lands pertaining to annual and cumulative levels of cadmium and possibly PCB's, as prescribed. However, even this application would not be expected to present a significant problem considering the low cadmium and PCB contamination levels of the tested dredged material/soils (Attachment 3 and Table 3). CDF soils leachate testing indicates acceptable compliance with maximum contaminant levels promulgated under the Safe Drinking Water Act (Attachment 4). Associated application limitations would be directed, as prescribed.

In response to this correspondence, we request concurrence on subject soils analysis and land applications evaluation, necessary approvals for the proposed action, and further guidance pertaining to any other applicable regulations, land applications, recommended restrictions, or recommended contract requirements/language. The contractor will have responsibility for final compliance with any applicable Federal, State and local land application and development regulations.

Please respond within 30 days of the date of this letter.

Questions pertaining to this matter should be directed to Mr. Tod Smith of my Environmental Analysis Section and Mr. David Melfi of my Site Monitoring Section who can be contacted at 716-879-4173, or 716-879-4268 respectively, or by writing to the above address.

Sincerely,



Stephen M. Yaksich, Ph.D.
Chief, Environmental Analysis
and Engineering Section

Copies of this letter were sent to:

FEDERAL

- ✓ Mr. Valdas Adamkus
Regional Administrator
U.S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604-3590
- ✓ Mr. William D. Franz
Acting Chief, Planning and Assessment Branch
Planning and Management Division
U.S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604-3590
- ✓ Ms. Dorothy L. Leslie
State Executive Director
U.S. Department of Agriculture
Ohio State ACSC Office, 540 Federal Building
200 North High Street
Columbus, Ohio 43215-2408
- ✓ Mr. Joseph Branco
State Conservationist
U.S. Soil Conservation Service
200 North High Street, Room 522
Columbus, Ohio 43215
- ✓ Ms. Sheila Minor Huff
Regional Environmental Officer
U.S. Department of the Interior
Office of Environmental Affairs
John Kluezynski Building, Room 3422
230 South Dearborn Street
Chicago, Illinois 60604
- ✓ Mr. Kent Kroonemeyer
Field Supervisor
U.S. Fish and Wildlife Service
Division of Ecological Service
6950-H Americana Parkway
Reynoldsburg, Ohio 43068-4115

STATE

- ✓ Ms. Frances Buchholzer
Director, Ohio Department of
Natural Resources
Fountain Square
Columbus, Ohio 43224

- ✓ Mr. Robert Lucas
Corps of Engineers Liaison
Ohio Department of Natural Resources
Fountain Square, Building D-2
Columbus, Ohio 43224

- ✓ Mr. Michael Colvin
Environmental Review Coordinator
Ohio Department of Natural Resources
Fountain Square, Building A-3
Columbus, Ohio 43224

- Mr. Donald Shregardus
Director
Ohio Environmental Protection Agency
P.O. Box 1049
1800 Watermark Drive
Columbus, Ohio 43266-0149

- Mr. Edwin J. Hammett
District Chief
Ohio Environmental Protection Agency
Northwest District Office
1035 Deviac Grove Drive
Bowling Green, Ohio 43402-4598

- Ms. Ann Colwell
Ohio Department of Health
Northwest District Office
One Government Center
Suite 1320
Toledo, Ohio 43604

- Mr. W. Ray Luce
State Historic Preservation Officer
Ohio Historic Preservation Office
1982 Velma Avenue
Columbus, Ohio 43211-2497

Returned

STATE REGIONAL

Mr. Joseph Ballard
Areawide Review Officer
Toledo Metropolitan Area Council
of Governments
123 Michigan Street
Toledo, Ohio 43604

CITY AND COUNTY

Mr. Walter T. Edelen
Executive Director
Toledo-Lucas County Planning Commission
One Government Center - Suite 1620
Toledo, Ohio 43604

Director
Toledo-Lucas County
Department of Health
One Government Center
Toledo, Ohio 43604

Mr. Philip A. Hawkey
City Manager
City of Toledo
One Government Center
Suite 1500
Toledo, Ohio 43604

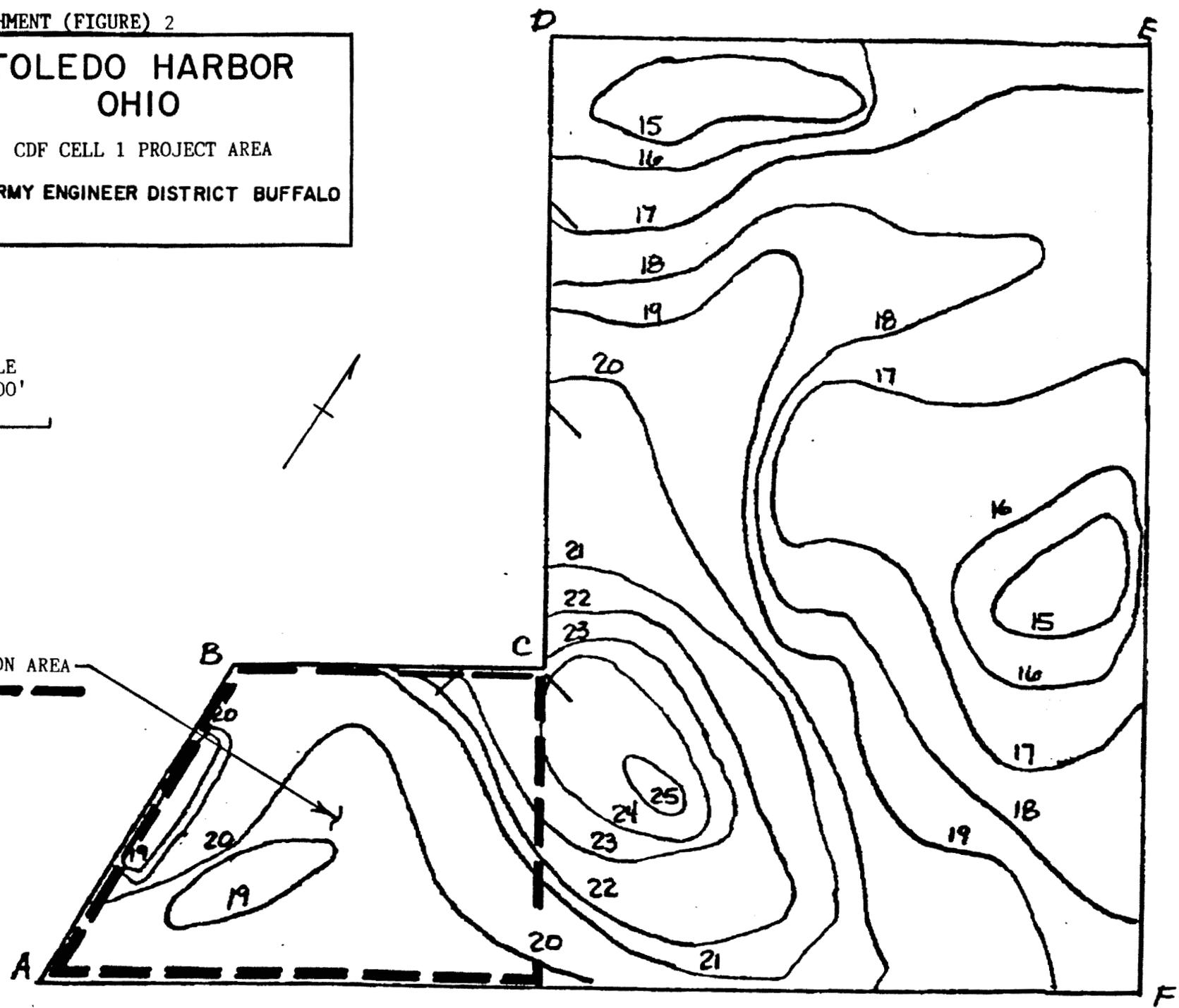
Director
Department of Health
City of Toledo
635 North Erie
Toledo, Ohio 43624

TOLEDO HARBOR
OHIO
CDF CELL 1 PROJECT AREA
U.S. ARMY ENGINEER DISTRICT BUFFALO

SCALE
1"=500'



EXCAVATION AREA



MEMORANDUM FOR Files

SUBJECT: Toledo Dike December 1993 Sampling and Testing Results

1. Soil (former dredged material) from the five sites at the Toledo CDF (Figure 1) was sampled and tested in December 1993. Four foot soil cores were analyzed. This is the area considered for material removal for beneficial use.

2. A summary of the testing results is given below. No volatile organics were detected above standard detection limits (10 to 20 ppb) and no organic pesticides were detected (<10 to <100 ppb). PCB Aroclor 1254 showed low detectable concentrations of usually <100 ppb (Table 1). Some polynuclear aromatic hydrocarbon (PAHs) were detected at low concentrations. Major detectable PAHs were Benzo(a)pyrene (<180 ppb) (Table 1), Benzo(g,h,i)perylene (<250 ppb), phenanthrene (<150 ppb) (Table 1). Metal concentrations were within acceptable limits (Table 1). Nutrients and miscellaneous parameters are shown in Table 1.

3. Table 2 shows the metals to be within acceptable limits for humid region soils. Non-essential and potentially toxic metals such as cadmium, chromium, arsenic, lead, nickel as indicated in Table 2 are at levels within the ranges of natural soils. Zinc, copper, iron, manganese, nitrogen, and phosphorus are important for plant growth and could be beneficial.

4. *EPA Regulations on Criteria for Classification of Solid Waste Disposal Facilities and Practices.*

Application rates of this material for use on agricultural land for food chain crops is regulated by USEPA in 40 CFR 257.3-5 *Application to land used for the production of food-chain crops*. Cadmium is restricted to an annual application of cadmium bearing material not to exceed 0.5 kg/ha Cd or a cumulative application not to exceed 5 kg/ha Cd.

The chemistry data in Table 1 indicate the maximum cadmium concentration is 3 ppm dry weight. Using a dry sediment bulk density of 1.33 gm/cm³, 74 tons/acre of dry sediment (soil) can be applied. Assuming a moisture of 40 %, 185 tons can be applied per acre or 167 cubic yards of dredged material. The application rate would be higher at lower cadmium concentrations or higher moisture contents. Using an average Cd concentration from Table 1 of 2 ppm the application rate could be 277 tons/acre or 250 cubic yards per acre. At the same time approximately 84 pounds of phosphorus and approximately 121 pounds of nitrogen would be added to each acre.

ATTACHMENT 3

PCBs are regulated by paragraph 257.3-5b. The PCB content must be less than 0.2 ppm (actual weight) in animal feed and less than 1.5 ppm (fat basis) in milk that result from the application PCB containing soils and sludges. If the PCB concentration is greater than or equal to 10 ppm (dry weight) the solid waste should be mixed with soil. There should be no PCB problems as evident from the extremely low PCB levels indicated in Table 1 (i.e. 0.074 to 0.20 ppm).

5. *EPA Standards for the Use or Disposal of Sewage Sludge.*

This material would be regulated by 40 CFR 503 Subpart B - Land Application. Bulk sewage sludge applied to the land must not exceed the pollutant concentrations in Paragraph 503.13 as shown in Table 3. It is evident that the dredged material concentrations are well below these limits.

6. *Ohio Hazardous Waste Rules.*

Table 4 compares the Toledo CDF concentrations with industrial concentrations found in *Ohio Hazardous Waste Rules 375.59-43 Treatment standards expressed as waste concentrations*. Dredged sediments do not fall under any of the categories listed. The concentrations are for industrial waste solids. For land disposal the concentrations must be below the listed parameter concentrations listed or treated to concentrations below those listed. The most conservative concentrations listed were used in Table 4. As can be seen in Table 4 the Toledo CDF concentrations are well below those listed.

7. It is extremely doubtful that any of the contaminants found in the Toledo dredged material would present any environmental problems when used for beneficial use on parks, golf courses, lawns, and landfill cover, or any danger to human health or welfare if used on agriculture land used for tree and flower nurseries or sod farms. It probably also could be used on agricultural land for crop production.

8. Anybody using this material should check all Federal, State, and local regulations for using this material for any purposes.

9. *References:*

ARDL Report No. 6351/6352, Toledo Harbor Site, Corps of Engineers - Buffalo District, Applied Research & Development Laboratory, January 1994

EPA Standards for the Use or Disposal of Sewage Sludge (40 CFR 503; FR 9387, February 19, 1993), Environmental Reporter, 1993

EPA Regulations on Criteria for Classification of Solid Waste Disposal Facilities and Practices (40 CFR 257; 44 FR 53460, September 13, 1979, as Revised and Amended), Environmental Reporter, 1993

Ohio Hazardous Waste Management Regulations 3745-59-43 Treatment Standards Expressed as Waste Concentrations (For the Allowable Land Disposal of Such Waste or Residual), Environmental Reporter, 1993

David Melfi

David Melfi
Hydraulic Engineer
Site Monitoring and Assessment
Section

Figure 1 - Sampling Locations

Toledo CDF

scale 500' 500'

Locations are approximate.
Distances are measured along
the inside of the dike at
the sediment surface.

12

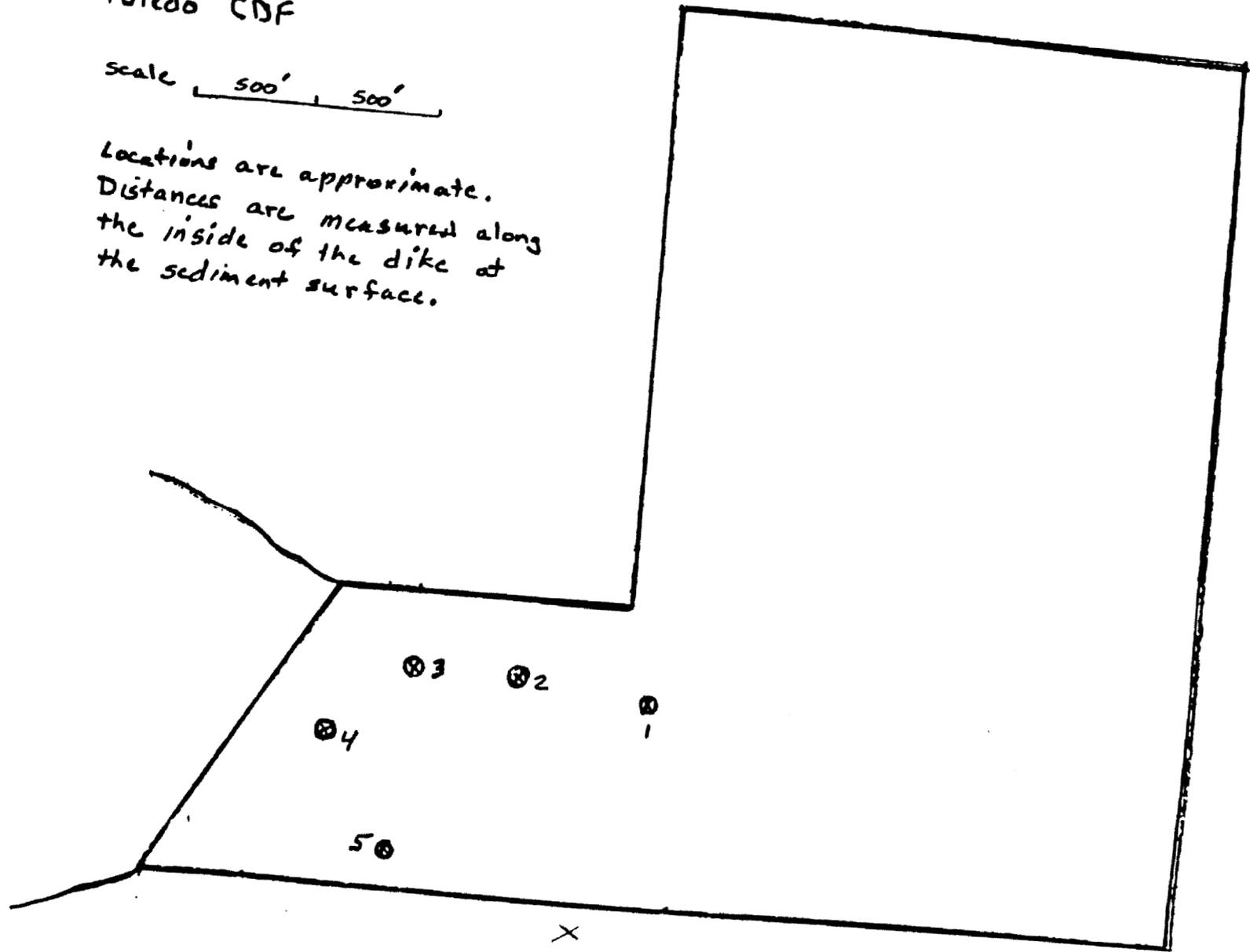


TABLE 1
 SUMMARY OF TOLEDO DIKE MEASURED
 CHEMISTRY 1993

	<u>Average</u>	<u>Range</u>
<u>PCBs</u>		
Aroclor 1254	99 ppb	74 - 200 ppb
<u>PAHs</u>		
Naphthalene	----	61 ppb (Site 1)
Fluorene	21 ppb	13 - 29 ppb
Benzo(a)pyrene	115 ppb	33 - 180 ppb
Benzo(g,h,i)perylene	190 ppb	61 - 250 ppb
Phenanthrene	82 ppb	40 - 150 ppb
Benzo(a)anthracene	28 ppb	16 - 40 ppb
Indo(1,2,3-cd)pyrene	46 ppb	35 - 57 ppb
<u>Metals</u>		
As	5.5 ppm	3.6 - 6.2 ppm
Ba	96 ppm	32 - 125 ppm
Cd	2 ppm	0.6 - 3 ppm
Cr	33 ppm	12 - 40 ppm
Cu	34 ppm	15 - 40 ppm
Fe	22200 ppm	10100 - 28400 ppm
Pb	31 ppm	16 - 37 ppm
Mn	463 ppm	314 - 519 ppm
Hg	0.12 ppm	<0.09 - 0.14 ppm
Ni	34 ppm	16 - 40 ppm
Se	0.5 ppm	<0.34 - 0.87 ppm
Ag	1.2 ppm	0.7 - 1.6 ppm
Na	140 ppm	132 - 160 ppm
Zn	143 ppm	63 - 190 ppm
<u>Nutrients & Misc.</u>		
NH ₃ -N	49 ppm	6 - 106 ppm
Oil/Grease	300 ppm	160 - 500 ppm
Phenol	<1 ppm	-----
TKN	697 ppm	159 - 936 ppm
CN (total)	<0.7 ppm	<0.55 - <0.84 ppm
Phosphate (total)	608 ppm	503 - 935 ppm
Total Solids	68 %	64 - 89 %

TABLE 2

TOLEDO SEDIMENT CHEMISTRY COMPARED TO
TYPICAL HUMID REGION SURFACE SOIL
(ppm)

Parameter	Toledo Sediment	Humid Region Soil	
	Average	Typical	Range
Arsenic	5.5	6 ³	0.1 - 40 ³
Cadmium	2	0.06 ³	0.01 - 7 ³
Chromium	33	100 ³	5 - 1000 ²
			5 - 3000 ³
Copper	34	50 ¹	2 - 100 ^{2,3}
		20 ³	
Lead	31	10 ³	2 - 200 ²
Nickel	34	40 ³	5 - 500 ²
Zinc	143	50 ³	10 - 300 ²
		100 ¹	
Iron	22200	25000 ¹	----
Manganese	463	2500 ¹	200 - 5000 ²
		850 ³	
Nitrogen (total)	816	1500 ¹	200 - 5000 ¹
Phosphorus (total)	608	400 ¹	100 - 2000 ¹

- 1 *Nature and Properties of Soils*, 7th edition, 1965
 2 *Wastewater Management by Disposal on Land*, COE, 1972
 3 *Agronomic Controls Over Environmental Cycling of Trace Elements*, *Advances in Agronomy*, 20:235-274, 1968

TABLE 3

40 CFR 503.13
 Pollutant Concentrations
 (ppm dry weight)

<u>Pollutant</u>	<u>Toledo Sediment</u>		<u>40 CFR 503.13</u>
	<u>Max</u>	<u>Average</u>	<u>Monthly Averaged Concentration</u>
As	6.2	5.2	41
Cd	3	2	39
Cr	33	40	1200
Cu	34	40	1500
Pb	37	31	300
Hg	0.14	0.12	17
Ni	40	34	420
Se	0.9	0.5	36
Zn	190	143	2800

TABLE 4

TOLEDO SEDIMENT CHEMISTRY COMPARED TO
STATE OF OHIO HAZARDOUS WASTE MANAGEMENT REGULATIONS
FOR ALLOWABLE LAND DISPOSAL
(ppb)

<u>Parameter</u>	<u>Ohio Allowable Concentration</u> ¹	<u>Toledo Average</u>	<u>Toledo Range</u>
PCB Aroclor 1254	1800	99	74 - 200
Naphthalene	1500	--	61
Fluorene	3400	21	13 - 29
Benzo(a)pyrene	8200	115	33 - 180
Benzo(g,h,i) perylene	1500	190	61 - 250
Phenanthrene	1500	82	40 - 150
Benzo(a)anthracene	8200	28	16 - 40
Indo(1,2,3-cd)pyrene	3400	46	35 - 57
Phenol	3600	<1000	--
CN(total)	1800	<700	<0.55-<0.84

¹ Most conservative concentrations for industrial waste concentrations allowable land disposal taken from *Ohio Hazardous Waste Rules*

CENCB-PE-EA (1105)

11/8 February 1992
Pickard/swp/4171

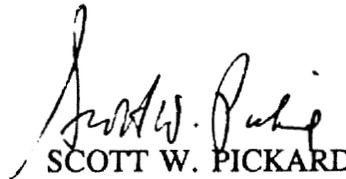
MEMORANDUM THRU

Chief, Environmental Analysis Section
Chief, Environmental Analysis and Engineering Branch
Chief, Planning Branch
Chief, Plan Formulation/Technical Management Section

FOR Mr. Weiner Cadet

SUBJECT: Toledo Harbor Long-Term Dredged Material Management Plan - Phase 1
Report

1. As requested; transmitted herewith is the "Material Characteristics" portion of the subject report (Enclosure).
2. If you have any questions or comments regarding this matter, please contact me at extension 4171.


SCOTT W. PICKARD
Biologist
Environmental Analysis Section

Enclosure

CF:
CENCB-PE-EA
CENCB-CO-NS

MATERIAL CHARACTERISTICS

I. FEDERAL NAVIGATION CHANNEL SEDIMENTS (DREDGED MATERIAL)

1. This section describes the characteristics of the dredged material within the limits of the authorized Federal navigation channels and the existing dredged material open-lake discharge site at Toledo Harbor, Ohio. Information on the material characteristics was obtained from sediment analyses performed under contract to the the Buffalo District.

2. Sediment Sampling and Testing. In April 1988, a petite Ponar grab sampler was used to collect a total of 28 surface sediment composite grab samples from the authorized Federal navigation channels of Toledo Harbor (Figure 1), as well as an open-lake discharge site (Figure 2) (Aqua Tech Environmental Consultants 1988). The open-lake discharge site shown in Figure 2 was discontinued in 1988, but is used to address the characteristics of the dredged material that was discharged at the site between 1985 and 1988. With regard to the existing open-lake discharge site (shown in Figure 3), there are no data available on the dredged material on the bottom of the site which accumulated as a result of open-lake discharge operations between 1989 and the present. However, there are physical, chemical, bioassay and biological data available on sediments at this site prior to its use for dredged material discharge activities (T.P. Associates, International Inc. 1987). Sampling Sites D-1 through D-4 represent the open-lake discharge site used for dredged material discharge between 1985 and 1988, Sites L-1-M through L-16-M the Lake Approach Channel, and Sites O-M through R-7-M the River Channel. Water depths at the sampling sites ranged from 17 to 25 feet. Individual homogenized composite samples consisted of three samples taken within a 50-foot radius of the designated sediment sampling site. One liter of sediment from each sampling site was subjected to bulk inorganic and organic analyses, as well as elutriate testing (Aqua Tech Environmental Consultants 1988). Four liters of sediment from each sampling site were used for acute toxicity tests (bioassays).

3. Sediment Physical Characteristics. Grain size distributions of the sediment samples were determined using CRL Method 485. Under this method of analyses, particles passing through a #200 sieve are considered fine-grain (i.e., silts and clays), and those retained are considered coarse-grain (i.e., sands and gravels). The results of the physical analysis are presented in Table 1. On the average, the channel sediment samples consisted of 88 percent silts and clays, with the remainder coarse-grain material. With few exceptions (i.e., Sampling Sites L-16-M, L-13-M, R-6-M and R-5-M), the sediment samples were comprised of between about 80 and 98 percent silts and clays. The open-lake discharge site sediment samples consisted of an average of 96.8 percent silts and clays, with the remainder coarse-grain material. In situ silty material that is routinely maintenance dredged is minimally compacted, similar to the physical properties of a fluid mud. During the discharge process, water is usually added to the material (either in the water column or in a hydraulic pipeline) and it takes on the physical properties of a disaggregated mud slurry (USAEWES 1992).

4. Sediment Chemical Inventory.

4.1 **Inorganic Analyses.** All sediment samples were analyzed for total solids, total volatile solids, Chemical Oxygen Demand (COD), nitrate/nitrate nitrogen, ammonia-nitrogen, total Kjeldahl nitrogen (TKN), oil/grease, phenols, and total phosphorus, cyanide, mercury, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc. Dry weight bulk inorganics data on the sediment samples are summarized in Table 2. Higher levels of arsenic, barium, cyanide and phosphorus, and moderate to high levels of ammonia-nitrogen, COD and iron were measured in most of the sediment samples. The apparently higher concentrations of arsenic and cyanide in the sediment samples are comparable to local Lake Erie background levels. Copper, manganese, nickel, total volatile solids, TKN, and zinc generally showed moderate levels in the sediment samples. Low levels of cadmium, lead, mercury, and oil/grease were measured in most of the sediment samples. Overall, heavy metal and nutrient contamination is highest in the River Channel sediment samples, particularly from the lower reach. Lake Approach Channel, open-lake discharge site and upper River Channel sediment samples show relatively lower inorganic contamination. — Low Cd

4.2 **Organic Analyses.** All sediment samples were subjected to a diverse array of organic analyses, including Pesticides, Polychlorinated Biphenyls (PCBs), Purgeable Halocarbons, Polynuclear Aromatic Hydrocarbons (PAHs) and Phthalate Esters. Dry weight bulk Pesticide and PCB data are summarized in Table 3. Table 4 presents the dry weight bulk Purgeable Halocarbon data. No Pesticides, PCBs or Purgeable Halocarbons were detected in any of the sediment samples. The results of the dry weight bulk PAH and Phthalate Ester analyses are presented in Table 5. These data show PAHs at nondetectable to very low levels (i.e., around or below 1 ppm) in Lake Approach Channel and open-lake discharge site sediment samples. Phthalate Esters were also generally nondetectable, or at levels around or below 2 ppm in these sediment samples. In River Channel sediment samples, a more diverse array of PAHs were detected at concentrations generally around or below 3 ppm. However, Bis(2-ethylhexyl)Phthalate, the only Phthalate Ester detected in any of the sediment samples (except Di-n-octyl Phthalate at Sampling Site R-1-M), was measured at 17.8 ppm at Sampling Site R-1-M in the River Channel. Generally, PAH and Purgeable Halocarbon contamination was higher in sediment samples from the lower River Channel, as compared to those from the upper reach. The most predominant PAHs measured in the sediment samples include Naphthalene, Phenanthrene, Pyrene, Fluoranthene and Chrysene. — Low PCB

5. **Sediment Elutriate Testing.** The primary objective of elutriate testing is to simulate and/or predict inorganic contaminant releases from the sediments during dredging and dredged material open-water discharge processes. The elutriate test data are summarized in Table 6. Moderate to higher releases of barium, iron, manganese, nitrogen-ammonia, TKN and zinc were measured from most of the sediment samples. Chromium, mercury, nitrate, and oil/grease generally showed lower releases. Phosphorus releases were nondetectable from all of the Lake Approach Channel sediment samples, and nondetectable or low in the River Channel samples. When compared to elutriate data on sediment samples from the Lake Approach Channel and open-lake discharge site, the River Channel sediment samples generally showed higher releases for most of the parameters measured. — Phos

6. Sediment Bioassays. Ninety six-hour bioassays were performed on all of the samples to evaluate the potential toxicological effects of the sediments on select aquatic species. These bioassays were conducted according to procedures described by Prater and Anderson (1977a,b). Test species utilized in the bioassays include the burrowing mayfly (Hexagenia limbata Walsh), water flea (Daphnia magna Straus) and fathead minnow (Pimephales promelas Rafinesque). Mortality data (in percentages) on these test species were compared to the pollutional classification scheme used in Prater and Anderson (1977a,b). According to this categorization, sediments from all of the sampling sites are classified as "nonpolluted" with respect to fathead minnow mortalities, since the measured mortalities were within the 10 percent range for this species. All but two of the sediment samples were classified as "moderately polluted" within the 10-50 percent mortality range for the burrowing mayfly. Sediments from Sampling Sites R-1-M and R-4-M were classified as "heavily polluted" since they exceeded the 50 percent mortality value for the mayfly. D. magna mortalities classified all but four of the sediment samples as "nonpolluted" within the 10 percent mortality range for this species. Sampling Sites L-9-M, O-M, R-3-M and D-2 were classified as "moderately polluted" with respect to D. magna mortalities. In summary, these bioassays indicate that sediment samples in the Lake Approach Channel and open-lake discharge site are classified overall as "nonpolluted" to "moderately polluted" with respect to the test species mortalities. River Channel sediment samples, particularly from the lower reach, are categorized overall as "moderately polluted" to "heavily polluted."

II. CONFINED DISPOSAL FACILITY SEDIMENTS (CONSOLIDATED DREDGED MATERIAL)

1. This section describes the characteristics of the soil/dredged material within the existing dredged material Confined Disposal Facilities (CDFs) at Toledo Harbor, Ohio, which include the Island 18 CDF and the currently used CDF. Sediments throughout Toledo Harbor Federal navigation channels were placed in the Island 18 and currently used CDF. Use of the Island 18 CDF for dredged material discharge was discontinued in 1977, and use of the currently used CDF began in 1978. Information on the characteristics of the dredged material in the CDFs was obtained from sediment analyses performed under contract to the Buffalo District.

2. Sediment Sampling and Testing. In October 1984, Buffalo District personnel used a bucket auger to collect five core soil/dredged material samples from the Island 18 CDF and currently used CDF at Toledo Harbor, Ohio. These samples represent dredged material which was placed in the CDFs prior to 1984. The soil sampling sites within these facilities are shown in Figure 4; Sampling Sites I through III represent the material in the Island 18 CDF, and IV and V represent that in the currently used CDF. The core samples were separated into intervals with respect to depth from the soil surface for a total of 18 samples, as summarized in Table 7. All soil samples were subjected to bulk physical and chemical (inorganic and organic) analyses. Column leach testing was performed on three of the soil samples. All analyses were conducted by Aqua Tech Environmental Consultants (1984).

3. Sediment Physical Characteristics. Grain size distributions of the soil samples were determined using CRL Method 485. The results of the physical analysis are presented in Table 8. On the average, the CDF soil samples consisted of 81 percent silts and clays, with the remainder coarse-grain material. With few exceptions (i.e., Sampling Sites IV-2, IV-3 and IV-4), the sediment samples were comprised of between about 91 and 98 percent silts and clays. With the exception of the most recently discharged mud slurry material, the majority of material in CDFs is dewatered and consolidated to some degree, which depends on depth and elevation, among other factors.

4. Sediment Chemical Inventory.

4.1 Inorganic Analyses. All soil samples were analyzed for total solids, total volatile solids, ammonia-nitrogen, TKN, and total phosphorus, cyanide, mercury, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc. Dry weight bulk inorganics data on the soil samples are summarized in Table 9. Higher levels of barium and phosphorus, and moderate to high levels of arsenic and zinc were measured in most of the soil samples. Total volatile solids, copper, iron and nickel generally showed moderate levels in the soil samples. Moderate to low levels of chromium, lead, manganese and TKN, and low concentrations of cadmium and mercury were measured in most of the soil samples. At most of the sampling sites, concentrations of ammonia-nitrogen increased with respect to depth. None of the other inorganic parameters tested in the soil samples showed any such sort of clear trend.

Low
cadmium

4.2 Organic Analyses. All sediment samples were subjected to an array of organic analyses, including Pesticides, PCBs, PAHs and oil/grease. Dry weight bulk Pesticide and PCB data are summarized in Table 10. The Pesticide 4,4'-DDD was measured in most the soil samples, but at low levels (i.e., below 1 ppm). The PCBs Aroclor 1242 and 1260 were also present in most of the samples, but at levels around or below 1 ppm, with the exception of Sample III-2, which showed a concentration of 2.3 ppm. Based on the soil samples analyzed, overall, the Island 18 CDF appears to show more PCB soil contamination than the currently used CDF. The results of the dry weight bulk PAH analyses are presented in Table 11. Phenanthrene, Chrysene, Benzo(b)Flouranthene and Pyrene were the most common PAHs measured in the soil samples. Chrysene and Pyrene showed the highest concentrations in the samples, which ranged between nondetectable to about 4 and 8 ppm, respectively. The other PAHs showed levels between about 1 and 2 ppm. Based on the soil samples analyzed, overall, the Island 18 CDF showed more PAH soil contamination than the currently used CDF. With regard to oil/grease, levels were generally variable, ranging from low to high throughout the soil samples.

Low
PCB

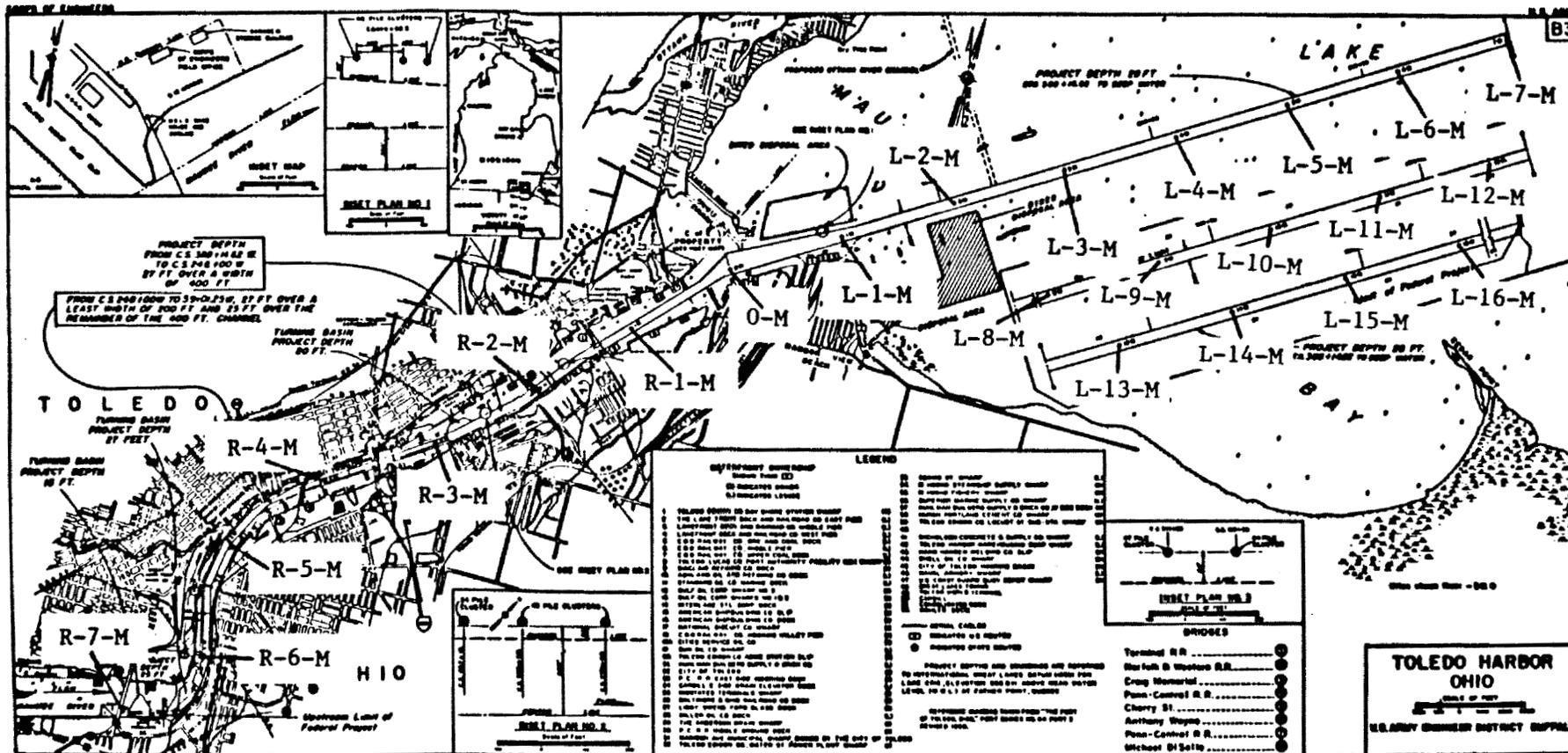
5. Column Leach Testing. Column leach testing was conducted on some of the soil samples to determine the effects of contaminant leaching if the material were to be placed in a landfill. In the laboratory, artificial rain is allowed to percolate through a column of material and is collected over a period of time (i.e., the leachate) for subsequent analyses. This procedure was performed on soil samples I-7, II-2 and IV-4 twice at sampling intervals of about every two weeks. The results of the column leach tests are summarized in Tables 12 and 13. Of the analytes measured in the leachate after the sampling intervals, most were

below 1 ppm, with the exception of iron, which ranged from about 0.3 to 2.6 ppm, and solids (total, total volatile and suspended), ammonia-N, TKN and phosphorus.

REFERENCES

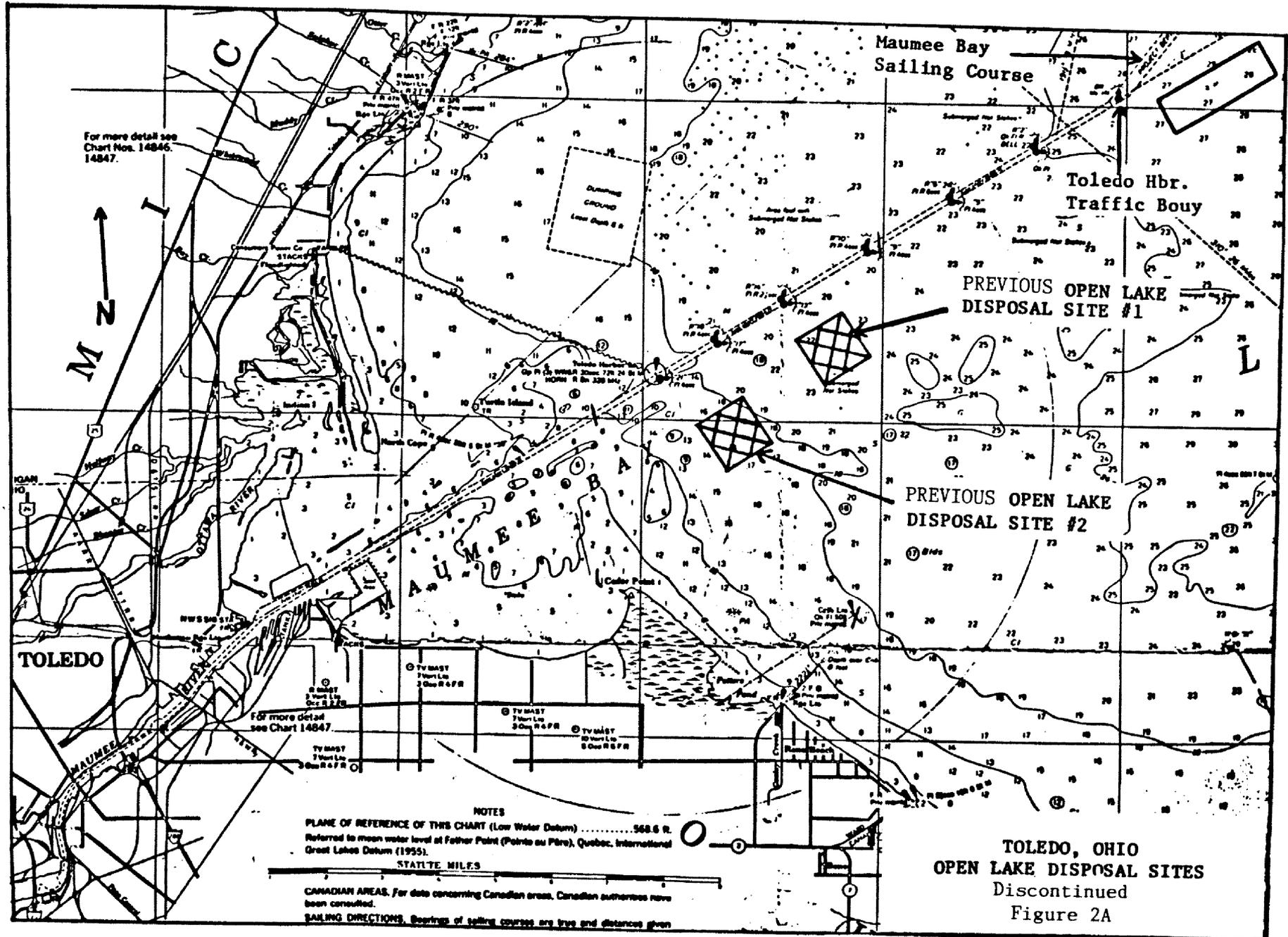
- Aqua Tech Environmental Consultants. 1988. The Analyses of Sediments from Toledo Harbor. Report prepared under contract for the U.S. Army Corps of Engineers, Buffalo District. 88 pages.
- . 1984. Analysis of Sediment from the Toledo Harbor Diked Disposal Facilities. Toledo, Ohio. Report prepared under contract for the U.S. Army Corps of Engineers, Buffalo District. 34 pages.
- Prater, B.L. and M. Anderson. 1977a. A 96-hour Sediment Bioassay of Otter Creek, Ohio. *J. Water Poll. Cont. Fed.* 49(10):2099-2106.
- . 1977b. A 96-hour Sediment Bioassay of Duluth and Superior Harbor Basins Using Hexagenia limbata, Asellus communis, Daphnia magna and Pimephales promelas as test organisms. *Bull. Environ. Contam. Toxicol.* 18(2):159-169.
- T.P. Associates, International Inc. 1987. The Analysis of Sediments from the Proposed Open-lake Disposal Site at Toledo Harbor, Ohio. Report prepared under contract for the U.S. Army Corps of Engineers, Buffalo District. 44 pages plus appendices.
- USAEWES. 1992. The Viscous Characteristics of Channel-Bottom Muds. Technical Note DRP-2-04. 9 pages.

Figure 1. Toledo Harbor, Lucas County, Ohio, Federal navigation project - Federal navigation channel sediment sampling sites.



84 - #1 & 2
 85 - "
 86 - #1 only

Last Used in 1989. X



(25)

TOLEDO, OHIO
 OPEN LAKE DISPOSAL SITES
 Discontinued
 Figure 2A

NOTES
 PLANE OF REFERENCE OF THIS CHART (Low Water Datum) 568.6 R.
 Referred to mean water level at Father Point (Pointe au Père), Quebec, International
 Great Lakes Datum (1955).
 STATUTE MILES
 CANADIAN AREAS. For data concerning Canadian areas, Canadian authorities have
 been consulted.
 SAILING DIRECTIONS. Bearings of sailing courses are true and distances given

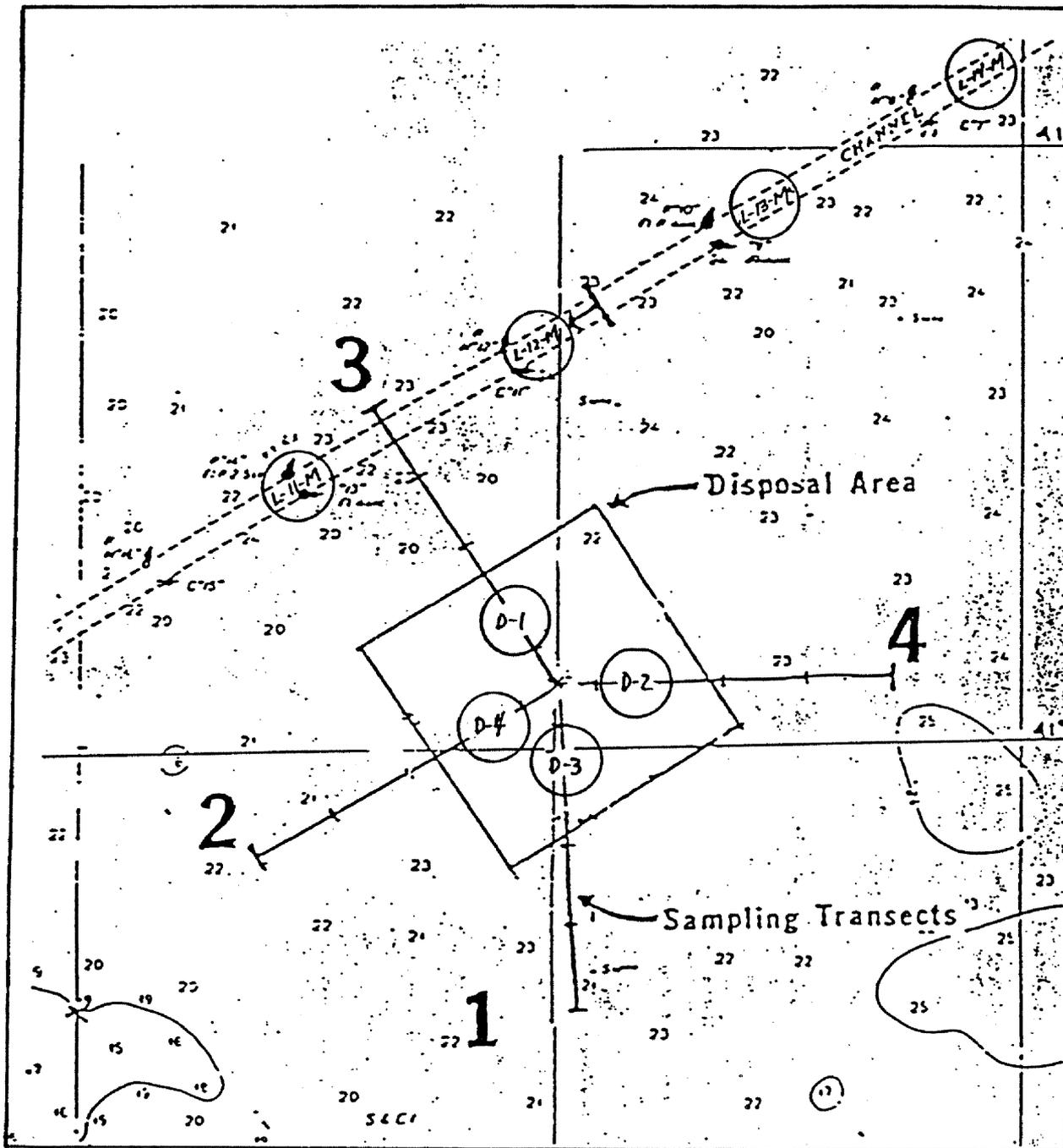


Figure 2B Toledo Harbor, Ohio sampling sites.

Figure 3. Toledo Harbor, Lucas County, Ohio - Existing open-lake discharge site for dredged material (the open-lake reference site is for comparison purposes only).

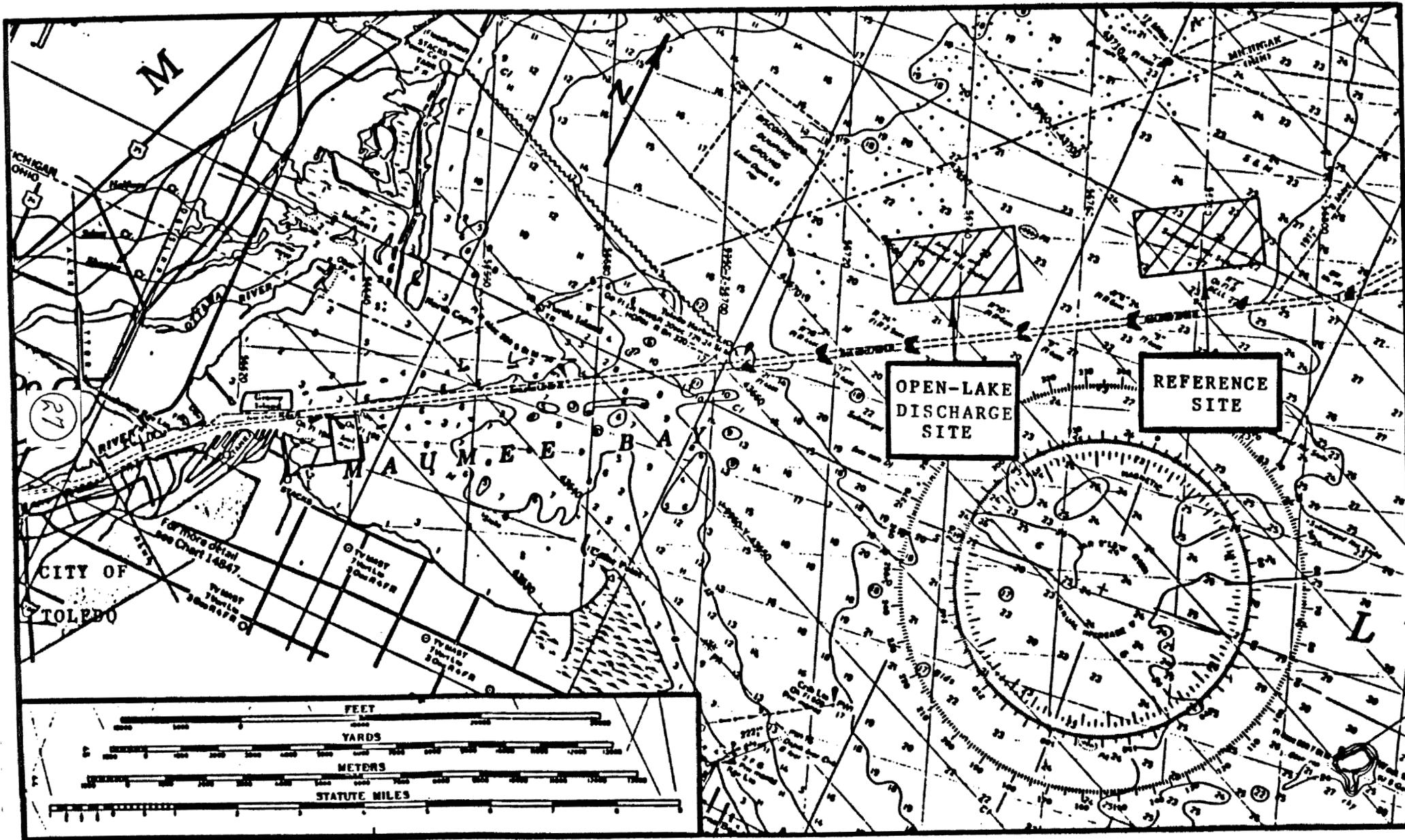
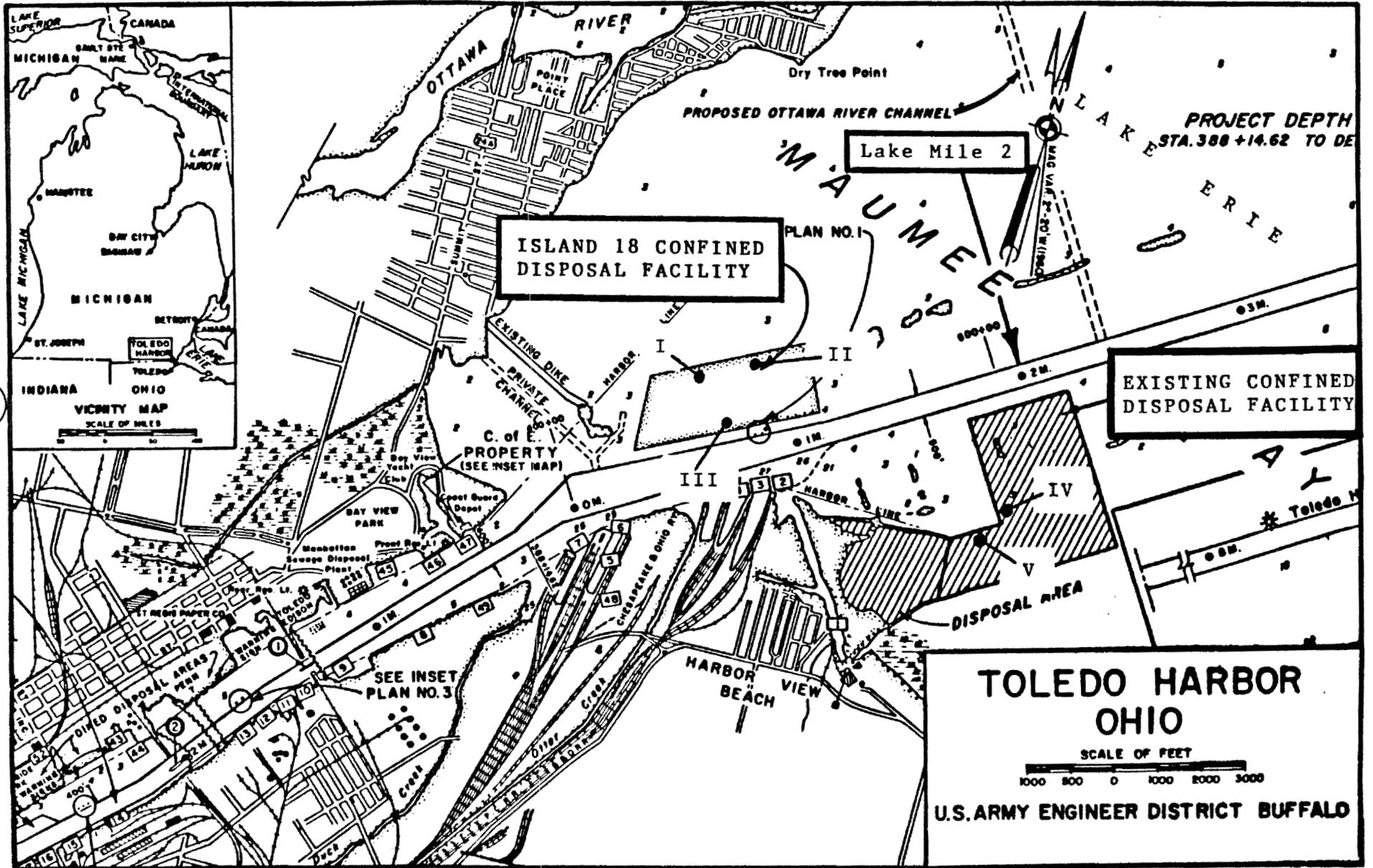


Figure 4. Toledo Harbor, Lucas County, Ohio - CDFs and their respective soil sampling sites.



28

Table 1 - Particle Size Analyses of Sediment Samples from Toledo Harbor Federal Navigation Channels and Open-Lake Discharge Site.

Sediment Sampling Site	Percent Retained						#200 Passed
	#8	#16	#30	#50	#100	#200	
D-4	<0.1	<0.1	<0.1	0.2	0.5	0.3	99.0
D-4 Rpt.	<0.1	<0.1	<0.1	0.1	0.3	1.4	98.2
D-3	<0.1	0.2	<0.1	0.4	0.6	2.2	96.6
D-2	<0.1	<0.1	<0.1	<0.1	0.5	1.0	98.5
D-1	0.1	0.1	0.1	0.8	2.0	5.4	91.5
L-16-M	<0.1	0.2	0.3	0.7	7.5	26.1	65.2
L-15-M	0.3	<0.1	<0.1	0.5	1.8	6.5	90.9
L-14-M	<0.1	<0.1	0.2	0.3	2.0	9.3	88.2
L-13-M	<0.1	<0.1	0.2	1.5	11.3	25.9	61.1
L-12-M	<0.1	0.2	<0.1	1.0	4.2	8.1	86.5
L-11-M	<0.1	0.2	0.3	1.4	6.0	8.2	83.9
L-10-M	<0.1	<0.1	<0.1	0.6	1.7	2.8	94.9
L-9-M	<0.1	<0.1	0.2	0.8	1.9	4.4	92.7
L-9-M Rpt.	<0.1	0.1	0.1	0.8	2.0	3.3	93.7
L-8-M	0.3	0.2	<0.1	0.7	2.2	5.1	91.5
L-7-M	0.2	<0.1	<0.1	0.7	1.5	6.9	90.7
L-6-M	0.1	0.3	0.3	0.7	1.1	3.5	94.0
L-5-M	0.8	0.3	0.5	0.8	1.9	6.7	89.0
L-4-M	<0.1	0.2	<0.1	0.5	0.5	1.9	96.9
L-3-M	<0.1	<0.1	<0.1	0.4	0.9	6.1	92.6
L-2-M	<0.1	<0.1	<0.1	0.3	0.6	2.7	96.4
L-1-M	<0.1	0.2	<0.1	0.2	0.6	1.1	97.9
O-M	<0.1	<0.1	<0.1	0.5	1.2	1.4	96.9
R-1-M	0.2	0.2	0.2	0.5	4.6	11.5	82.8
R-2-M	<0.1	<0.1	<0.1	0.4	1.7	1.4	96.5
R-3-M	<0.1	<0.1	<0.1	0.6	1.0	0.4	98.0
R-3-M Rpt.	<0.1	0.2	<0.1	1.1	1.3	0.5	96.9
R-4-M	1.0	0.7	1.5	6.2	7.1	2.9	80.6
R-5-M	7.3	2.6	2.9	5.8	4.8	3.1	73.5
R-6-M	7.2	2.7	2.3	2.8	9.0	8.3	67.7
R-7-M	<0.1	1.3	0.6	2.3	9.1	5.7	81.0

30
 Table 2 - Bulk Inorganics Data on Sediment Samples Collected from Toledo Harbor Federal Navigation Channels and Open-Lake Discharge Site. All units are in ppm, unless otherwise indicated.

Sediment Sampling Site	Inorganic Parameter																				
	Arsenic, Total	Barium, Total	Cadmium, Total	Chromium, Total	COD	Copper, Total	Cyanide, Total	Iron, Total	Lead, Total	Manganese, Total	Mercury, Total	Nickel, Total	Nitrate	Nitrogen, Ammonia	Oil/ Grease	Phenols, 4-AAP	Phosphorus, Total	Residue, T. Volatile, %	Residue, Total (TS), %	Total Kjeldahl N	Zinc, Total
D-4	18	67	1	25	51000	31	<0.5	20300	29	400	0.1	29	<7	87	270	0.23	870	4.50	48.3	1320	110
D-3	22	79	3	48	110000	54	<0.6	26900	57	440	0.6	52	<12	89	400	0.24	890	6.60	33.2	1330	210
D-2	14	87	3	78	96000	58	<0.7	25500	69	500	0.5	56	<12	96	650	0.25	1100	5.57	31.0	1470	230
D-1	15	60	2	25	57000	37	<0.4	19300	35	360	0.2	33	<9	120	320	0.14	780	2.32	42.2	1080	130
L-16-M	9	29	2	32	34000	32	<0.3	12600	40	280	0.3	30	<6	21	880	0.26	570	2.51	59.4	472	130
L-15-M	16	49	3	49	72000	50	<0.5	17700	67	400	0.7	49	<9	50	830	0.13	830	5.12	38.5	952	200
L-14-M	13	42	3	38	53000	39	<0.5	14700	45	350	0.5	39	<9	42	520	0.14	710	4.81	42.2	852	160
L-13-M	9	31	2	28	38000	30	<0.4	11300	34	255	0.3	32	<7	37	250	0.16	560	3.23	54.0	649	110
L-12-M	19	60	3	37	76000	44	0.69	22300	59	400	0.4	42	<11	93	650	0.28	760	4.67	35.0	1050	160
L-11-M	18	60	2	31	74000	43	0.35	17600	48	400	0.3	38	<11	110	460	0.20	780	4.89	36.3	1440	160
L-10-M	21	69	2	30	93000	41	0.75	23300	38	440	0.3	39	<13	170	590	0.20	750	6.51	30.0	1470	150
L-9-M	17	53	2	19	67000	31	0.4	15300	23	450	0.3	28	<10	81	4300	0.18	700	4.77	38.2	1300	100
L-8-M	14	67	2	21	63000	29	0.23	18000	33	360	0.2	25	<7	59	620	0.10	760	3.88	48.8	1060	100
L-7-M	16	74	0.9	18	76000	28	0.52	20300	25	440	0.1	29	<10	120	420	0.19	750	5.52	39.3	1270	100
L-6-M	16	76	1	19	76000	27	0.6	18900	24	360	0.3	25	<9	160	330	0.23	770	5.58	44.4	1460	95
L-5-M	15	72	1	18	72000	29	0.56	14400	24	370	0.1	23	<8	140	30	0.13	830	6.11	46.2	1450	100
L-4-M	20	90	1	20	82000	32	0.48	23100	23	400	0.1	27	<10	110	340	0.20	840	5.98	38.9	1500	110
L-3-M	18	82	1	17	74000	29	0.47	16000	23	355	0.3	24	<9	160	380	<0.10	900	4.83	43.3	1810	98
L-2-M	20	92	2	23	86000	33	0.7	22900	29	470	0.1	30	<10	200	660	0.39	980	7.16	36.9	1420	120
L-1-M	22	110	2	24	97000	37	1.5	24900	26	460	0.1	32	<9	180	900	0.23	1100	7.58	37.6	1870	150
O-M	20	100	2	31	83000	38	0.52	27200	34	390	0.2	33	<9	270	1300	0.21	1200	6.43	42.3	1700	140
R-1-M	21	120	2	57	120000	52	1.58	31500	52	420	0.4	46	<10	870	3900	0.69	3500	8.84	36.8	2620	330
R-2-M	22	120	2	39	84000	39	0.67	29000	29	530	0.2	33	<10	210	1100	0.29	1400	7.45	37.0	1630	170
R-3-M	23	120	2	24	87000	36	0.98	30600	32	470	0.1	31	<10	150	710	0.16	1100	7.29	37.6	2860	160
R-4-M	12	70	2	14	46000	27	<0.3	13900	23	320	0.2	19	<6	88	340	0.13	840	4.29	54.7	1630	93
R-5-M	22	110	1	20	82000	40	0.5	24500	41	440	0.2	27	<9	150	980	0.17	1100	10.0	41.5	2750	150
R-6-M	18	82	0.9	16	58000	26	<0.6	19900	19	340	0.1	23	<7	91	270	0.13	820	4.25	46.6	1690	97
R-7-M	16	65	2	13	61000	23	<0.3	13200	16	335	0.2	23	<8	89	430	0.12	735	7.47	47.6	1980	82

34

Table 6 - Elutriate Test Data on Sediment Samples Collected from Toledo Harbor Federal Navigation Channels and Open-Lake Discharge Site.

Sediment Sampling Site	Inorganic Parameter																	
	Arsenic, Total	Barium, Total	Cadmium, Total	Chromium, Total	Copper, Total	Cyanide, Total	Iron, Total	Lead, Total	Manganese, Total	Mercury, Total	Nickel, Total	Nitrate	Nitrogen, Ammonia	Oil/Grease	Phenols, 4-AAP	Phosphorus, Total	Total Kjeldahl N	Zinc, Total
	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	UG/L
D-4	8	170	<1	<30	<20	0.01	160	<5	420	<2.0	<30	0.14	2.53	24	<0.01	<0.10	3.00	55
D-3	<5	200	<1	<30	<20	<0.01	200	<5	540	2.0	<30	0.11	1.98	1	<0.01	<0.10	2.04	47
D-2	<5	170	<1	<30	<20	<0.01	220	<5	660	<2.0	<30	<0.08	1.68	5	<0.01	<0.10	1.71	41
D-1	5	180	<1	<30	<20	<0.01	220	<5	640	2.0	<37	<0.08	4.11	<1	<0.01	<0.10	4.22	40
L-16-M	<5	180	<1	<30	<20	<0.01	160	<5	470	<2.0	<30	0.11	1.33	1	<0.01	<0.10	1.50	35
L-15-M	<5	170	<1	<30	<20	<0.01	310	<5	540	<2.0	<30	<0.08	1.80	<1	<0.01	<0.10	1.81	33
L-14-M	<5	190	<1	<30	<20	<0.01	280	<5	720	<2.0	<30	<0.08	1.50	1	<0.01	<0.10	1.90	42
L-13-M	<5	190	<1	<30	<20	<0.01	130	<5	530	<2.0	<30	<0.08	1.59	2	<0.01	<0.10	1.78	35
L-13-M Rpt.	<5	170	<1	<30	<20	<0.01	160	<5	600	<2.0	<30	<0.08	1.57	2	<0.01	<0.10	1.63	29
BLANK	<5	170	<1	<30	<20	<0.01	56	<5	91	2.0	<30	<0.08	<0.02	<1	<0.01	<0.10	<0.10	<20
L-12-M	<5	54	<1	<30	<20	<0.01	77	<5	99	<2.0	<30	0.14	2.21	<1	<0.01	<0.10	2.56	<20
L-11-M	<5	150	<1	<30	<20	<0.01	85	<5	360	<2.0	<30	<0.08	3.25	1	<0.01	<0.10	3.76	25
L-10-M	<5	180	<1	<30	<20	<0.01	110	<5	1000	3.0	<30	<0.08	5.11	2	<0.01	<0.10	5.54	41
L-9-M	<5	190	<1	<30	<20	<0.01	110	<5	590	<2.0	<30	<0.08	2.93	<1	<0.01	<0.10	3.23	34
L-8-M	<5	190	<1	<31	<20	<0.01	85	<5	450	2.0	<31	<0.08	1.77	3	<0.01	<0.10	1.89	23
L-7-M	<5	240	<1	<30	<20	<0.01	150	<5	1200	2.0	<30	<0.08	5.92	<1	<0.01	<0.10	7.02	53
L-6-M	<5	180	<1	<30	<20	<0.01	130	<5	980	<2.0	<30	<0.08	8.33	8	<0.01	<0.10	8.79	41
L-5-M	5	180	<1	<30	<20	<0.01	130	<5	390	4.0	<30	0.18	6.55	<1	<0.01	<0.10	6.74	37
L-4-M	11	190	<1	<30	<20	<0.01	140	<5	1300	<2.0	<30	<0.08	6.11	<1	<0.01	<0.10	6.20	54
L-3-M	6	190	<1	<30	<20	<0.01	110	<5	1100	<2.0	<30	0.11	6.80	1	<0.01	<0.10	7.56	46
L-3-M Rpt.	7	250	<1	<30	<20	<0.01	120	<5	1100	<2.0	<30	0.11	7.44	<1	<0.01	<0.10	8.30	61
L-2-M	7	170	<1	<30	<20	<0.01	250	<5	1400	11.0	<30	<0.08	8.38	1	<0.01	<0.10	8.80	34
L-1-M	8	190	<1	<30	<20	<0.01	400	<5	1400	3.0	<30	<0.08	8.02	<1	<0.01	<0.10	8.60	37
O-M	5	190	<1	<30	<20	<0.01	110	<5	410	<2.0	<30	0.43	8.03	<1	<0.01	<0.10	8.50	41
R-1-M	8	230	<1	<30	<20	<0.01	450	<5	690	<2.0	<30	<0.08	27.5	4	<0.01	<0.10	30.6	51
R-2-M	11	150	<1	<30	<20	<0.01	110	<5	580	<2.0	<30	0.36	6.70	4	<0.01	<0.10	7.20	27
R-3-M	11	180	<1	<30	<20	<0.01	230	<5	1200	<2.0	<30	0.14	6.37	<1	<0.01	0.11	6.60	29
R-4-M	14	200	<1	<30	<20	<0.01	110	<5	830	22	<30	0.39	4.04	<1	<0.01	0.18	4.80	44
R-5-M	18	200	<1	<30	<20	<0.01	100	<5	640	4.0	<30	0.29	5.14	1	<0.01	0.23	5.40	52
R-6-M	12	140	<1	<30	<20	<0.01	92	<5	670	3.0	<30	0.32	3.49	<1	<0.01	<0.10	3.70	28
R-7-M	16	190	<1	<30	<20	<0.01	180	<5	1000	<2.0	<30	0.11	4.41	1	<0.01	0.11	5.30	46
R-7-M Rpt.	12	190	<1	<30	<20	<0.01	110	<5	1100	<2.0	<30	0.18	4.10	<1	<0.01	<0.10	5.00	47

Table 7 - Depth Intervals (in Inches) of Soil Samples
Collected in Toledo Harbor CDFs.

Soil Sampling Site	Sample Number						
	1	2	3	4	5	6	7
I	0-3 ¹	12-38	38-72	72-114	114-156	156-186	*
II	10 ¹	*	12-60	70-126	126-156	156	--
III	0-3	12-70	70-180	180-220	--	--	--
IV	0-6 ¹	6-72	72-128	*	--	--	--
V	0-12	--	--	--	--	--	--

¹ Not Analyzed.

* One gallon sample obtained from surface to approximately one foot of depth, and subjected to column leach testing.

-- No sample obtained.

Table 8 - Particle Size Analyses of Soil Samples Collected from Toledo Harbor Dredged Material CDFs.

Soil Sampling Site	Percent Retained						#200 Passed
	#8	#16	#30	#50	#100	#200	
I-2	<1.0	<1.0	<1.0	<1.0	<1.0	4.2	95.4
I-3	<1.0	<1.0	<1.0	<1.0	<1.2	6.1	91.4
I-4	<1.0	1.0	<1.0	<1.0	<1.0	4.4	94.5
I-5	<0.5	4.7	<0.5	0.5	1.6	4.7	92.2
I-6	<0.5	<0.5	<0.5	0.5	0.9	2.0	96.1
II-3	<0.4	0.7	0.4	<0.4	0.4	1.7	95.8
II-4	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	97.0
II-5	<0.6	<0.6	<0.6	<0.6	0.8	4.5	94.0
III-1	<0.8	<0.8	<0.8	<0.8	<0.8	4.2	96.8
III-2	<0.7	<0.7	<0.7	<0.7	<0.7	1.8	96.9
III-3	<0.6	<0.6	<0.6	<0.6	<0.6	2.0	97.9
III-4	<0.7	<0.7	<0.7	<0.7	<0.7	2.4	98.0
IV-2	<0.6	2.8	3.4	7.5	14.7	11.3	61.0
IV-3	3.7	7.0	8.1	18.3	34.2	14.4	13.1
II-2	<0.3	<0.3	<0.3	0.8	0.5	0.6	97.3
II-2	<0.3	<0.3	<0.3	0.6	0.4	2.4	97.4
Replicate V-1	<0.3	<0.3	<0.3	0.4	<0.3	1.4	98.5
IV-4	8.6	7.5	14.0	25.0	31.4	8.7	4.1
IV-4	6.6	9.9	20.2	26.6	24.5	6.9	5.2
Replicate IV-7	<0.2	0.2	0.6	1.4	0.5	1.6	97.2

Table 9 - Bulk Inorganic Analyses Conducted on Soil Samples Collected from the Toledo Harbor CDFs. All data are reported in ppm, unless otherwise indicated.

Inorganic Parameter	Soil Sampling Site																	
	I-2	I-3	I-4	I-5	I-6	II-3	II-4	II-5	III-1	III-2	III-3	III-4	IV-2	IV-3	V-2	V-1	IV-4	I-7
Total Solids, %	73.0	74.3	69.7	71.3	65.3	64.3	64.6	63.5	74.7	69.9	66.2	65.5	71.2	72.6	70.5	48.1	84.7	75.7
T. Volatile solids, %	5.98	5.03	5.81	5.20	5.78	5.70	5.56	5.32	5.07	6.11	4.39	4.63	2.74	3.20	7.13	5.78	1.39	6.72
Arsenic	7.5	4.1	6.5	4.0	9.1	5.9	10.6	8.7	7.0	4.9	13.4	9.3	4.2	2.9	13.7	4.9	2.3	5.6
Barium	135	118	136	127	139	138	132	145	130	185	135	112	94	92	195	160	29	180
Cadmium	4.1	2.7	4.6	3.4	4.3	3.4	4.0	4.4	2.5	4.3	3.3	2.1	1.1	1.5	5.2	2.3	4.5	4.3
Chromium	48	31	51	35	41	43	44	53	34	45	38	24	19	23	67	28	7	50
Copper	46	35	49	39	50	43	45	52	49	46	45	34	25	34	59	34	10	49
Lead	50	35	50	39	65	41	43	49	43	41	42	27	19	33	62	27	7	47
Mercury	0.25	0.25	0.28	0.24	0.39	0.33	0.28	0.36	0.28	0.28	0.32	0.20	0.12	0.24	0.48	0.24	<0.12	0.36
Nickel	50	42	47	40	46	47	48	50	44	51	47	36	30	35	56	40	14	50
Zinc	195	140	190	140	200	170	170	190	160	190	155	130	98	120	260	150	36	210
Iron	22,800	17,400	20,900	17,400	24,100	22,800	22,300	21,300	20,900	23,800	21,000	17,500	16,400	16,300	27,300	22,600	6,700	25,300
Manganese	345	320	380	350	390	350	380	370	370	371	371	360	290	280	380	380	150	420
Ammonia N	6.6	21.8	84.8	64.9	169	125	297	263	<1.6	8.5	80.7	89.8	61.0	30.0	3.8	127	16.2	3.1
TKN	1,270	624	4.6	646	669	817	1,520	1,080	880	878	580	663	822	395	514	1,710	92.5	273
Total P	1,600	950	1,580	1,110	1,250	1,260	1,260	1,470	1,320	1,245	1,310	810	940	780	1,980	1,230	350	1,440

37

Table 10 - Bulk Pesticide, PCB, Oil/Grease Analyses Conducted on Soil Samples Collected in Toledo Harbor CDFs. All data are reported in ppm.

Pesticide/PCB/ Oil/Grease	Soil Sampling Site																		
	I-2	I-3	I-4	I-5	I-6	II-3	II-4	II-5	III-1	III-2	III-3	III-4	IV-2	IV-3	V-1	II-2	IV-4	V-1	
beta-Endosulfan	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
alpha-Endosulfan	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endosulfan Sulfate	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
alpha-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
beta-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
gamma-BHC (Lindane)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
4,4'-DDE	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
4,4'-DDD	0.04	<0.02	0.07	0.07	0.06	0.14	0.12	0.04	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
4,4'-DDT	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endrin	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Endrin Aldehyde	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Heptachlor Epoxide	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Chlordane	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toxaphene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methoxychlor	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Mirex	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1016	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1221	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1232	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1242	0.40	0.80	0.90	0.40	0.40	0.50	1.50	1.00	0.60	2.30	0.40	0.40	0.30	0.20	0.40	0.40	<0.10	0.80	0.80
Aroclor 1248	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1254	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1260	0.60	0.30	0.60	0.40	0.40	1.00	1.60	0.60	0.50	2.60	0.40	0.40	0.10	<0.10	0.60	0.50	<0.10	0.30	0.30
Oil & Grease	1550	887	1410	1620	2260	1140	2920	2780	704	2370	1340	1340	422	298	1600	2440	260	1340	1340

38

Table 11 - Bulk PAH Analyses Conducted on Soil Samples Collected in Toledo Harbor CDFs. All data are reported in ppm.

PAH	Soil Sampling Site																	
	I-2	I-3	I-4	I-5	I-6	II-3	II-4	II-5	III-1	III-2	III-3	III-4	IV-2	IV-3	I-1	II-2	IV-4	V-1
Phenanthrene	0.83	<0.27	1.10	0.52	<0.27	<0.27	1.5	1.6	0.74	<0.27	<0.27	<0.27	1.90	<0.27	<0.27	<0.27	<0.27	<0.27
Anthracene	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	1.80	<0.13	<0.13	<0.13	<0.13	<0.13
Fluoranthene	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10	<1.10
Pyrene	<1.47	<1.47	3.46	<1.47	<1.47	<1.47	7.52	5.86	<1.47	<1.47	<1.47	<1.47	<1.47	<1.47	<1.47	<1.47	<1.47	<1.47
Benzo(a)Anthracene	1.20	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Chrysene	1.92	1.20	3.40	1.45	1.68	<0.42	4.10	3.9	<0.42	<0.42	<0.42	<0.42	1.45	<0.42	<0.42	<0.42	<0.42	<0.42
Benzo(b)Fluoranthene	<0.44	<0.44	1.90	<0.44	<0.44	<0.44	2.1	1.6	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Benzo(k)Fluoranthene	<0.59	<0.59	<0.59	<0.59	0.64	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
Benzo(a)Pyrene	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	1.3	1.7	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Dibenzo(a,h)Anthracene	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10
Indeno(1,2,3-cd)Pyrene	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48	<1.48
Benzo(ghi)Perylene	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37

Table 12 - Column Leach Testing Data on Soil Samples Collected from the Toledo Harbor CDFs - Sampling Interval No. 1.

Analyte	Soil Sampling Site					
	I-7		II-2		IV-4	
Leachate Collected, ml	1200		350		850	
pH, S.U.	7.1		6.6		7.1	
Conductivity, umho	693		1,100		506	
T. Solids, mg/l	577	(453)*	897	(223)	293	(145)
T. Volatile solids, mg/l	100	(78)	233	(58)	104	(52)
Susp. Solids, mg/l	<1	(<0.7)	<1	(<0.2)	<1	(<0.5)
Ammonia N, mg/l	<0.1	(<0.078)	<0.1	(<0.025)	10.1	(5.01)
TKN, mg/l	1.50	(1.18)	3.36	(0.83)	14.0	(6.94)
Total P, mg/l	0.32	(0.25)	0.46	(0.11)	0.85	(0.42)
Arsenic, ug/l	28	(0.022)	17	(0.042)	22	(0.011)
Barium, ug/l	<100	(<0.078)	<100	(<0.025)	100	(<0.050)
Cadmium, ug/l	11	(0.0086)	7	(0.002)	1	(0.001)
Chromium, ug/l	8	(0.006)	<20	(<0.005)	5	(0.002)
Copper, ug/l	38	(0.030)	60	(0.015)	30	(0.015)
Lead, ug/l	<5	(<0.004)	<30	(<0.007)	5	(0.002)
Mercury, ug/l	<0.3	(<0.0002)	<0.4	(<0.0001)	0.3	(<0.0001)
Nickel, ug/l	45	(0.035)	80	(0.020)	35	(0.017)
Zinc, ug/l	28	(0.022)	50	(0.012)	38	(0.019)
Iron, ug/l	1940	(1.52)	240	(0.060)	2590	(1.28)
Manganese, ug/l	470	(0.37)	290	(0.072)	290	(0.14)

* Numbers in parentheses represent mg of leached material per kg of sediment (dry) in column.

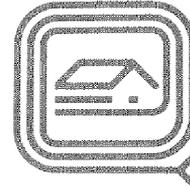
Table 13 - Column Leach Testing Data on Soil Samples Collected from the Toledo Harbor CDFs - Sampling Interval No. 2.

Analyte	Soil Sampling Site					
		I-7		II-2		IV-4
Leachate Collected, ml	925		600		1,000	
pH, S.U.	6.9		7.0		6.6	
Conductivity, umho	452		933		210	
T. Solids, mg/l	250	(151)*	708	(301)	96	(56)
T. Volatile solids, mg/l	60	(36)	448	(191)	36	(21)
Susp. Solids, mg/l	4	(2)	<2	(<0.9)	46	(27)
Ammonia N, mg/l	<0.1	(<0.06)	<0.1	(<0.04)	2.63	(1.53)
TKN, mg/l	0.88	(0.53)	1.13	(0.48)	4.38	(2.56)
Total P, mg/l	0.45	(0.27)	0.79	(0.34)	1.52	(0.89)
Arsenic, ug/l	12	(0.0073)	13	(0.0055)	13	(0.0076)
Barium, ug/l	<100	(<0.06)	<100	(<0.04)	<100	(<0.06)
Cadmium, ug/l	12	(0.0073)	13	(0.0055)	13	(0.0076)
Chromium, ug/l	10	(0.006)	13	(0.0055)	13	(0.0076)
Copper, ug/l	150	(0.091)	150	(0.063)	130	(0.076)
Lead, ug/l	210	(0.13)	230	(0.098)	280	(0.16)
Mercury, ug/l	<0.3	(<0.0002)	<0.3	(<0.0001)	<0.3	(<0.0002)
Nickel, ug/l	95	(0.057)	98	(0.042)	83	(0.048)
Zinc, ug/l	40	(0.020)	45	(0.019)	58	(0.034)
Iron, ug/l	1,100	(0.665)	620	(0.26)	1,500	(0.875)
Manganese, ug/l	630	(0.38)	860	(0.37)	320	(0.19)

* Numbers in parentheses represent mg of leached material per kg of sediment (dry) in column.

Ohio Historic Preservation Office

Ohio Historical Center
1982 Velma Avenue
Columbus, Ohio 43211-2497
614/297-2470
Fax: 297-2546



OHIO
HISTORICAL
SOCIETY
SINCE 1885

April 26, 1994

Dr. Stephen M. Yaksich
Environmental Analysis Section
U.S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207-3199

Re: Removal of materials from Confined Disposal Facility
Toledo Harbor, Lucas County, Ohio

Dear Dr. Yaksich,

This is in response to correspondence from your office dated March 24, 1994 (received March 29) regarding the above referenced project. The comments of the Ohio Historic Preservation Office (OHPO) are submitted in accordance with provisions of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 [36 CFR 800]); the U.S. Army Corps of Engineers, Buffalo District, serves as the lead federal agency. My staff has reviewed this project, and I offer the following comments.

The proposed undertaking involves removal of dredged materials from the confined disposal facility and placement on yet-to-be-determined areas. Our concern is for potential impacts to archaeological sites from the placement of materials. The movement of equipment across some sites can cause adverse effects on significant archaeological deposits, and, in addition, the placement of materials can alter the environment at some sites leading to increasing rates of deterioration for some classes of artifacts. Therefore, since adverse effects are possible, it is not possible for us to concur with your assessment that the proposed undertaking will have no effect without specific information on disposal areas. Since it is possible that disposal in some areas will have no effect on any property listed or eligible for the National Register of Historic Places, we suggest that you consider development of a Programmatic Agreement to facilitate the implementation of this proposed undertaking.

Any questions concerning this matter should be addressed to David Snyder at (614) 297-2470, between the hours of 8 am. to 5 pm. Thank you for your cooperation.

Sincerely,


Martha J. Raymond, Department Head
Technical and Review Services

MJR/DMS:ds



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAY 12 1994

REPLY TO THE ATTENTION OF:
ME-19J

Dr. Stephen M. Yaksich
Chief, Environmental Analysis
and Engineering Section
Department of the Army
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

Dear Dr. Yaksich:

We have reviewed the soils analysis and land applications evaluation for the proposed management and beneficial use of dredged material pilot program for the confined disposal facility (CDF) at Toledo Harbor, Ohio. The project involves the removal of approximately 50,000 cubic yards of dredged material over a two year period, down to a maximum cut of about three to four feet below the existing contour. The material would likely be excavated, stockpiled, and loaded into trucks by mechanical means, and hauled from the CDF site to the use sites.

Information should be provided on the proposed use sites as well as the intended uses of the material. Site information should include current land use, underlying soils, existing biota, types of habitat, and whether the proposed disposal activities would impact wildlife.

Also, it appears that there is a discrepancy in the data summary listed on Table 1. The numbers on Table 1 do not correspond to the raw data provided in the back of the document on Table 9. For example, on Table 1, the average for Arsenic is shown as 5.5 ppm, with a range of 3.6 - 6.2 ppm. However, on Table 9, the average for Arsenic is 6.9, with a range of 2.9 - 13.7. Which data is correct?

We appreciate the opportunity to review this project. If you have any questions on our comments, please contact Holly Wirick of my staff at (312) 353-6704.

Sincerely,

A handwritten signature in cursive script that reads "Shirley Mitchell".

Shirley Mitchell, Chief
Planning and Assessment Branch
Planning and Management Division



DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF

MAY 13 1994

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use

TO ALL INTERESTED PARTIES:

Enclosed for your review is a copy of the Finding of No Significant Impact (Pre-Signature) and Environmental Assessment and Appendix (EA-FONSI) pertaining to the subject project. The reports are being coordinated for a 30 day review period in compliance with planning guidelines and the National Environmental Policy Act (NEPA). If no comments are received within 30 days that would reverse the FONSI, or after any substantial comment has been addressed, the FONSI will be signed and filed as part of the project documentation. The project could then continue with preparation of final plans and specifications and implementation. Please provide me with any comments you may have on this project (if any) within 30 days of the date of this letter.

My point of contact pertaining to this matter is Mr. Tod Smith of my Environmental Analysis Section, who can be contacted by calling 716-879-4175 or by writing to his attention at the above address.

Sincerely,

Stephen M. Yaksich
Stephen M. Yaksich, PhD, P.E.
Chief, Environmental Analysis and
Engineering Branch

TAB: COORDINATION AND COMMENTS/RESPONSES ON EA/FONSI



STATE CLEARINGHOUSE

State of Ohio - Office of Budget and Management

30 EAST BROAD STREET • 34TH FLOOR • COLUMBUS, OHIO 43266-0411 • (614) 466-0697 / 0698

U.S. DEPT OF THE ARMY, CORPS OF ENGINEERS
1776 NIAGARA STREET, ENVIRONMENTAL ANALYSIS
BUFFALO, NY, 14207-3199

ATTENTION: TOD SMITH

PHONE: 716-879-4175

RE: STATE CLEARINGHOUSE INTERGOVERNMENTAL REVIEW- APPLICATION RECEIPT LETTER

TITLE: ARMY - ENVIRONMENTAL IMPACT ASSESSMENT

PROJECT DESCRIPTION: FONSI, TOLEDO HARBOR CONFINED DISPOSAL FACILITY (CDF)
CELL 1 MATERIAL TESTING & USE, IMPACTS MAUMEE RIVER,
CITY OF TOLEDO, LUCAS COUNTY, MAY 1994

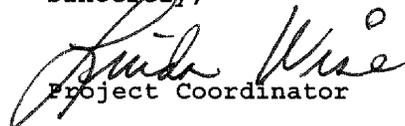
STATE IDENTIFICATION (SAI) NUMBER: OH940518-Y610-36.422
PROPOSED FEDERAL FUNDING: \$0

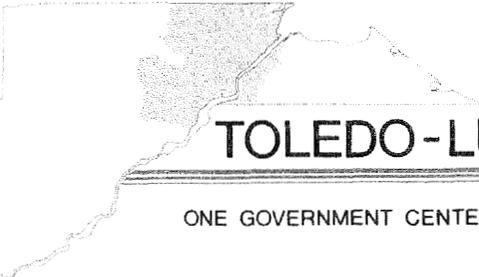
Dear Applicant:

The State Clearinghouse has received your notification for either a direct federal development project, environmental assessment/impact statement, or, an application for federal funds. The review process has begun at the State level and will be completed on June 13, 1994.

A State Application Identification (SAI) number has been assigned to your project. Please refer to this number in all future contacts with the State Clearinghouse and the Area Clearinghouse(s). This number should also be forwarded to the funding agency, to become part of your application.

Sincerely,


Project Coordinator



TOLEDO-LUCAS COUNTY PLAN COMMISSIONS

ONE GOVERNMENT CENTER, SUITE 1620, JACKSON STREET, TOLEDO, OHIO 43604, PHONE (419) 245-1200

WALTER T. EDELEN, AICP
EXECUTIVE DIRECTOR

June 1, 1994

Mr. Stephen M. Yaksick
Chief Environmental Analysis
and Engineering Branch
Department of Army
Buffalo District Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

Subject: Toledo Harbor Confined Disposal Facility
(CDF) Cell 1 Material Testing and Use

Dear Mr. Yaksick:

This is in response to your request for comment of the Finding of No Significant Impact and Environmental Assessment of the above project.

The Toledo-Lucas County Plan Commissions provides regulatory guidelines to Lucas County Townships in matters of Land Use and Zoning. Land disposal of River/Lake dredged materials as proposed would seem to have little or no significant impact on the environment. However, if the regulation of such disposal is to be consistent with the regulations for disposal of sewage sludge on farmland (non-food chain soil mix), improvements are needed in monitoring haulers and land owners as to the appropriate levels of application and incorporation of sludge into the soil. Further, no monitoring appears to be done as to the sale or transfer of such land once used for sludge disposal. Often these parcels are subdivided into small rural acreage parcels and used for single family dwellings (septic and well), with no notification required by the seller to the purchaser.

No apparent guidelines by OEPA or USEPA seem to address this matter. This concern needs to be addressed legislatively requiring such notation on deeds, if parcels are subdivided and transferred within several years of the application of sludge. This is a regulatory issue which OEPA may need to address through state legislation, allowing local government to require such notation under subdivision regulation.

Sincerely,



Walter T. Edelen, AICP
Executive Director

JWB/WTE/jr
pc: OEPA



STATE CLEARINGHOUSE
State of Ohio - Office of Budget and Management

30 EAST BROAD STREET • 34TH FLOOR • COLUMBUS, OHIO 43266-0411 • (614) 466-0697 / 0698

June 13, 1994

U.S. DEPT OF THE ARMY, CORPS OF ENGINEERS
1776 NIAGARA STREET, ENVIRONMENTAL ANALYSIS
BUFFALO, NY 14207-3199

Attention: TOD SMITH

PHONE: 716-879-4175

RE: STATE INTERGOVERNMENTAL REVIEW
ENVIRONMENTAL ASSESSMENT/IMPACT STATEMENT COMPLETION LETTER

State Application Identification (SAI) Number: OH940518-Y610-36.422

Project Description: FONSI, TOLEDO HARBOR CONFINED DISPOSAL FACILITY (CDF)
CELL 1 MATERIAL TESTING & USE, IMPACTS MAUMEE RIVER,
CITY OF TOLEDO, LUCAS COUNTY, MAY 1994

Dear Applicant:

The State Clearinghouse has reviewed the Environmental Assessment/Impact Statement for the above identified project that is covered by the National Environmental Act of 1969, and any amendments; the Intergovernmental Review Process (Presidential Executive Order 12372); Gubernatorial Executive Order authorized under Ohio Revised Code, Section 107.18(A); and/or other pertinent regulations and guidelines.

This document has been simultaneously reviewed by interested state agencies, with a notice to the impacted area clearinghouse(s). Our office may have attached comments for your consideration and/or response.

You should be advised that some of the reviewing state agencies may respond directly to you without submitting their comments through the Single Point Of Contact. We encourage our reviewing agencies to keep in direct contact with issuing agencies on all environmental assessment/impact statement reviews. Therefore, consider their directly generated comments as valid responses.

It is recommended that contact be made with all commenting agencies. Addresses and phone numbers are available on individual Transmittal Forms and /or contained in a letter received by our agency. The comments which have been generated should become part of the proposal and responded to before a final decision is made regarding this environmental assessment/impact statement.

Should this be a draft proposal, please provide our office with fourteen (14) copies of the final product.

Sincerely,

Larry W. Weaver, Federal Funds Coordinator
Office of Budget and Management



George V. Voinovich • Governor
Frances S. Buchholzer • Director

June 7, 1994

Ms. Linda Wise
State Clearinghouse
Office of Budget and Management
30 E. Broad St., 34th Floor
Columbus, OH 43266-0411

6/13/94

RE: SAI NO: OH940518-Y610-36.422
Toledo Harbor CDF
Cell I Material Testing & Use

Dear Ms. Wise:

Enclosed is a transmittal form and comments regarding the above referenced project from the Division of Natural Areas & Preserves, Ohio Department of Natural Resources.

We appreciate the opportunity to provide these comments. If you have any questions, please contact me at 614/265-6411 or contact the reviewer identified on the comment letter/transmittal form.

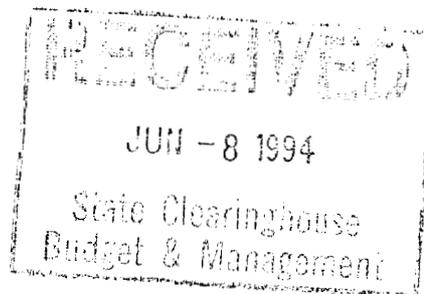
Sincerely,

Kimberly A. Baker
Environmental Program Coordinator

enclosures

KAB/cag

cc: Pat Jones, DNAP



INTER-OFFICE COMMUNICATION

TO: Kim Baker, Office of Real Estate & Land Management
FROM: Debbie Woischke, Division of Natural Areas & Preserves
RE: Clearinghouse Transmittal:36.422, EIA/FONSI-Toledo Harbor CDF
DATE: June 3, 1994

I have reviewed the documentation for the project listed above. The numbers on the list below correspond to the areas marked in red on the accompanying map.

OREGON QUAD

- 1. Bay Shore Power Station Water Intake
Percina copelandi - Channel Darter, State Endangered
Ichthyomyzon unicuspis - Silver Lamprey, Threatened
Hiodon tergisus - Mooneye, Special Interest
- 2. Sterna hirundo - Common Tern, State Endangered, Federal Cat. 2
 Ring-billed Gull Nesting Colony
 Herring Gull Nesting Colony

The bird records listed above (#2) are from 1977 and we are not aware whether any nesting activity has taken place since then. Before the proposed project begins, a survey for nesting birds should be conducted in the area of CDF Cells 1, 2 and 3. If nesting birds are present, the proposed project should be scheduled to take place after the nesting season.

There are no existing or proposed state nature preserves or scenic rivers in the project area, and we are unaware of any other significant ecological sites within the project vicinity.

Mid April - August
NTP
30 August 94
②



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUN 27 1994

REPLY TO THE ATTENTION OF:

Dr. Stephen M. Yaksich
Chief, Environmental Analysis
and Engineering Section
Department of the Army
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

ME-19J

Dear Dr. Yaksich:

We have reviewed the Environmental Assessment (EA) on the proposed removal and use of dredged material from the Toledo Harbor CDF Cell 1, at Toledo, Lucas County, Ohio. The proposed project involves the removal of approximately 50,000 cubic yards of dredged material over a two year period, down to a maximum cut of about three to four feet below the existing contour. The material is proposed to be excavated, stockpiled, and loaded into trucks by mechanical means, and hauled from the CDF site to the use sites.

We previously provided comments on this project in a letter dated May 12, 1994 in response to your agency's coordination letter. At that time, we asked for information on some of the proposed use sites, including current land use, underlying soils, existing biota, and types of habitat. Please provide this information. We also indicated that there appears to be a discrepancy in the data summary listed on Table 1. The numbers on Table 1 do not correspond to the raw data provided in the back of the document on Table 9. For example, on Table 1, the average for Arsenic is shown as 5.5 ppm, with a range of 3.6 - 6.2 ppm. However, on Table 9, the average for Arsenic is 6.9, with a range of 2.9 - 13.7. Please advise which data is correct.

We appreciate the opportunity to review the EA. If you have any questions on our comments, please contact Holly Wirick of my staff at (312) 353-6704.

Sincerely,

A handwritten signature in cursive script that reads "Shirley Mitchell".

Shirley Mitchell, Chief
Planning and Assessment Branch
Planning and Management Division

JUL 21 1994

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

Ms. Shirley Mitchell
Chief, Planning and Assessment Branch
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590
Attn: ME-19J

JUL 15 1994

Dear Ms. Mitchell:

This is in response to your comment letters dated May 12, 1994 and June 22, 1994 (Attachment 1).

As indicated in our March 24, 1994 scoping letter and May 13, 1994 coordination letter and assessments, general land applications of material and activities at and from the CDF site have been addressed, as possible. Accordingly, relative to general land applications, use-sites would most likely be permitted construction sites using the material for general fill, landscaping, or possibly landfill cover material. Land application to any food-chain crop lands would be much less likely since there would be less incentive and associated restrictions and monitoring.

Essentially, the CDF material is made available to the contractor to be utilized at use-sites determined by the contractor, who will not be determined until a contract is awarded. Specific use-site matters are to be addressed via associated construction permit processes. As indicated, the contractor will have responsibility for final compliance with any applicable Federal, State, and local land application and development regulations. The contract requests reasonable documentation or reference there-of (some use-site monitoring) from the contractor in this regard. This project interfacing, reducing assessment redundancy and providing timeliness and flexibility, is considered essential to attaining any contract.

Specific use-site(s) and associated specific use-site information, therefore, is not now known. Some additional general information relative to that requested but pertaining to the Maumee River Watershed and Toledo vicinity, however, is included for your information (Attachment 2). The potential use-

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

site current underlying soils, land use, and associated biota and habitats could include a wide range (Reference Attachments 2 and 3); however, as indicated previously, the use-sites would most likely be permitted construction sites using material as general fill, landscaping, or possibly landfill cover material. Further, it is expected that impacts of fill material at use-sites would occur and be essentially the same with or without the project, except that, instead of using CDF material, material obtained from other borrow areas would be utilized. Considering the preceding and the probability that due to transportation costs material will not be transported much more than about 25 miles provides some additional perspective on potential use sites and associated impacts.

As for the data tables, as indicated in our previous correspondence and assessments:

"Material characteristics testing data most representative of dredged material in the subject project site is presented as Attachments 3 and 4. Attachment 3 presents a summary of material characteristics based on analysis of 1993 soil samples taken specifically from Toledo CDF Cell 1 subject project area. Attachment 4 presents a summary of material characteristics based on analysis of 1988 sediment samples taken from Toledo navigation channels subsequently dredged with most of the material deposited in CDF Cell 1, and analysis of 1984 soil samples taken from Toledo CDF sites."

Table 1 which you reference pertains to previously referenced Attachment 3. Table 9 which you referenced pertains to previously referenced Attachment 4. These are two different sets of data, as indicated. Both sets of data are correct.

For information, of some 60 assessments coordinated (twice) pertaining to this project, only four comment letters were received and responded to. The assessments and correspondence have been reviewed and the FONSI has been signed, so that the project may proceed to contracting. Substantial comment concerns have been accommodated within the contract to the degree possible. Material was submitted to contracting in June in order to activate a contract/project by September (already late). If an interested contractor can be attained and the project enacted, the project will be monitored and further assessed as to overall pluses and minuses and as to potential continued programing/processing for beneficial use of dredged material.

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

Thank you for your review and comments. We hope that the preceding responses have satisfactorily addressed your comments. We look forward to continuing working with you on initiating, assessing, and potentially bringing these important beneficial use of dredged material initiatives on line.

My points of contact pertaining to this matter are Mr. Wiener Cadet of my Plan Formulation and Technical Management Section and Mr. Tod Smith of my Environmental Analysis Section, who can be contacted by calling 716-879-4247 or 716-879-4175, respectively, or by writing to their attention at the above address.

Sincerely,

RECEIVED

SY

Malcolm J. Todd
Chief, Engineering and
Planning Division

APR 21 1994

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

Ms. Martha J. Raymond
Department Head
Technical and Review Services
Ohio Historic Preservation Office
Ohio Historical Center
1982 Velma Avenue
Columbus, Ohio 43211-2497

2
1
1
1
1
1

Dear Ms. Raymond:

This is in Response to your April 26, 1994 comment letter (Attached) and subsequent project coordination review.

As indicated in the subject project coordination letters and assessments, general land applications of material and activities at and from the CDF site have been addressed, as possible. Accordingly, relative to general land applications, use-sites would most likely be permitted construction sites using the material for general fill, landscaping, or possibly landfill cover material. Land application to any food-chain crop lands would be much less likely since there would be less incentive and associated restrictions and monitoring.

Essentially, the CDF material is made available to the contractor to be utilized at use-sites determined by the contractor, who will not be determined until a contract is awarded. Specific use-site matters are to be addressed via associated construction permit processes. As indicated, the contractor will have responsibility for final compliance with any applicable Federal, State, and local land application and development regulations. The contract requests reasonable documentation or reference there-of (some use-site monitoring) from the contractor in this regard. This serves as an initial programmatic use-site assessment process. This project interfacing, reducing assessment redundancy and providing timeliness and flexibility, is considered essential to attaining any contract. Further, it is expected that impacts of fill material at use sites would occur and be essentially the same with or without the project; except that, instead of using CDF material, fill material from other borrow areas would be utilized.

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

For information, of some 60 assessments coordinated (twice) pertaining to this project, only four comment letters were received and responded to. The assessments and correspondence have been reviewed and the FONSI has been signed, so that the project may proceed to contracting. Substantial comment concerns have been accommodated within the contract to the degree possible. Material was submitted to contracting in June in order to activate a contract/project by September (already late). If an interested contractor can be attained and the project enacted, the project will be monitored and further assessed as to overall pluses and minuses and as to potential continued programing/processing for beneficial use of dredged material.

Thank you for your review and comments. We hope that the preceding responses have satisfactorily addressed your comments. We look forward to continuing working with you on initiating, assessing, and potentially bringing these important beneficial use of dredged material initiatives on line.

My points of contact pertaining to this matter are Mr. Wiener Cadet of my Plan Formulation and Technical Management Section and Mr. Tod Smith of my Environmental Analysis Section, who can be contacted by calling 716-879-4247 or 716-879-4175, respectively, or by writing to their attention at the above address.

Sincerely,



Malcolm J. Todd
Chief, Engineering and
Planning Division

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

Mr. Walter T. Edelen, ALCP
Executive Director
Toledo-Lucas County Plan Commissions
One Government Center, Suite 20
Jackson Street
Toledo, Ohio 43604

Dear Mr. Edelen:

This is in response to your comment letter dated June 1,
1994 (Attached).

The testing and regulations/guidelines referenced pertaining to soil quality and land-applications appear to be the most reasonable applicable ones to utilize at this time for implementation of this initial (essentially a test) project. These may or may not be the primary reference regulations/guidelines in the future. No doubt some new or further regulations, guidelines, and/or clarifications may be desirable or necessary, if a program of similar actions is considered feasible/favorable for future long-term implementation. This should occur, as necessary, to assure public health and safety. On the otherhand, care should be taken not to over-play or over-regulate, which could jeopardize the acceptability/feasibility of such actions/programs.

As indicated in the subject project coordination and assessments, general land applications of material and activities at and from the CDF site have been addressed, as possible. Accordingly, relative to general land applications, use-sites would most likely be permitted construction sites using the material for general fill, landscaping, or possibly landfill cover material. Land application to any food-chain crop lands would be much less likely since there would be less incentive and associated restrictions and monitoring. As indicated in the subject project coordination and assessments, considering the material test data, it is expected that land application of the subject dredged material as proposed would have little or no significant impact on the environment.

Essentially, the CDF material is made available to the contractor to be utilized at use-sites determined by the contractor, who will not be determined until a contract is awarded. Specific use-site impacts are to be addressed via

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

associated construction permit processes. As indicated, the contractor will have responsibility for final compliance with any applicable Federal, State, and local land application and development regulations. The contract requests reasonable documentation or reference thereof (some use-site monitoring) from the contractor in this regard. This project interfacing, reducing assessment redundancy and providing timeliness and flexibility is considered essential to attaining any contract.

For information, of some 60 assessments coordinated (twice) pertaining to this project, only four comment letters were received and responded to. The assessments and correspondence have been reviewed and the FONSI has been signed, so that the project may proceed to contracting. Substantial comment concerns have been accommodated within the contract to the degree possible. Material was submitted to contracting in June in order to activate a contract/project by September (already late). If an interested contractor can be attained and the project enacted, the project will be monitored and further assessed as to overall pluses and minuses and as to potential continued programing/processing for beneficial use of dredged material.

Thank you for your review and comments. We hope that the preceding responses have satisfactorily addressed your comments. We look forward to continuing working with you on initiating, assessing, and potentially bringing these important beneficial use of dredged material initiatives on line.

My points of contact pertaining to this matter are Mr. Wiener Cadet of my Plan Formulation and Technical Management Section and Mr. Tod Smith of my Environmental Analysis Section, who can be contacted by calling 716-879-4247 or 716-879-4175, respectively, or by writing to their attention at the above address.

Sincerely,

S9
Malcolm J. Todd
Chief, Engineering and
Planning Division

JUL 23 1994

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use.

Ms. Kimberly A. Baker
Environmental Program Coordinator
Division of Natural Areas and Preserves
Ohio Department of Natural Resources
Fountain Square
Columbus, Ohio 43224-1387

Dear Ms. Baker:

This is in response to your comment letter dated June 7, 1994 (Attached). Thank you for your review and comments relative to the subject project.

It is not expected that the subject project would have any impact on the habitat or species identified in your letter under items 1 and 2. The item 1 area is generally outside the project impact area. Relative to the item 2 area, the project impact area is a routinely active area (particularly lately) which generally precludes favorable nesting establishment. The dike serves as the CDF access/maintenance road and the project area is currently ~~in~~ the dredged material discharge facility discharge vicinity. Also, the project contract activities are not scheduled, now, (if attainable) until after August.

My points of contact pertaining to this matter are Mr. Wiener Cadet of my Plan Formulation and Technical Management Section and Mr. Tod Smith of my Environmental Analysis Section, who can be contacted by calling 716-879-4247 or 716-879-4175, respectively, or by writing to their attention at the above address.

Sincerely,

59
Malcolm J. Todd
Chief, Engineering and
Planning Division

DATE: July 20, 1994

FEDERAL \$0
TOTAL \$
AGENCY

INTERGOVERNMENTAL REVIEW NO. 94-94
SAI NO: OH940613-Y724-36422
CFDA NO:

COMMENTS AND RECOMMENDATIONS
OF THE
TOLEDO METROPOLITAN AREA COUNCIL OF GOVERNMENTS

Certified Areawide Review Agency:

Toledo Metropolitan Area Council of Governments
123 Michigan Street
Toledo, OH 43624-1927

Authority: Demonstration Cities and Metropolitan Development Act of 1966,
Section 204; Intergovernmental Cooperation Act of 1968,
Section 201 and Title IV and Executive Order 12372.

Applicant:	U.S. Army Corps of Engineers Environmental Analysis Att: Todd Smith 1776 Niagara St Buffalo NY 14207-3199	<i>Received 8/11/94 [Signature]</i>
Project:	Environmental Impact Assessment Toledo Harbor	

Approved Comments and Recommendations:

The Board of Trustees recommends to the funding agency:

That this project is in compliance with local planning, does not conflict with any other local project, and meets the goals of the region; that the funding agency continue the process of funding this proposal.

[Signature]
For William L. Knight, Executive Director



City of Opportunity

CITY of OREGON

5330 SEAMAN ROAD
P.O. BOX 167541
OREGON, OHIO 43616-7541

Sandy Bihn

Clerk-Auditor
(419) 698-7030
Fax - (419) 691-6303

September 2, 1994

Steven Yaksich
Chief Environmental Analysis and Engineering Branch
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

re: Toledo Harbor Confined
Disposal Facility (CDF)
Cell 1 Material Testing

Dear Mr. Yaksich:

The City requests that the Corps include in their bid documents a requirement that any contractor or subcontractor be required to submit a haul permit from the City of Oregon pursuant to the Oregon Municipal Code Section 339.13 and subject to any terms and conditions acceptable to the City.

The City would also like to be kept informed on when the project will commence and all plans related to the project.

Please let me know of any questions you may have.

Sincerely,

Sandy Bihn
Clerk-Auditor



City of Opportunity

CITY of OREGON

5330 SEAMAN ROAD
P.O. BOX 167541
OREGON, OHIO 43616-7541

Sandy Bihn

Clerk-Auditor
(419) 698-7030
Fax - (419) 691-6303

October 7, 1994

Mr. Steven Yaksich
Chief Environmental Analysis & Engineering Branch
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, N.Y. 14207-3199

Dear Mr. Yaksich:

I have recently found the attached comments to be submitted to you. I apologize for the delay and request that the attached be included as an addendum to the September 2 comments.

Sincerely,

A handwritten signature in cursive script that reads "Sandy Bihn".

Sandy Bihn
Finance Director

SB: pf



recycled paper

September 2, 1994

Steven Yaksich
Chief Environmental Analysis and Engineering Branch
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

re: Toledo Harbor Confined
Disposal Facility (CDF)
Cell 1 Material Testing

Dear Mr. Yaksich:

The City requests that the Corps include in their bid documents a requirement that any contractor or subcontractor be required to submit a haul permit from the City of Oregon pursuant to the Oregon Municipal Code Section 339.13 and subject to any terms and conditions acceptable to the City.

The City would also like to be kept informed on when the project will commence and all plans related to the project.

Please let me know of any questions you may have.

Sincerely,

Sandy Bihn
Clerk-Auditor



CITY OF OPPORTUNITY

CITY OF OREGON OHIO

5330 SEAMAN ROAD • P.O. BOX 167541 • OREGON, OHIO 43616-7541

DEPARTMENT OF PUBLIC SERVICE

419/698-7047

FAX 419/691-0241

JAMES A. HALEY
MAYOR

DONALD A. SURFACE, P.E.
DIRECTOR OF PUBLIC SERVICE

June 10, 1994

To: Sandy Bihn, Clerk-Auditor
 Thru: Joe Sherock, Superintendent of Wastewater
 Thru: Don Surface, Director of Public Service
 From: Bob Martin, Chief Chemist
 Subject: Proposed Removal of 50,000 cubic yards of Dredged Material from Facility #3

Dear Sandy:

I have reviewed the chemical analysis of the dredged material from facility #3. Listed on the next page is a table comparing our sludge with the dredged material for all chemical parameters that USEPA uses to regulate land application of sludge under 40 CFR Part 503. Please note that this list contains only metals. USEPA is expected to issue land application criteria for PCB's, dioxin, selected polynuclear aromatic hydrocarbons (PAHs), and other organic chemicals sometime in the future (1999).

Sludge parameter concentrations are expressed in milligrams of the chemical of concern in kilograms of dry sludge. For example, the average arsenic concentration in the Oregon WWTP sludge was 13 milligrams of arsenic in 1 kilogram of dry sludge, or 13 mg/kg arsenic. The Corp of Engineers project report did not list the concentrations in mg/kg. However, Table 3 on page 15, lists the pollutant concentrations as "ppm dry weight", or parts per million of chemical per dry weight. This is equivalent to mg/kg.

A comparison of Facility #3 Dredge Material with Oregon WWTP Sludge indicates that the dredge material has a lower heavy metals content than the Oregon sludge. Both the dredge material and the Oregon sludge meet the USEPA Monthly Average Concentration for "high quality sludge". The dredge material meets all USEPA 503 metals limits for the land application of sludge. The dredge material was not analyzed for molybdenum, so I cannot be certain as to the typical molybdenum concentrations in the dredge material. The dredged material should meet all the 503 regulations for pathogens and vector attraction requirements. **Except for the question concerning molybdenum, the dredged material meets all the current criteria for the land application of sludge.**

64

Facility #3 Dredge Material Review

Comparison of Oregon Digested Sludge with Facility #3 Dredged Material					
Metal	Facility #3 Dredge Material ¹		Oregon WWTP Sludge ²		40 CFR 503 Monthly Average Concentration
	Average	Maximum	Average	Maximum	
Arsenic	5.5 ppm	6.2 ppm	13 mg/kg	21 mg/kg	41 mg/kg
Cadmium	2 ppm	3 ppm	6 mg/kg	7 mg/kg	39 mg/kg
Chromium	33 ppm	40 ppm	119 mg/kg	151 mg/kg	1200 mg/kg
Copper	34 ppm	40 ppm	400 mg/kg	443 mg/kg	1500 mg/kg
Lead	31 ppm	37 ppm	123 mg/kg	196 mg/kg	300 mg/kg
Mercury	0.12 ppm	0.14 ppm	0.7 mg/kg	3.5 mg/kg	17 mg/kg
Molybdenum	-	-	9 mg/kg	10 mg/kg	18 mg/kg ³
Nickel	34 ppm	40 ppm	28 mg/kg	41 mg/kg	420 mg/kg
Selenium	0.5 ppm	0.9 ppm	4 mg/kg	6 mg/kg	36 mg/kg
Zinc	143 ppm	190 ppm	772 mg/kg	857 mg/kg	2800 mg/kg

¹ Data referenced from Table #3 (page 15) of *Toledo Harbor Confined Disposal Facility CDF Cell 1 Dredged Material Testing Analysis and Use, Toledo Harbor, Lucas County, Ohio, US Army Corps of Engineers, 1994.*

² Analysis of Oregon WWTP Land Applied Sludge from January 1993 to May 1994.

³ USEPA has suspended the 18 mg/kg monthly average molybdenum limit as a result of a petition by several metals companies. The petitioners argued that USEPA used incorrect crop uptake coefficients when developing the molybdenum limit. USEPA plans to review additional data, before reissuing the molybdenum limit.

Facility #3 Dredge Material Review

The following is a list of comments that I made during the review of the dredge material. I am presenting these as a weak attempt at risk assessment, if I was the contractor hauling this material to be land applied.

1. Molybdenum

The dredge material should be analyzed for molybdenum before it is land applied. Molybdenum has replaced cadmium as the limiting metal for many wastewater treatment plants applying sludge. As mentioned in footnote #3 on page 2, USEPA has recently deleted the average monthly concentration requirement for molybdenum. However, they will issue a revised limit in the future. Monitoring for molybdenum is still a requirement when land applying sludge.

2. Depth of Soil Cores During Sampling

As described on Attachment 3, page 9, the Corps of Engineers used 4 foot soil cores when sampling the dredged material. There is nothing wrong with this method, but I would have tried to collect a deeper core sample. Facility #3 is made up of dredged material from various lake and river sites deposited over a number of years. The surface of the facility may not have the same chemical characteristics as the material 10 foot below the surface. If you can collect a composite of the entire cross-sectional area you would get a better picture of the chemical characteristics.

3. Chemical Parameters Other Than Heavy Metals

- a. Priority pollutant herbicides/pesticides were not detected. Obviously this is a good sign, because many of these chemicals have long residence times in the soil. This compares equally with Oregon WWTP sludge.
- b. Polynuclear aromatic hydrocarbons (PAHs) were detected at low levels. PAHs are indicators of industrial pollution. Oregon WWTP sludge generally does not contain detectable amounts of PAHs.

Facility #3 Dredge Material Review

- c. Polychlorinated organics (Arochlor 1254) were detected both in the 1993 sampling and the 1984 sampling (Table 10, page 38, sampling site V-1), which would indicate that low PCB concentrations have been present in the sediment for a number of years. Oregon WWTP sludge does not contain detectable levels of PCBs (or dioxins).

If you have any questions, please call me.

Sincerely,



Bob Martin
Chief Chemist

cc: D. Surface
J. Sherock
J. Stager
file

NOV - 8 1994

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use

Ms. Sandy Bihn
Clerk-Auditor
City of Oregon
5330 Seaman Road
P.O. Box 167541
Oregon, Ohio 43616-7541

RECEIVED
OCT 11 1994
CITY OF OREGON

Dear Ms. Bihn:

This is in response to your letters dated September 2, 1994 and October 7, 1994 (Attached). Thank you for your review and comments. Correspondence will be included with project documentation.

With respect to your September 2, 1994 cover letter, it is standard practice to include in contract documentation that the contractor obtain and comply with any applicable Federal, State, and local permit requirements which would include a city of Oregon haul permit.

The contract was advertised in October with bid opening in November 1994. If a contract is awarded (~ December) it is not expected that actual activities would begin until the spring/summer of 1995 and would continue periodically over a 2 year period.

With respect to Mr. Martin's June 10, 1994 letter comments, we offer the following.

1. Molybdenum. Considering current guidelines, associated other data, and expected use of material, we would reasonably not expect a problem relative to Molybdenum. If this pilot project is successful and an associated long-term program is considered for implementation, testing for Molybdenum will be included in the site testing program. We are aware that several areas will need to be addressed further based on assessment of this pilot project, if an associated long-term program appears feasible. Guidelines and parameters evolve over time.

Environmental Analysis Section

SUBJECT: Toledo Harbor Confined Disposal Facility (CDF) Cell 1
Material Testing and Use

2. Depth of Soil Cores During Sampling. As indicated in the project report, the three sets of material characteristics testing data [Site Soil Core Sampling and Analysis (1984), Navigation Channel Sediment Sampling and Analysis (1988), and Site Specific Soil Core Sampling and Analysis (1993)] are considered most representative of dredged material in (and to be excavated from) the subject project site and provides both general and more project specific data. General 1984 and 1988 data also pertains to site soils in excess of four feet depth. Of critical note however, as stated in the project report and in the contract documentation, the depth of excavation for material use is limited to about four feet directly corresponding to the 1993 four feet soil cores; or, use only of soils reasonably tested. Further excavation could also result in reaching soil stability problems limiting use of equipment. We will however, endeavor to improve sampling and testing if/as a program evolves.

3. Chemical Parameters Other Than Heavy Metals. As indicated in our assessment analysis, and considering current guidelines, contaminant levels for these parameters for material to be excavated are significantly low (particularly compared to regional soils) that no significant adverse problem would occur from material use. Future analysis will consider applicable guidelines/parameters.

Of further note, it is expected that most of the material would be utilized simply as fill/landscape material at permitted construction sites versus application to farm or cropland, where these previously discussed parameters are most applicable.

The points of contact pertaining to this matter are Mr. Tod Smith (relative to NEPA coordination) of my staff or myself (relative to soils sampling and analysis), who can be contacted by calling 716-879-4175 or 716-879-4418, respectively, or by writing to the above address.

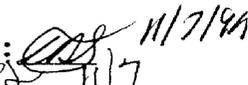
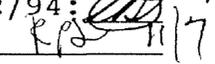
Sincerely,

SIGNED

Richard P. Leonard
Chief, Environmental Analysis
Section

CF:

✓ CENCB-PE-EA CENCB-PE-PT
CENCB-PE-PT (W.Cadet ___)

Smith:ls:11/2/94:  11/7/94
Leonard  11/7

misc\tsmith\tol-bihn