

FINAL
ENVIRONMENTAL STATEMENT

Cleveland Harbor
Operations & Maintenance
Cuyahoga County, Ohio

Prepared by
U. S. Army Engineer District, Buffalo, NY
April 1974

SUMMARY

Cleveland Harbor
Operations & Maintenance
Cuyahoga County, Ohio

() Updated draft (X) Final Environmental Statement

Responsible Office: U. S. Army Engineer District, Buffalo, NY

1. Name of Action: (X) Administrative () Legislative

2. Description of Action: Dredging about 1,225,000 cubic yards of sediment annually, including 50,000 cubic yards of river sediment which may be deposited in Lake Erie in 1974 if pilot disposal sites are filled and ongoing construction of another diked disposal facility is not completed; maintenance of piers and breakwaters.

3. a. Environmental Impacts: Continued safe navigation in Cleveland Harbor; probable deposition of sediment in Lake Erie.

b. Adverse Environmental Effects: Probable accelerated introduction of polluted sediment into the lake during 1974 from open-lake dumping of 50,000 cubic yards and annual temporary increases in turbidity, suspended solids, siltation and odor during working periods.

4. Alternatives:

- a. Discontinuance of dredging
- b. Open-lake dumping of all sediments
- c. Control of upstream erosion
- d. Pollution abatement
- e. Chemical treatment of sediments
- f. Dump scow bottom dumping in uncompleted site 12 during part of 1974
- g. Transference of compacted site 9 material to unfinished site 12 and subsequent deposition of newly dredged material in inclosed site 9 during part of 1974

5. Comments Received:

Citizens for Land and Water Use
Cleveland City Planning Commission
Cleveland-Cliffs Iron Company

Cleveland-Cuyahoga County Port Authority
Cleveland Metropolitan Park District
Jones & Laughlin Steel Corporation
The Kinsman Marine Transit Company
Lake Carriers Association
The Lake Erie Watershed Conservation Foundation
Ohio Environmental Protection Agency
Ohio Historical Society
Regional Planning Commission - County of Cuyahoga
Republic Steel Corporation
Sierra Club
U. S. Coast Guard
U. S. Department of Commerce
U. S. Department of Housing and Urban Development
U. S. Department of the Interior
U. S. Environmental Protection Agency

6. Draft Statement to CEQ 14 January 1972
Updated Draft Statement to CEQ 7 February 1974
Final Statement to CEQ JUL 23 1974

Cleveland Harbor
Operations & Maintenance
Cuyahoga County, OH
April 1974

<u>Chapter</u>	<u>Subject</u>	<u>Page</u>
1	Project Description	1
	1.1 General	1
	1.2 Outer Harbor	1
	1.3 Rivers	5
	1.4 Projections	6
	1.5 Description of Environmental Studies	8
2	Environmental Setting Without the Project	10
	2.1 General Description of the Area	10
	2.1.1 Geology Soils and Topography	10
	2.1.2 Watershed	12
	2.1.3 Climate	12
	2.1.4 Population and Economy	14
	2.2 Lake Erie Setting	16
	2.2.1 Lake Erie Central Basin	16
	2.2.2 Circulation Patterns	16
	2.2.3 Lake Levels	19
	2.2.4 Fishery Resources	21
	2.3 Cleveland Harbor Setting	25
	2.3.1 The Facilities of Cleveland Harbor	25
	2.3.2 Waterborne Commerce	29

<u>Chapter</u>	<u>Subject</u>	<u>Page</u>
	2.3.3 Character and Nature of Harbor Sediments	36
	2.3.4 Water Quality	38
	2.3.4.1 General	38
	2.3.4.2 Cuyahoga River: Inner Harbor	41
	2.3.4.3 Cleveland Outer Harbor	43
	2.3.5 Land Use	43
	2.3.6 Recreation	44
	2.3.7 Historic and Archaeological Sites	44
	2.3.8 Fishery Resources	45
	2.3.9 Birdlife	47
	2.3.10 Municipal Water and Waste Facilities	47
3	Environmental Impact of the Proposed Action	49
	3.1 Beneficial Impacts	49
	3.2 Adverse Impacts	50
	3.3 General Impacts	52
4	Any Adverse Environmental Effects Which Cannot be Avoided Should the Proposed Project be Implemented	54
5	Alternatives to the Proposed Action	57
6	The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity	66
7	Any Irreversible or Irrecoverable Commitment of Resources Which Would be Involved if the Proposed Action Should be Implemented	67

<u>Chapter</u>	<u>Subject</u>	<u>Page</u>
8	Coordination With Others	68
	8.1 General	68
	8.2 Comments and Responses on Draft EIS	69

- Appendix A Glossary of Terms
- Appendix B Water Quality Criteria Adopted by the State of
Ohio's Water Pollution Control Board
- Appendix C Letters requesting Historical and Archaeological
Data
- Appendix D Letters of Comment

Plates

		<u>Page</u>
1	Cleveland Harbor (Outer Harbor)	2
2	Cleveland Harbor (Cuyahoga River)	3
3	Open Lake Dumping Grounds	4
4	Diked Disposal Sites 9,12 and 13	7
5	Cuyahoga River Watershed	13
6	Standard Metropolitan Statistical Area	17
7	Lake Erie Basins	18
8	Lake Erie Circulation Patterns	20
9	Engineering Cross Sections Breakwaters and Piers: Cleveland Harbor	30
10	Engineering Cross Sections Breakwaters: Cleveland Harbor	31
11	Location Map: Sediment Sampling Sites	39

Tables

		<u>Pages</u>
1	Population Data	14
2	Employment in Manufacturing Industries - 1970	15
3	Commercial Catches	22
4	Fish Taken by Trawling	23
5	Relative Abundance of Fishes Collected by Trawling in Ohio Section of Lake Erie	24
6	Freight Traffic - 1972 (Foreign)	32
7	Freight Traffic - 1972 (Domestic)	35
8	Comparative Statement of Shipping Traffic 1963-1972	36
9	Sediment Loading and Flow Characteristics - Cuyahoga River, 1967-1968	37
10	Cuyahoga River Sediment Study	40
11	Water Quality Data Cuyahoga River 1970-1971	42
12	Concentration Ranges of Water Constituents - Cleveland Outer Harbor	43
13	Energy - Efficiency for Inter-City Freight Transport	117

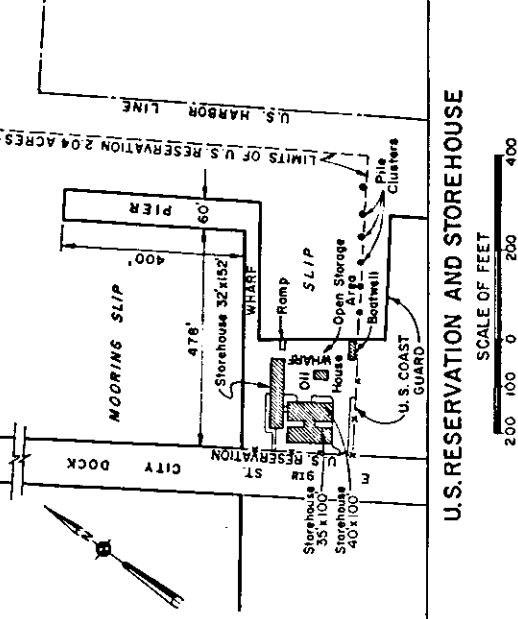
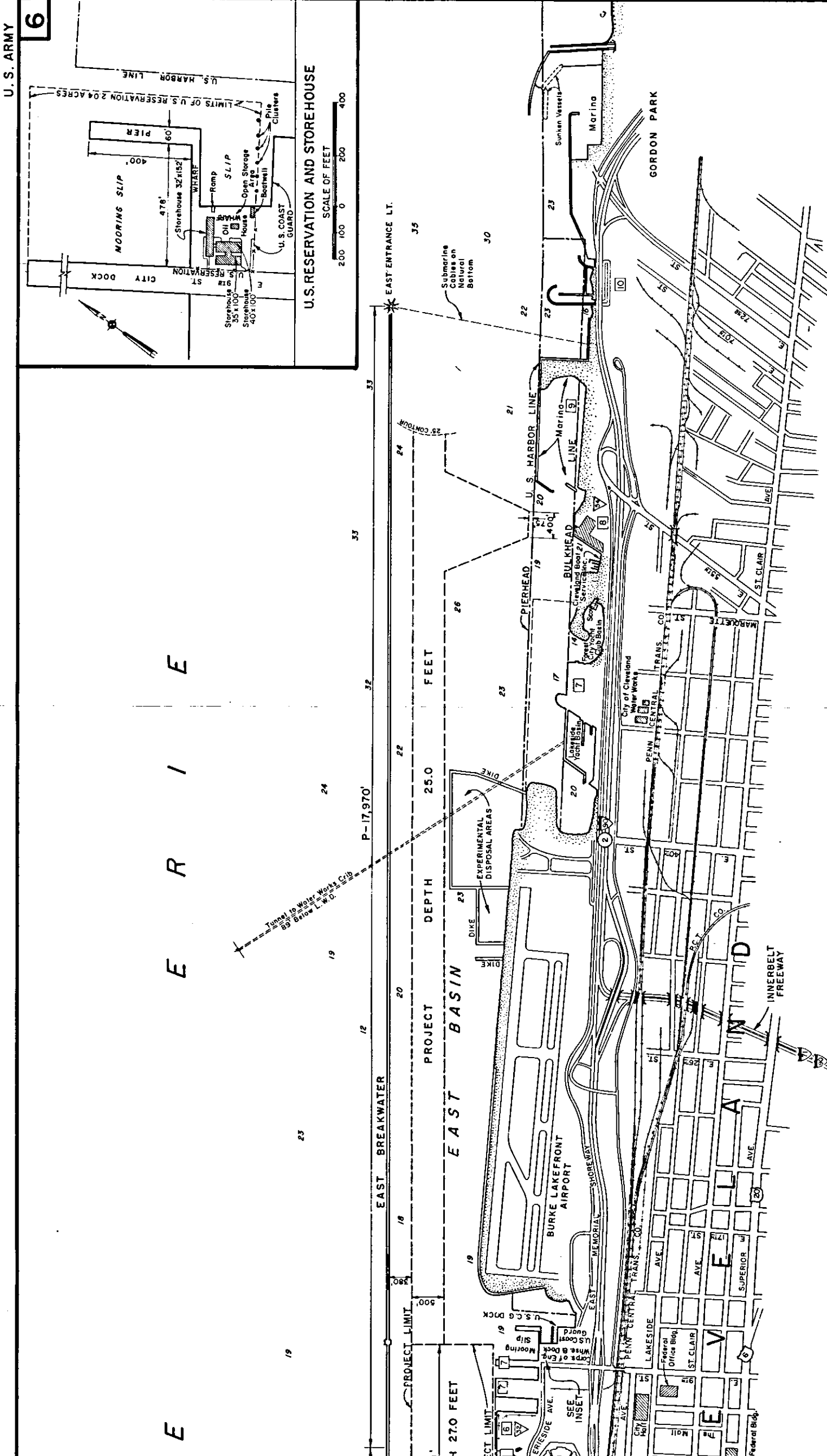
1. PROJECT DESCRIPTION

1.1 General. The work under consideration is the maintenance of completed channels and structures in the deep-draft navigation project for Cleveland Harbor, OH. The project was authorized by several River and Harbor Acts between 1875 and 1966, and was constructed in stages. The most recent modification is described in House Document No. 527, 87th Congress, 2nd Session, and was authorized by the 1966 River and Harbor Act. Project features requiring maintenance by the United States are shown on the accompanying maps (Plates 1 and 2), and include a breakwater system protecting an outer harbor, piers at the mouth of Cuyahoga River, and dredged areas in the outer harbor, Cuyahoga River, and Old River. Annual repair to structures consists primarily of replacement of lost stone and may be done at any time during the navigation season.

1.2 Outer Harbor. The outer harbor and Cuyahoga River below the Penn-Central bridge are maintained by Government-owned hopper dredges, and spoil, in past years, has been dumped in an area of Lake Erie, 3/4-mile by 2 miles, north of and parallel to the east outer breakwater, beginning 1/2-mile northeast of the east pierhead light (Plate 3). Beginning this year (1974), outer harbor sediments will be contained in diked disposal facilities.

The long-term average dredged quantities amounts to approximately 500,000 cubic yards annually. Only 193,000 cubic yards, costing \$47,000, were dredged in 1972 and no dredging occurred in 1973, since high lake

E R I E



NOTES

PROJECT DEPTHS AND SOUNDINGS ARE REFERRED TO LOW WATER DATUM, ELEV. 568.6 FEET ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC (IGLD 1955) (INTERNATIONAL GREAT LAKES DATUM 1955)

- ① INDICATES U.S. ROUTE
- ② INDICATES STATE ROUTE
- △ INDICATES INTERSTATE ROUTE
- ▽ INDICATES CITY OF CLEVELAND DOCK NUMBERING SYSTEM

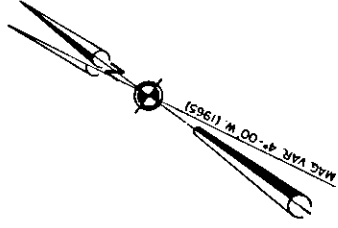
CLEVELAND HARBOR OHIO

SCALE OF FEET
 1000 0 1000 2000

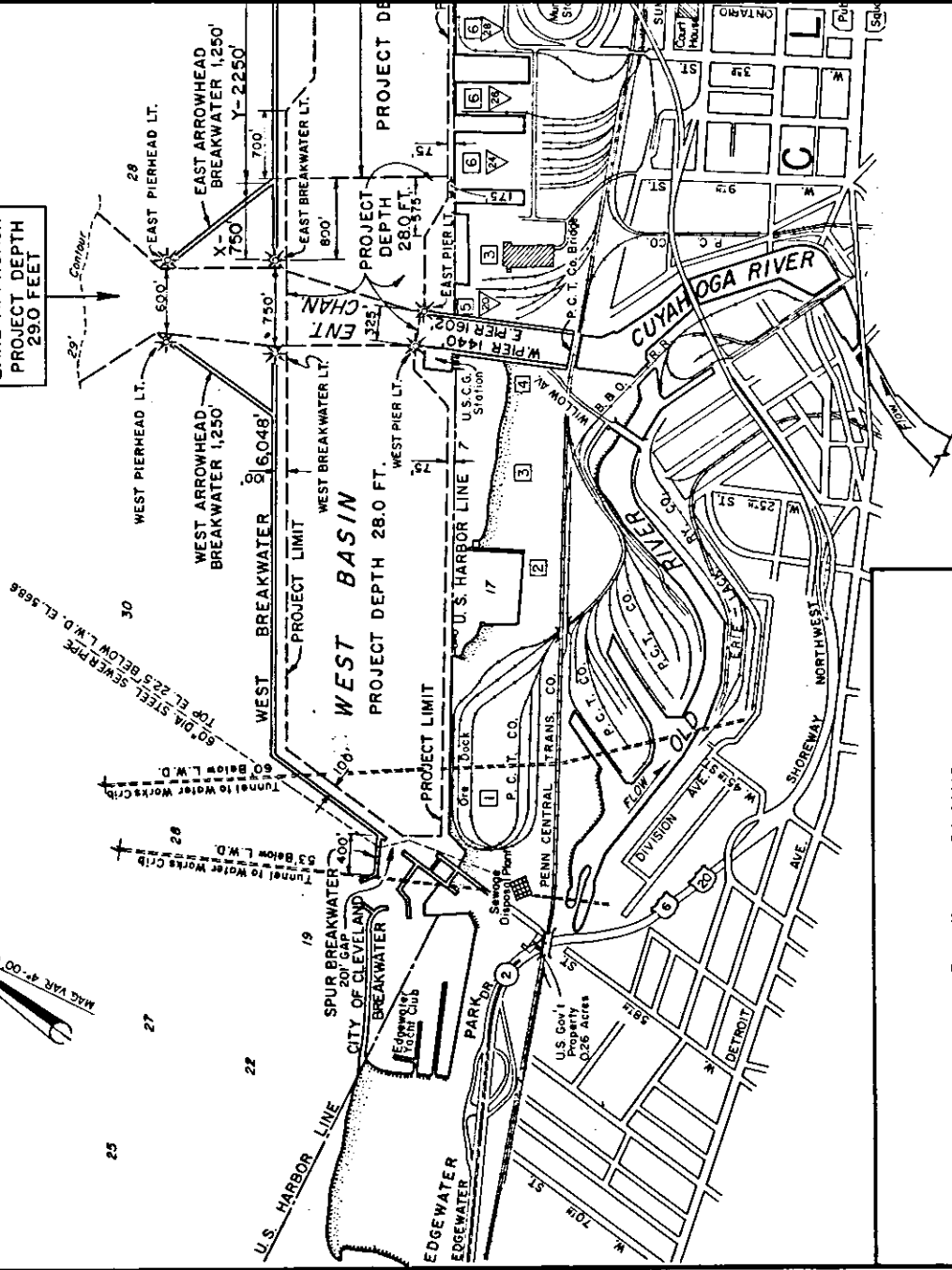
CORPS OF ENGINEERS BUFFALO, N.Y.
 30 JUNE 1971

RIVER HARBOR SECTION River section, see Map 6 A)


L A K



LAKE APPROACH
PROJECT DEPTH
29.0 FEET



WATERFRONT OWNERSHIP

SHOWN THUS 

1. C. & P. Ore Dock - Penn Central Transportation Co.
2. Great Lakes Dredge & Dock Co. (L) Penn Central Trans. Co. (O)
3. Penn Central Transportation Co.
4. Penn Central Trans. Co. & Erie-Lackawanna R.R. (O)
5. Cleveland Stevedore Co. (L) Penn Central Trans. Co. (O)
6. City of Cleveland (O) Cleveland Cuyahoga County Port Authority (L)
7. City of Cleveland (O)
8. Nicholson Cleveland Terminal Co. (O)
9. East 55th St. Marina, City of Cleveland (O)
10. Cleveland Electric Illuminating Co. (O)

(O) Indicates Owner
(L) Indicates Lessee

THIS IS OUT
(For Cuyahoga)

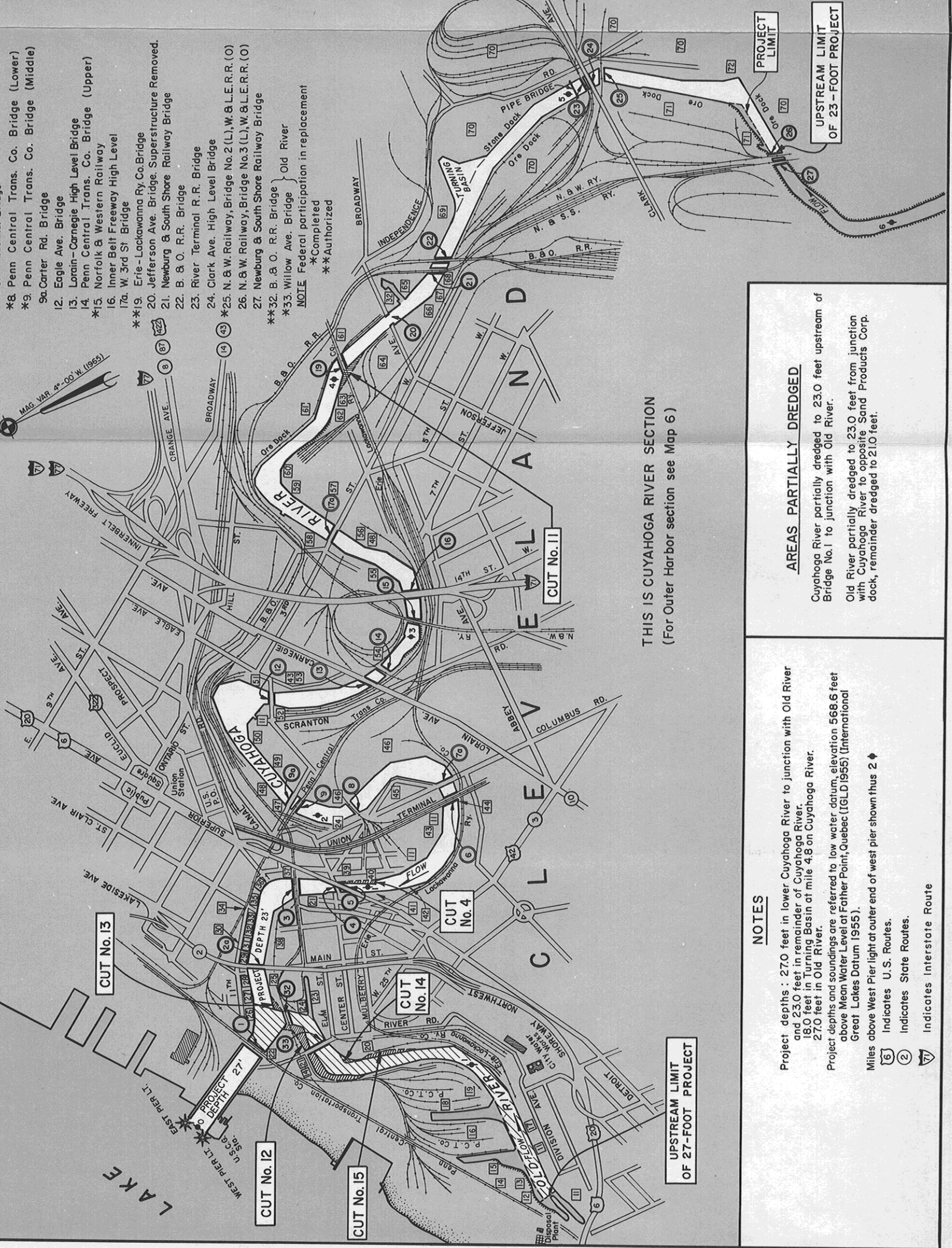
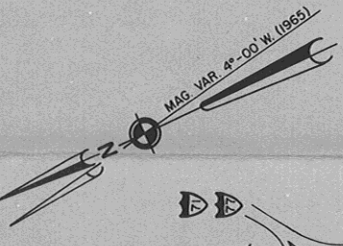
WATERFRONT OWNERSHIP SHOWN THUS 4

(O) Indicates Owner (L) Indicates Lessee

11. Forest City Publishing Co. (O)
12. Cuyahoga Boat and Engine Co. (L) P.C.T. Co. (O)
13. Esco Dredge & Fill Co. (L), P.C.T. Co. (O)
14. Penn Central Transportation Co. (O)
15. Dunbar & Sullivan Dredging Co. (L) P.C.T. Co. (O)
16. International Salt Co.
17. Great Lakes Towing Co. (L) Forest City Publishing Co. (O)
18. Allied Oil Co. (L) P.C.T. Co. (O)
19. Sand Products Corp. (L) P.C.T. Co. (O)
20. Erie Dock Co. (L) Erie-Lackawanna Ry. Co. (O)
21. City of Cleveland
22. Tri-Mix Stone Corp. (L) P.C.T. Co. (O)
23. Huron Portland Cement Co.
24. Baltimore & Ohio R.R.
25. National Terminals Corp. (L) B. & O. R.R. (O)
26. Ryan Realty Co.
27. Joseph Waters (O)
28. Joseph Waters (O) Star Fish Co. (Operator)
29. Stadium Parking Co. (O)
30. Hausheer & Sons & Beacon Marine Supply Co. Inc.
31. Hausheer & Sons Co. (L) Eugene Kulber (O)
32. Great Lakes Towing Co.
33. Samsel Realty Co.
34. Interstate Mfg. Co. (L) Rudolph Lehotay (O)
35. Frank Morrison & Son Co.
36. West Superior River Front Co.
37. Berkshire Farm Inc. (L) Cleveland Trust Co. (O)
38. Cleveland Stevedore Co. (L) B. & O. R.R. (O)
39. Jaes Inc. (O) State Fisheries (Operator)
40. International Milling Co.
41. Harry Rosenthal and Jack Malamud (O)
42. Erie-Lackawanna Ry. Co. (O)
43. Penn Central Transportation Co. (O) Cleveland Gypsum Co. (L)
44. Fred Tod Jr. (O)
45. Peerless Cement Co.
46. Upson Bolt & Nut Div. of Republic Steel Co.
47. Mou-Sherwood Supply Co.
48. Sherwin-Williams Co.
49. G. & W. Welding Co. (L) Mary S. Bradford (O)
50. Mary S. Bradford (O)
51. L. & M. Properties Inc.
52. Erie-Lackawanna Ry. Co. Freight House
53. Brecking Supply Co. & Pioneer Materials (L) Arnold G. Brecking (O)
54. Ford Motor Co.
55. Cleveland Gypsum Co. (L) Cleveland Builders Supply Co. (O)
56. Cleveland Perlite Co.
57. Shell Petroleum Corp.
58. Ontario Stone Co.
59. Texaco Inc.
60. National Sugar Refining Co.
61. American Steel & Wire Div. of U.S. Steel Corp.
62. Clifton Concrete Supply Co. (L) W. & L.E. R.R. (O)
63. Socony Mobil Oil Co. (Operator) Socony Vacuum Co. (O)
64. Gulf Oil Corp. (O)
65. Standard Oil Co.
66. Cleveland Builders Supply
67. Marine Oil Terminal & Storage Co. (L) Byerlite Corp. (O)
68. Atlantic-Richfield Refining Co.
69. Grasseil Chemicals Dept. of E.I. DuPont De Nemours & Co.
70. Republic Steel Corp.
71. Jones & Laughlin Steel Corp.
72. Sun Oil Co. (O)

INDEX TO BRIDGES SHOWN THUS 7

- *1. Penn Central Transportation Co.
 - 2a. Main Ave. High Level Bridge
 - *3. B. & O. R.R. Bridge
 4. Center St. Bridge
 5. Detroit - Superior High Level Bridge
 6. Union Terminal (R.R.) High Level Bridge
 - 7a. Columbus Rd. Bridge
 - *8. Penn Central Trans. Co. Bridge (Lower)
 - *9. Penn Central Trans. Co. Bridge (Middle)
 - 9a. Carter Rd. Bridge
 12. Eagle Ave. Bridge
 13. Lorain-Carnegie High Level Bridge
 14. Penn Central Trans. Co. Bridge (Upper)
 - *15. Norfolk & Western Railway
 16. Inner Belt Freeway High Level
 - 17a. W. 3rd St Bridge
 - *19. Erie-Lackawanna Ry. Co. Bridge
 20. Jefferson Ave. Bridge. Superstructure Removed.
 21. Newburg & South Shore Railway Bridge
 22. B. & O. R.R. Bridge
 23. River Terminal R.R. Bridge
 24. Clark Ave. High Level Bridge
 - *25. N. & W. Railway, Bridge No. 2 (L), W. & L.E.R.R. (O)
 26. N. & W. Railway, Bridge No. 3 (L), W. & L.E.R.R. (O)
 27. Newburg & South Shore Railway Bridge
 - **32. B. & O. R.R. Bridge
 - *33. Willow Ave. Bridge } Old River
- NOTE Federal participation in replacement
*Completed
**Authorized



THIS IS CUYAHOGA RIVER SECTION
(For Outer Harbor section see Map 6)

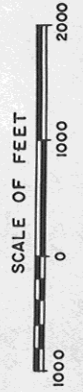
AREAS PARTIALLY DREDGED

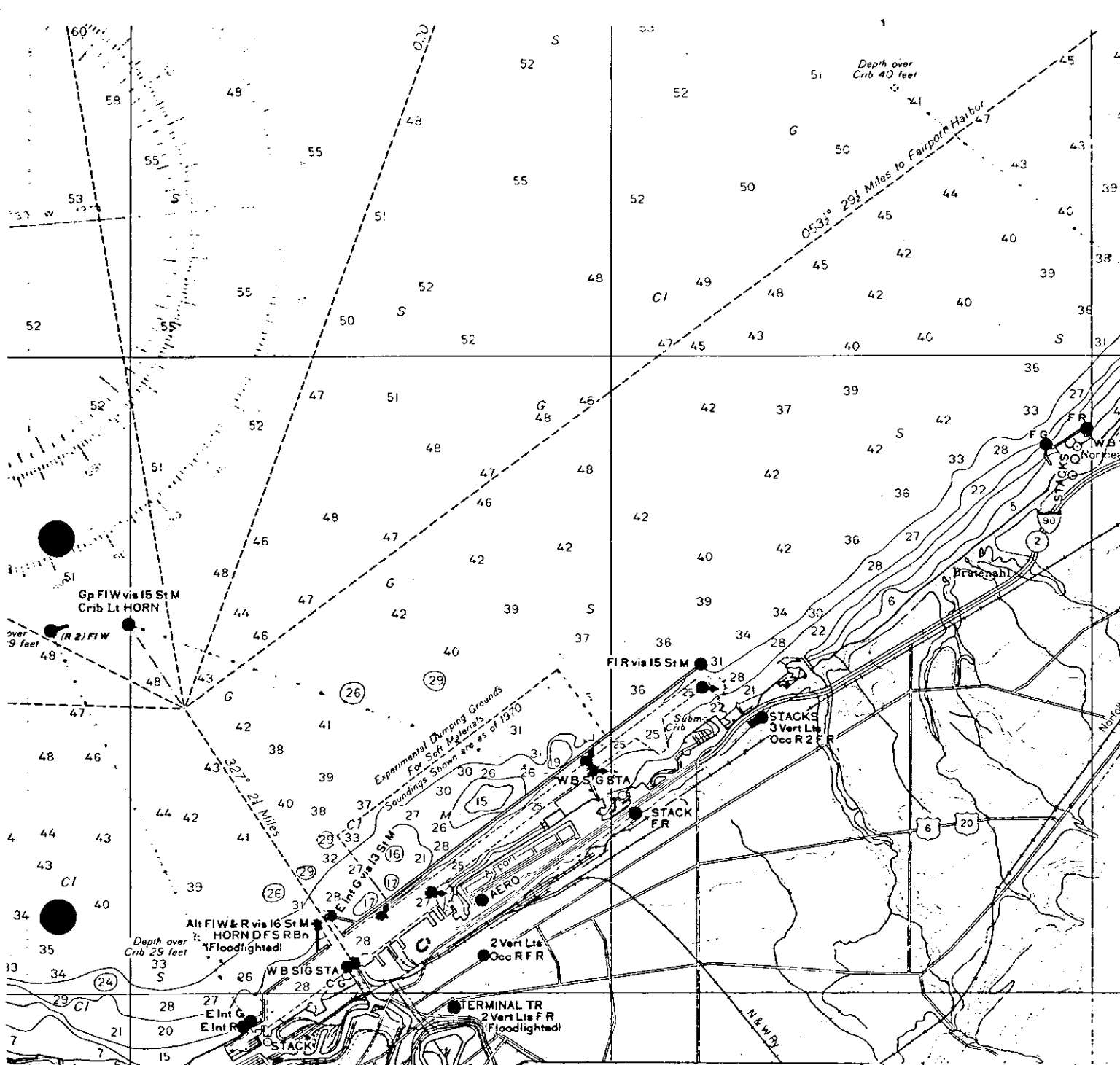
Cuyahoga River partially dredged to 23.0 feet upstream of Bridge No. 1 to junction with Old River.
Old River partially dredged to 23.0 feet from junction with Cuyahoga River to opposite Sand Products Corp. dock, remainder dredged to 21.0 feet.

NOTES

- Project depths : 27.0 feet in lower Cuyahoga River to junction with Old River and 23.0 feet in remainder of Cuyahoga River.
- 18.0 feet in Turning Basin at mile 4.8 on Cuyahoga River.
- 27.0 feet in Old River.
- Project depths and soundings are referred to low water datum, elevation 568.6 feet above Mean Water Level at Father Point, Quebec (IGLD 1955) (International Great Lakes Datum 1955).
- Miles above West Pier light at outer end of west pier shown thus 2 ♦
- ① Indicates U.S. Routes.
- ② Indicates State Routes.
- ▲ Indicates Interstate Route

CLEVELAND HARBOR OHIO





OPEN LAKE DUMPING GROUNDS
CLEVELAND OHIO



For more detail see
Chart No. 354
CLEVELAND

levels, (averaging 2.45 feet above normal between April-September), eliminated the need to deepen the outer harbor.

1.3 Rivers. Dredging in the Cuyahoga and Old Rivers has been performed by contract using a clamshell dredge in past years. Government dredging plant is available, and will accomplish a portion of the work (Phase I) in 1974 since the Contractors bid price was not within 25 percent of the government estimate. Phase II CY74 dredging of the rivers will be accomplished by Contractors.

The upper mile of Cuyahoga is normally dredged to 3 feet below project depth in the late fall to provide a storage area for sediment brought downstream in the winter. In the spring, this area is redredged to project depth, (23 feet), and then other shoal areas in the river are dredged. In 1973, dredging was limited to 21 feet since spoil disposal areas were lacking and lake levels averaged 2.45 feet above normal between April-September.

Since 1968, dredged material from the rivers has been placed in pilot diked disposal areas (Sites 9 and 13, Plate 4), along the shore of the east outer harbor. Some material dredged outside the Federal channels, under permit, has been placed in privately owned onshore dumping grounds.

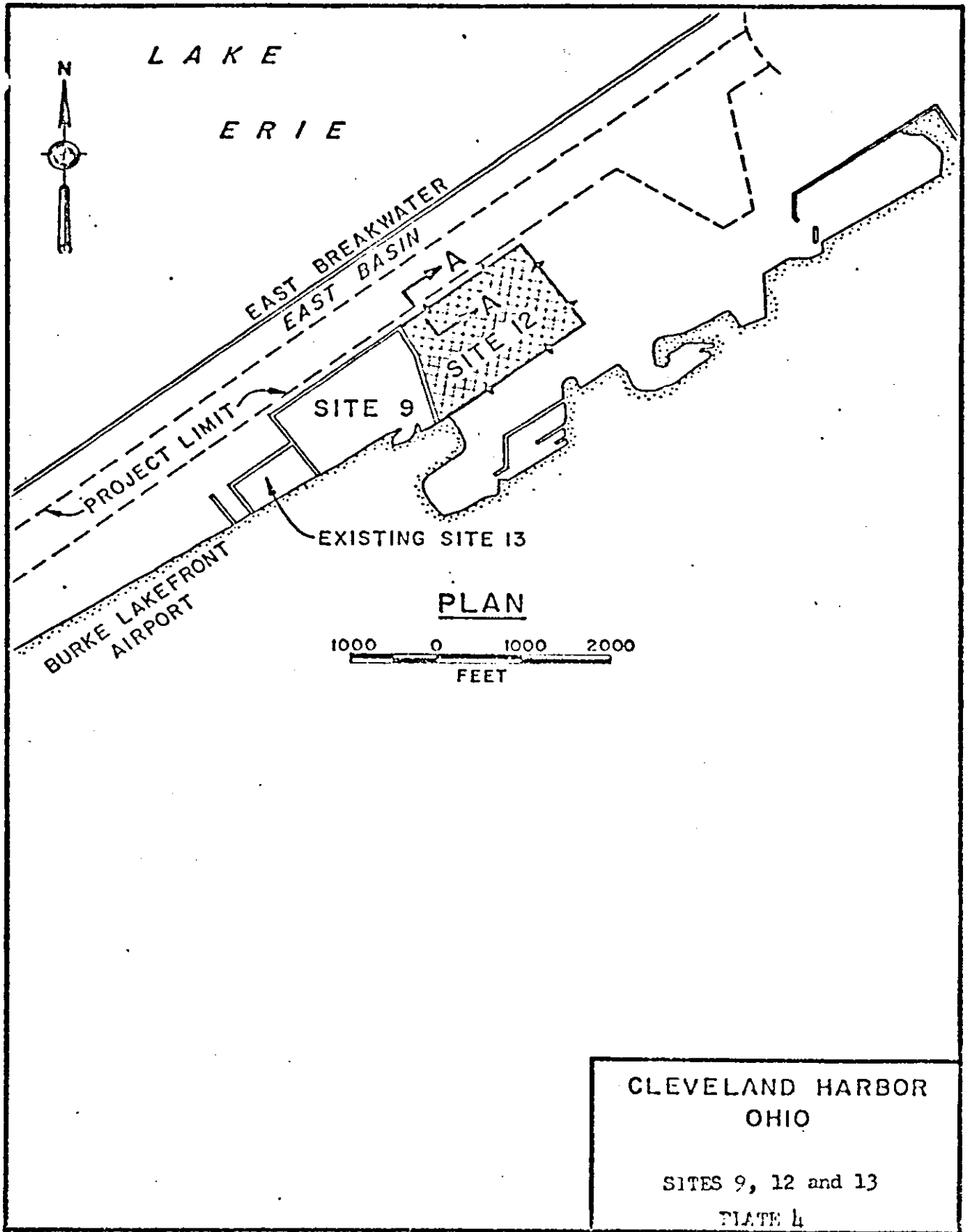
Normal volumes dredged annually from the rivers are approximately 725,000 cubic yards (including 50,000 cubic yards of private permit dredging). However, 567,000 cubic yards, and 400,000 cubic yards were

dredged in 1972 and 1973 respectively. Contracting costs in 1972 totaled \$2,062,000.

1.4 Projections. 1974 river dredged spoil will be placed in pilot disposal Sites 9 and 13 until they reach their holding capacities. Current estimates of capacity allow for the additional placement of 200,000 cubic yards in these areas. When pilot sites are full, it is planned to place the spoil in disposal Site 12.* This alongshore area located adjacent and east of pilot Site 9, is currently under construction (Plate 4). The contract for construction of Site 12 was awarded in June 1973, and specified completion by April 1974. Unfortunately, the Contractor for this work has been unable to meet this schedule. Lack of shipping for transportation of construction materials and labor problems have resulted in construction delay and it is now estimated that Site 12 will be available for use in August 1974 at the earliest.

The first 1974 dredging effort (Phase I) to be accomplished by Government Plant, will establish a grade of 21 feet below LWD (low water datum) by dredging 200,000 cubic yards that will be placed in existing spoil areas. The second 1974 dredging effort (Phase II) to be accomplished by contract, will start in August. It will remove an estimated 280,000 cubic yards that will be placed in new area No. 12 if that area is then ready. This will reestablish project depth of

* The Impacts resulting from the construction and use of this disposal area have been addressed in a previous statement issued 2 January 1973, titled: Final, Environmental Impact Statement, Diked Disposal Area Site No. 12, Cleveland Harbor, Cuyahoga County, Ohio. This statement is available from the U. S. Army Engineer District, Buffalo, NY.



23 feet below LWD. If area No. 12 is not ready, only the shoals deposited in summer will be removed, and that material placed in the lake or by some other alternative (see Section 5). We estimate this quantity to be no more than 50,000 cubic yards and specifications will impose that limit. No further dredging would be done in CY74 unless area No. 12 subsequently becomes useable, at which time dredging to project depth of 23 feet would be resumed with the material being placed in Site 12.

Soundings will be taken during spring, 1974, to determine if dredging of the outer harbor is necessary this year. In any case, 1974 outer harbor dredging will be postponed until Site 12 completion.

Site 12 is designed to contain 2-1/2 to 3 years of outer harbor and river dredged material. Site selection and design studies are underway for areas to contain 7 to 7-1/2 years of additional dredged spoil. When these areas are filled to capacity, plans call for reversion back to open-lake dumping of all harbor sediments. Sediments should then be unpolluted due to implementation of pollution abatement measures by industries and municipalities along the Cuyahoga and tributaries.

Projected 1974 costs for the rivers and outer harbors total \$2,000,000.

1.5 Description of Environmental Studies. A Draft Environmental Impact Statement was issued 11 November 1971 and filed at CEQ 14 January 1972. The Updated Draft Environmental Impact Statement, issued January 1974 and

filed at CEQ 7 February 1974, was written in lieu of finalizing the previously mentioned Draft Statement since the project description has changed considerably. The Draft Statement project description included diked disposal containment of river sediments and open-lake dumping of outer harbor sediments. The Updated Draft Statement project description includes diked disposal containment of all sediments (river and outer harbor) except for possible open-lake dumping of summer shoaling sediments (50,000 cubic yards) until Site 12 completion.

2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT.

2.1 General Description of the Area. Metropolitan Cleveland and its appurtenant harbor facilities are located on the south shore of Lake Erie approximately 191 miles west of Buffalo, NY, and 110 miles east of Toledo, OH. The city, comprising some 78 square miles, encompasses a portion of Lake Erie shoreline and a 5.8-mile reach of the Cuyahoga River extending upstream of the mouth.

The Cleveland industrial and waterfront facilities have principally built up along the periphery of the Cuyahoga River and Lake Erie where the terrain is generally level. Steep bluffs surround this intensely developed zone and are generally considered to be responsible for restricting industrial development. Residential and commercial development predominates at the higher elevations adjacent to the existing bluffs.

2.1.1 Geology, Soils and Topography. General land contour and soil composition around Cleveland Harbor and throughout most of northeastern Ohio is primarily the result of glacial activity which ended some 10,000 years ago. The courses cut by the glaciers, the sediments left with their melting, and the rivers carrying off the glacial water shaped the land surface over the whole area. The glacial till is sometimes hundreds of feet thick in the upper Cuyahoga River region where ancient river valleys have been filled. However, despite the accumulation of this material, Devonian bedrock 300 - 400 million years old has been bared in some places by the erosive action of the river.

The bedrock occurring at the surface in this basin ranges in age from Devonian to Pennsylvanian. As a whole, these strata do not affect stream flow greatly except locally where streams have cut through some of the sandstone formations.

The glacial drift is extremely variable in character, consisting of dense impermeable till in some places and open permeable sand and gravel in others. The soils occurring along the shore, immediately adjacent to the spoil disposal sites and the harbor are primarily the Painesville soil association. Painesville sandy loam soils are somewhat poorly drained and most commonly occur adjacent to beach ridges of former glacial lakes. These soils formed in 18 to 32 inches of loamy sediments overlying silt loam glacial till. Other soils which occur to a minor extent in the association are Red Hook, Tyner, Otisville, Conotton, and Conneaut.

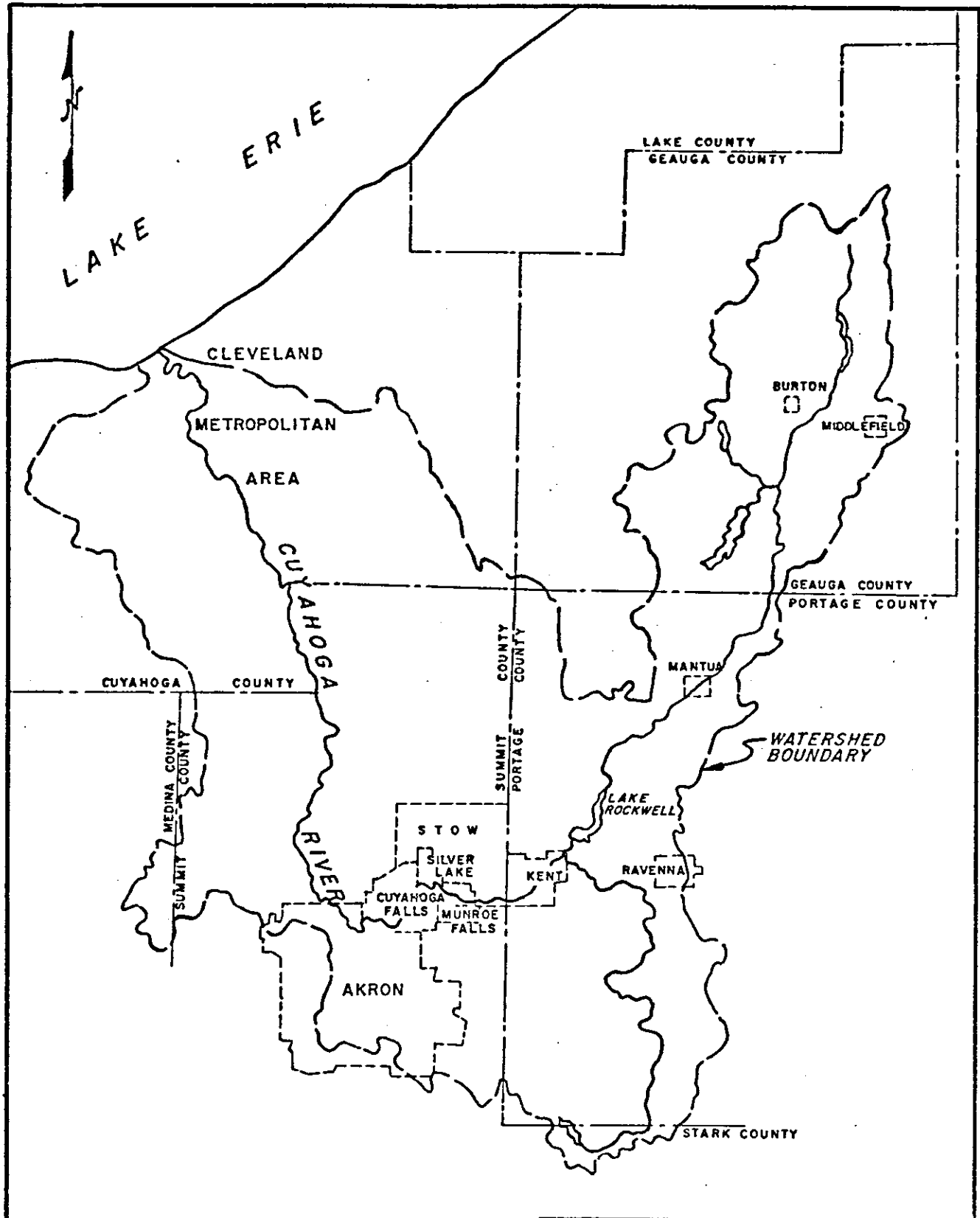
The Ellsworth-Mahoning soil association are the soils most commonly occurring in the glacial till plain located adjacent to the Cuyahoga River Valley. The Ellsworth-Mahoning soils formed in limy silty clay loam or silty clay glacial till on nearly level to very steep topography. The moderately well-drained Ellsworth soils are on gently sloping to very steep topography. Mahoning soils are somewhat poorly drained and occupy nearly level and gently sloping positions. Deep buried valleys are present throughout the basin, but the permeable out-wash materials, which make up the numerous high-level terraces, kames and kame terraces, supply most of the ground water which supports dry-weather flow.

The topography of the Cuyahoga River Basin varies from a flat plain to a relatively rough glaciated and dissected plateau. The Lake Plains subprovince in the basin is a narrow band along the southern shore of Lake Erie. Most of the remainder of the basin is in the glaciated Allegheny Plateau province. The relief is moderate except where a deep valley has been cut by the Cuyahoga River, or there is local steepening by smaller streams.

2.1.2 Watershed. Cleveland Harbor is situated in the Cuyahoga River Basin. The Cuyahoga River flows for 102 miles through northeastern Ohio. The source of the river begins about 10 miles northeast of Burton in Geauga County. From this point, the river flows south approximately 27 miles to Hiram Rapids, then southwest and west for 33 miles through Mantua, Kent, and Cuyahoga Falls to the confluence with the Little Cuyahoga River at Akron. Beyond Akron, it flows north 42 miles to Cleveland and Lake Erie. The Cuyahoga River and its tributaries drain approximately 813 square miles (Plate 5).

Although there are some natural runoff springs, most of the river water comes from direct surface runoff throughout the basin. Absence of rainfall during the summer accounts for low river flows during the month of August.

2.1.3 Climate. Generally the climate throughout the Cuyahoga River Basin is moderate. Monthly mean temperatures range from 27 degrees to 75 degrees Fahrenheit with an average of 49 degrees. Average annual



CUYAHOGA RIVER
 OHIO
 BASIN MAP
 Plate 5
 U.S. ARMY ENGINEER DISTRICT, BUFFALO
 SEPTEMBER 1971

precipitation ranges from 31 to 46 inches and averages 37 inches.

Although snowfall averages about 58 inches, maximum snowfalls of 109 inches for a season have been recorded.

2.1.4 Population and Economy in the Harbor Service Area. The most heavily developed industrial area in the State of Ohio is located within a 60 to 70 mile radius of Cleveland Harbor. The growth in population of the area between 1960 and 1970 was over 300,000 persons. Population data are presented in Table No. 1, while employment data relative to Manufacturing Industries is shown in Table 2.

Table 1 - Population Data

Cleveland Harbor Area (From Census Bureau Publication for 1970*)

Area	Population	
	1960	1970
Cleveland SMSA		
Total Area	1,909,483	2,064,194
City of Cleveland	(876,050)	(750,903)
Akron SMSA	605,367	679,239
Youngstown-Warren SMSA	509,006	536,003
Canton SMSA	340,345	372,210
Total	3,364,201	3,651,646

* Listed areas are within an approximate 70-mile radius of Cleveland Harbor.

Table 2 - Employment In Manufacturing Industries - 1970
(1970 Census of Population, Detailed Characteristics, Ohio)

	SMSA Area			
	Cleveland	Akron	Youngstown- Warren	Canton
Total Employed in Manufacturing	292,972	102,157	85,549	59,262
Furniture, Lumber and Wood Products	3,644	960	2,458	960
Stone, Clay and Glass Products	4,929	2,442	2,412	2,119
Primary Ferrous Industries	21,748	3,441	28,774	13,029
Primary Nonferrous Industries	9,880	745	2,352	646
Fabricated Metal Industries	35,096	13,126	9,025	8,566
Machinery, Except Electrical	48,108	12,018	6,236	12,265
Electrical Machinery, Equipment and Supplies	28,416	3,018	4,636	4,419
Motor Vehicles and Motor Vehicle Equipment	33,174	2,957	14,155	1,104
Aircraft and Parts	8,721	5,029	711	857
Other Transportation Equipment	548	176	2,271	75
Ordinance	2,563	896	639	144
Other Durable Goods	23,134	3,679	3,487	3,058
Food and Kindred Products	7,975	2,550	1,392	2,614
Textile Mill Products	2,961	204	28	45
Apparel and Other Fabricated Textile Products	7,789	340	565	308
Paper and Allied Products	4,385	999	471	965
Printing, Publishing and Allied Industries	16,408	2,856	1,852	2,126
Chemicals and Allied Products	17,254	3,587	448	677
Rubber and Miscellaneous Plastic Products	7,722	39,774	2,473	4,065
Other Nondurable Goods	8,517	3,360	1,164	1,220

A map showing the location of Standard Metropolitan Statistical Areas in the State of Ohio is included as Plate 6.

Approximately 1/3 of the total employed population in the areas listed are employed in manufacturing industries as shown in Table 2.

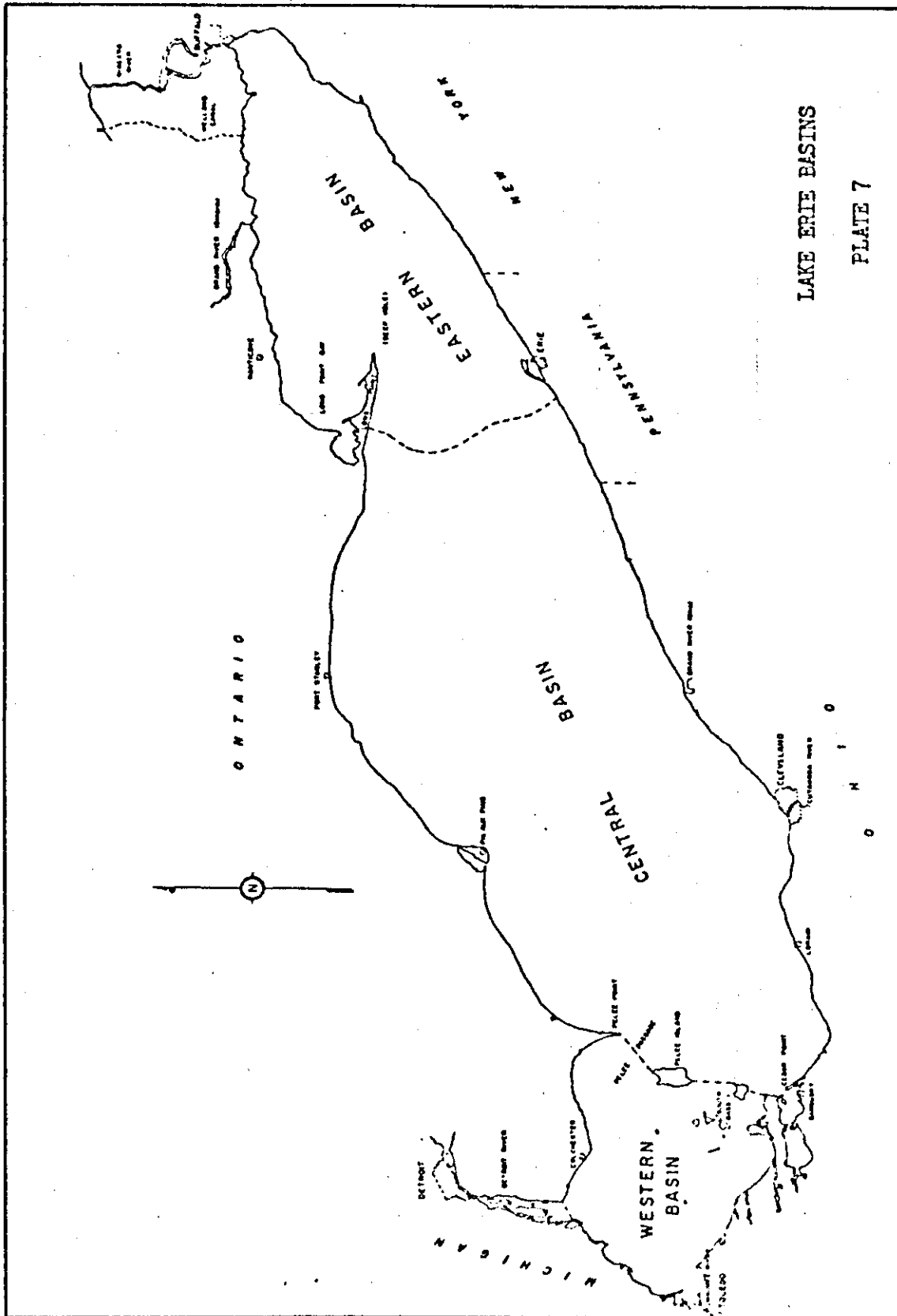
2.2 Lake Erie.

2.2.1 Lake Erie Central Basin. Lake Erie is generally divided into three distinct basins on the basis of its physical and chemical properties. Cleveland Harbor is located in the western 1/3 of the central basin of Lake Erie, directly south of Port Aux Pins, Canada (Plate 7). The central basin includes about 2/3 of the lake area, and has a mean depth of 60 feet and maximum depth of 80 feet. Bottom contours are generally flat.

2.2.2 Circulation Patterns. Circulation in the central basin of Lake Erie consists of three distinct patterns: surface, intermediate, and bottom flows.

Surface flow is the average movement occurring in the top meter of the water column. The surface flow in the central basin is generally directed eastward to the right of the longitudinal axis of the lake. Exceptions occur in the vicinity of Pelee Island in the western portion of the basin and along the northern and southern shores. Inflow from the western basin proceeds south from Pelee Island to near the Ohio shoreline. Drift along shore is directed approximately northeastward,





LAKE ERIE BASINS

PLATE 7

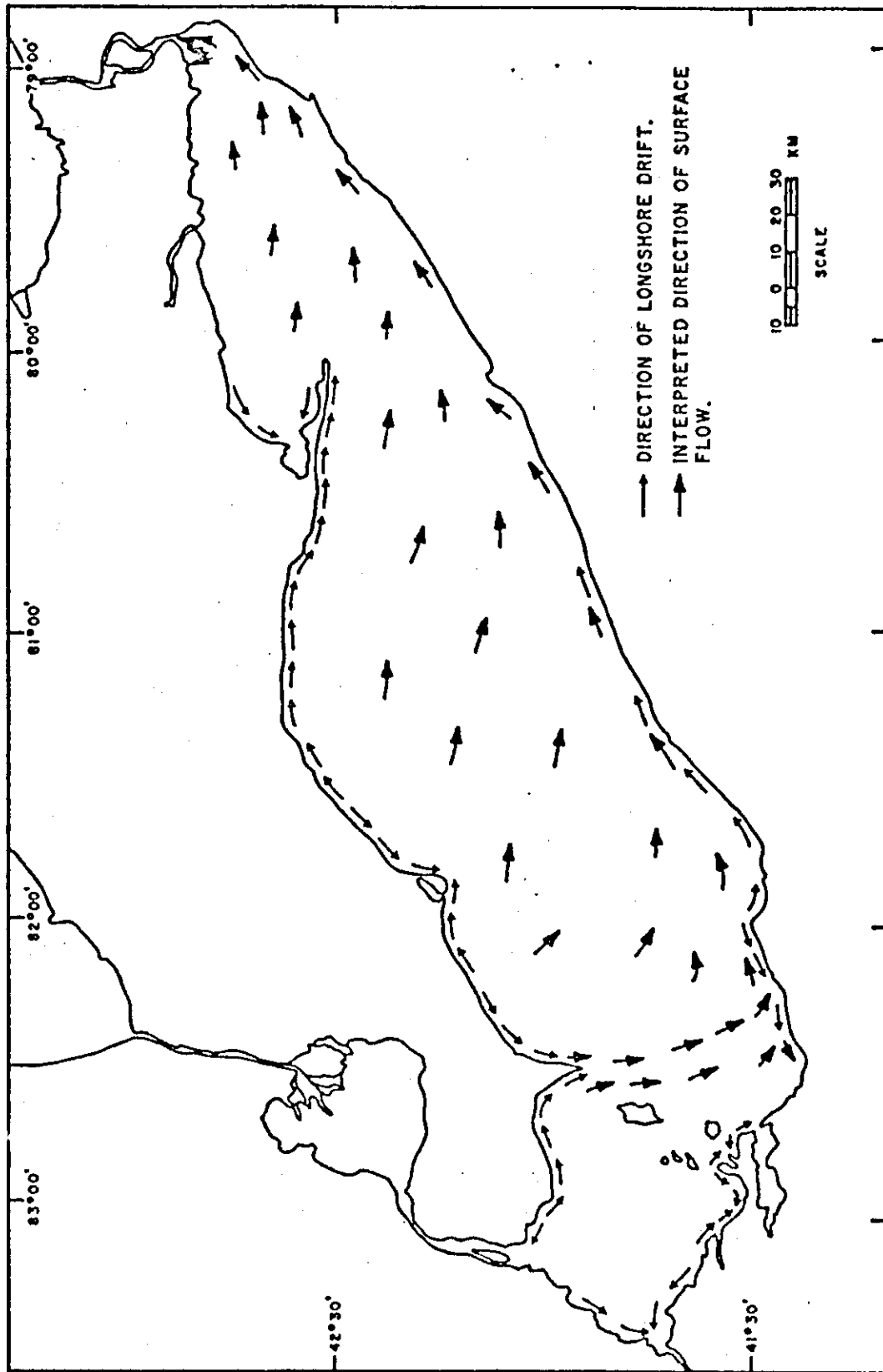
Lake Erie

parallel to the south shore of the basin. Surface flow in much of the open basin is driven by prevailing winds and its transport is much larger than that of the intermediate and bottom flows. A map of the permanent surface circulation patterns in the central and eastern basins of Lake Erie is shown in Plate 8.

Intermediate flow in the open portions of the central basin is generally diffuse moving westward along the lake axis. Exceptions again occur along shore and eastward of Pelee Island. Open lake bottom flow is in a general northwestward direction. Near the shore, however, the flow follows the pattern of the surface and intermediate circulations (Hamblin, P.F. Circulation and Water Movement in Lake Erie, 1971).

2.2.3 Lake Levels. The average or normal elevation of the lake surface is subject to a consistent seasonal rise and fall. The lowest stages prevail during the winter months and the highest stages prevail during the summer months. In the last five years, the range of the maximum monthly mean stages has been between 3.03 feet and 4.91 feet above low water datum, and the range of the minimum monthly mean stages has been between 1.89 feet and 2.20 feet above low water datum. In the 110 years from 1860 to 1970, at Cleveland, OH, the difference between the highest (572.76) and lowest (567.49) monthly mean stages of the whole period has been 5.27 feet.

The greatest annual fluctuation as shown by the highest and lowest monthly means of any year was 2.75 feet, and the least annual fluctuation



The permanent surface circulation of the central and eastern basins of Lake Erie. PLATE 8

was 0.87 foot. A monthly mean level of 3.4 feet above low water datum occurs with a frequency of once in 20 years.

Lake levels can also vary over short periods of time due to such phenomena as wind setup, seiches, and lunar and solar tides. The short period fluctuations mentioned above are manifested, not by changes in volume, but by changes in the shape of the water mass. Tidal effects are negligible, but wind setup and seiches may be quite pronounced especially at the ends of the lake.

A wind setup is the result of wind drag across the lake. Water is pushed toward the leeward shore in greater quantity than can be simultaneously returned by subsurface flow. The water rises at the leeward side and is depressed at the windward side. Lake Erie is particularly susceptible to high amplitude wind setups because of its shallowness and the orientation of its long axis parallel to the predominantly southwest and northeast winds. Generally, the highest wind setups occur during the spring and fall of the year when winds are either from the northeast or west.

A wind setup, which generally lasts less than 24 hours, forms a standing wave capable of persisting even when the wind subsides. The standing wave or seiche will remain and gradually diminish until another wind setup occurs.

2.2.4 Fishery Resources. The Great Lakes have provided valuable commercial fisheries during the last hundred years. The fisheries have

changed considerably as a result of pollution, overfishing, introduction of alien species, and other factors which have not as yet been determined. Beeton (1970, Statement to the Subcommittee on Air and Water Pollution of the Committee on Public Works, U. S. Senate) summarized the condition populations: "Lake Erie continues to produce about 50 million pounds of fish per year, about 50 percent of the total Great Lake production. The major species, in order of importance, in the 1899 catch were lake herring, blue pike, carp, yellow perch, sauger, whitefish, and walleye. The lake herring fishery collapsed after 1925, the sauger started to decline after 1920, and the walleye was becoming more abundant." By 1940, the catch was dominated by blue pike, whitefish, yellow perch, walleye, sheepshead, carp, and sucker. Populations of blue pike, lake herring, sauger and whitefish have collapsed in the last 25 years. The smelt industry became important in 1952. By 1968, the most important species, in order of importance were yellow perch, smelt, sheepshead, carp, white bass, catfish, and walleye.

The Ohio Department of Natural Resources analyzed the commercial catches of the Ohio section of Lake Erie for the years 1954 through 1971. The most important species in 1971, in terms of total pounds are as listed in the table below.

Table 3 - Commercial Catches - Ohio Section of Lake Erie, 1971

<u>Species</u>	<u>Percentage by Weight</u>
Carp	40
Yellow Perch	27
White Bass	12
Freshwater Drum	10
Catfish	8
Sucker	2

Table 3 - Commercial Catches - Ohio Section of Lake Erie, 1971 (Contd)

<u>Species</u>	<u>Percentage by Weight</u>
Goldfish	1
Bullhead	0.5
Quillback	0.4
Buffalo Fish	0.2

A continuing inventory of the fish populations of the Ohio section of Lake Erie is being conducted by the Ohio Department of Natural Resources. The Department sampled in September and October, 1971 at 12 stations with a 35-foot wide, flat bottom, nylon otter trawl having a 1/4-inch mesh cod end. Two 15-minute tows were made at each station. Water depths ranged from 6 to 70 feet at these stations. The following tables list the species caught, and their relative abundance, but is generally more representative of commercial records since smaller fishes are often times overlooked.

Table 4 - Fish Taken by Trawling Lake Erie, 1971

<u>Common Name</u>	<u>Scientific Name</u>
Alewife	<u>Alosa pseudoharengus</u>
White Bass	<u>Morone chrysops</u>
Brown Bullhead	<u>Ictalurus nebulosus</u>
Carp	<u>Cyprinus carpio</u>
Channel Catfish	<u>Ictalurus punctatus</u>
Silver Chub	<u>Hybopsis storeriana</u>
White Crappie	<u>Pomoxis annularis</u>
Bowfin	<u>Amia calva</u>
Freshwater Drum, Sheepshead	<u>Aplodinotus grunniens</u>
Goldfish	<u>Carassius auratus</u>
Ohio Logperch	<u>Percina caprodes caprodes</u>
Yellow Perch	<u>Perca flavescens</u>
Quillback Carpsucker	<u>Carpiodes cyprinus cyprinus</u>
Gizzard Shad	<u>Dorosoma cepedianum</u>
Emerald Shiner	<u>Notropis atherinoides</u>
Spottail Shiner	<u>Notropis hudsonius</u>
Rainbow Smelt	<u>Osmerus mordax</u>
Pumpkinseed Sunfish	<u>Lepomis gibbosus</u>
Troutperch	<u>Percopsis omiscomaycus</u>
Yellow Walleye	<u>Stizostedion vitreum vitreum</u>

Table 5

Relative Abundance of Fishes Collected
by trawling in Ohio Section of Lake Erie
(Ohio Department Natural Resources, 1972,
unpublished report).

SPECIES	SPECIES PERCENT BY NUMBER				
	1967	1968	1969	1970	1971
Yellow Perch	23%	19%	7%	9%	5%
American Smelt	19%	6%	18%	7%	18%
Emerald Shiner	7%	42%	31%	58%	57%
Spottail Shiner	18%	6%	8%	12%	7%
Alewife	6%	*1%	5%	2%	1%
White Bass	5%	5%	5%	4%	1%
Freshwater Drum	5%	14%	12%	1%	*1%
Gizzard Shad	17%	6%	11%	4%	8%
Other Species	4%	1%	2%	2%	*1%

* means less than 1%.

SPECIES	SPECIES PERCENT BY NUMBER				
	1967	1968	1969	1970	1971
Yellow Perch	74%	57%	13%	23%	19%
American Smelt	1%	1%	1%	1%	4%
Emerald Shiner	1%	7%	3%	15%	13%
Spottail Shiner	3%	2%	2%	6%	3%
Alewife	2%	*1%	*1%	1%	*1%
White Bass	2%	3%	2%	3%	2%
Freshwater Drum	7%	20%	22%	4%	9%
Gizzard Shad	7%	3%	2%	4%	7%
Other Species	3%	7%	54%	43%	43%

* means less than 1%.

Fishes are more widespread in Lake Erie than in the other Great Lakes, because Lake Erie is shallow. However, in all the Great Lakes, the fish generally migrate into the shallows along shore and up tributaries to spawn. Some of the lake species such as the coho salmon, sucker, white bass, and smelt migrate up rivers in large numbers to spawn, provided the water quality and substrate are suitable. There is a spawning "run" of walleye up the tributaries at the western end of Lake Erie. Spawning by most species in Lake Erie occurs predominantly in the shallow water along the lake shoreline. The eggs and fry of these species should be most abundant in the littoral area from the shore out to a depth of about 20 feet.

2.3 Cleveland Harbor Setting.

2.3.1 The Facilities of Cleveland Harbor. Cleveland Harbor as it presently exists consists of a breakwater protected outer harbor and an interior harbor, both of which are maintained by the Federal Government. The outer harbor comprises an overall area of about 1,300 acres. In addition, approximately 80 acres peripheral to the harbor area have been improved with protection afforded by breakwaters totaling in excess of 29,000 feet in length. The interior harbor consists of the authorized Federal Project in the lower 5.5 miles of the Cuyahoga River and 1.5 miles of the Old River.

The improved portion of the outer harbor consists of deep draft channels and maneuvering areas for use by deep draft commercial vessels.

Although a few deep draft terminals are situated in the outer harbor area, most are located in the interior harbor area. The inner harbor consists of a maintained channel and several turning basins.

The Cleveland Harbor facility was authorized by the 1875, 1886, 1888, 1896, 1899, 1902, 1907, 1910, 1916, 1917, 1935, 1937, 1945, 1946, 1958, 1960, 1962, and 1966 River and Harbor Acts. As a result of this collective legislation Cleveland Harbor consists of the following:

a. A breakwater protected outer harbor area of about 1,300 acres, 5 miles long and 1,600 to 2,400 feet wide, inclosed by a breakwater system comprising an east breakwater 20,970 feet long, a west breakwater connected with the shore 6,048 feet long with a gap of 201 feet about 662 feet from the shore end, and east and west arrowhead breakwaters each 1,250 feet long.

b. A rubblemound spur breakwater 400 feet long to protect the gap in the west breakwater shorearm.

c. A 29-foot depth in the lake approach channel to the main entrance flaring from deep water in the lake to a clear channel width of 600 feet between the outer ends of the arrowhead breakwaters, then continuing between the arrowhead breakwaters for 1,250 feet to a width of 750 feet between the opening of the main breakwaters.

d. An entrance channel 28 feet deep from the inner end of the lake approach through the outer harbor to the lakeward ends of the piers at the mouth of the Cuyahoga River, varying from 750 to 220 feet in width.

e. A depth of 28 feet in the west basin over an area bounded by

project limits of 100 feet from the west breakwater and on the landward side generally by a line 75 feet lakeward of and parallel to the harbor line.

f. The outer harbor basin easterly of the entrance channel to varying depths as follows: a depth of 28 feet easterly of the entrance channel for about 800 feet to a line drawn perpendicular to the east main breakwater; easterly from this perpendicular line a 27-foot deep area extending easterly 3,800 feet bounded by project limits of 380 feet from the east breakwater and on the landward side generally by the line 75 feet lakeward of and parallel to the harbor line.

g. Easterly of this area, a channel with a depth of 25 feet, generally 500 feet wide, about 14,600 feet long, parallel to and 380 feet from the east breakwater.

h. A dock approach channel to the Nicholson Cleveland Terminal Company pier, at the easterly end of the east basin, 25 feet deep from the 25-foot depth contour to a limit 75 feet north of the pierhead line, 400 feet wide at the shoreward end and flared toward the lake.

i. Two parallel stone-filled timber-crib piers with concrete superstructure, 325 feet apart, at the mouth of Cuyahoga River the east pier 1,602 feet long and the west pier 1,440 feet long.

j. A depth of 27 feet in the lower Cuyahoga River from the lakeward ends of the piers to immediately above the junction with Old River.

k. Improvement of the channel in the remainder of Cuyahoga River to the vicinity of mile 5.8 depth of 23 feet, suitably widened at bends.

with a turning basin in Cuyahoga River to a depth of 18 feet in the vicinity of mile 4.8.

1. Improvement of the channel in Old River to 27-foot depth with suitable widening at bends.

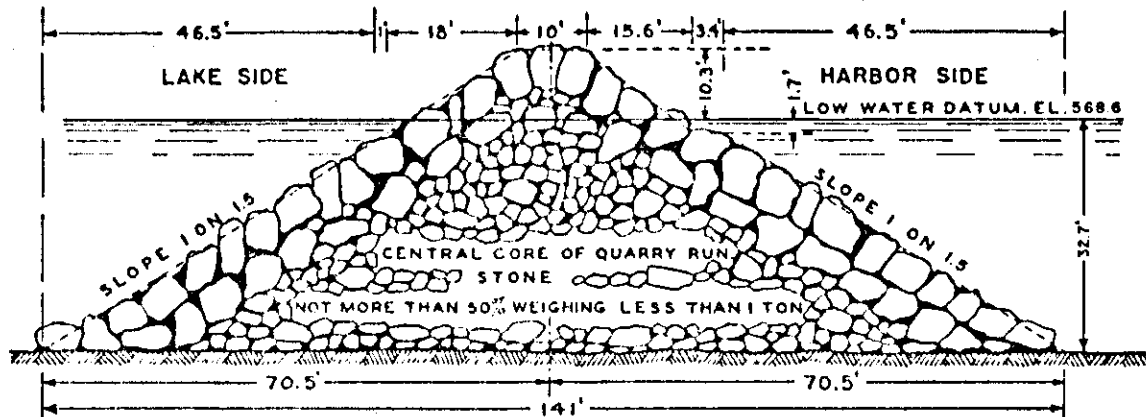
m. Replacement of seven railroad bridges over Cuyahoga River, and replacement of one railroad bridge and one highway bridge over Old River.

The existing project is 74 percent complete. Preconstruction planning is continuing for replacement of railroad bridge No. 19 over Cuyahoga, removal of railroad bridge No. 32 over Old River, and widening and deepening portions of Cuyahoga and Old River, all as authorized by the 1958 River and Harbor Act. Under authority of Section 107 of the 1960 R & H Act, deepening upper end of channel in Old River above Sand Products Corp. dock from 21 to 27 feet was authorized. This deepening is to be accomplished in two stages and the first stage deepening of 1,000 feet of the channel above Sand Products Corp. dock from 21 to 23 feet was completed by contract in August 1968. Deepening the 1,000-foot area to the authorized 27-foot project depth and the remainder of the Old River above this area to 27-foot depth will be done after local interests' terminal developments are completed. Remaining work authorized by 1960 River and Harbor Act which consists of deepening the remainder of the Cuyahoga River from bridge No. 1 to its junction with Old River and deepening Old River, all to 27-foot project depth will be done after completion of the bridge program authorized by 1958 River and Harbor Act. Remaining work authorized by 1946 River and Harbor Act consisting of widening and

deepening the right bank of Cuyahoga River at the downstream end of Cut 4 is classified inactive.

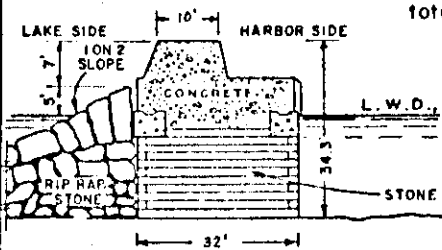
Project maps depicting the location of the various jetties, piers, channels, and turning basins are shown on Plates 1 and 2. Engineering data on the structural portions of the harbor can be found on Plates 9 and 10.

2.3.2 Waterborne Commerce. Cleveland Harbor is a deep draft commercial port. Total waterborne commerce for 1972 amounted to 23,865,810 tons. Principal commodities transported by ship in or out of Cleveland Harbor during 1972 are listed in Table 6 and 7. An annual breakdown of waterborne commerce in tons during the period from 1963 to 1972 is shown in Table 8. These data were compiled by the U. S. Army Engineer District, Buffalo.



**SECTION OF EAST BREAKWATER -P-
BUILT 1903-1915**

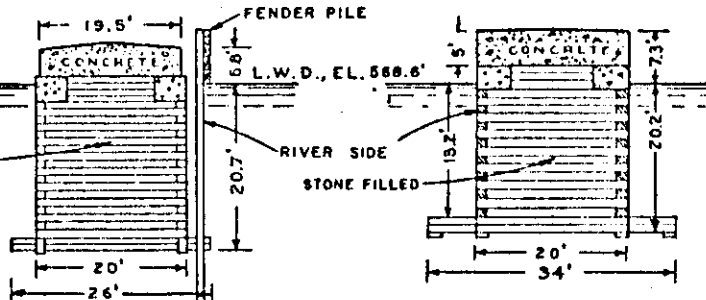
Rehabilitation of breakwater in 5 sections totaling 1,700 feet was initiated in Nov. 1961 and completed in Nov. 1962.



SECTION OF WEST BREAKWATER

BUILT 1876-1884
CONCRETE SUPER-STRUCTURE
BUILT 1898-1907

Rehabilitation of protective riprap slope on lake side, in sections totaling 1000' was done during the period April-May 1963.

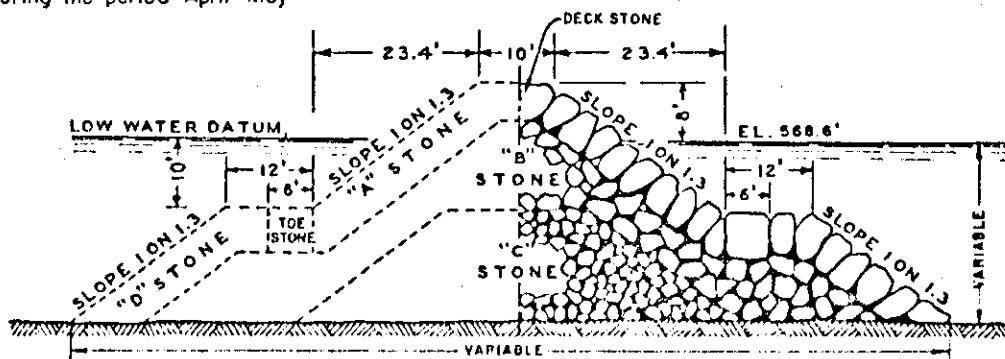


SECTION OF WEST PIER

BUILT: SUB-STRUCTURE 1899
SUPER-STRUCTURE 1901

SECTION OF EAST PIER

BUILT: 1875



**SECTION OF ARROWHEAD BREAKWATERS
BUILT 1904-1909**

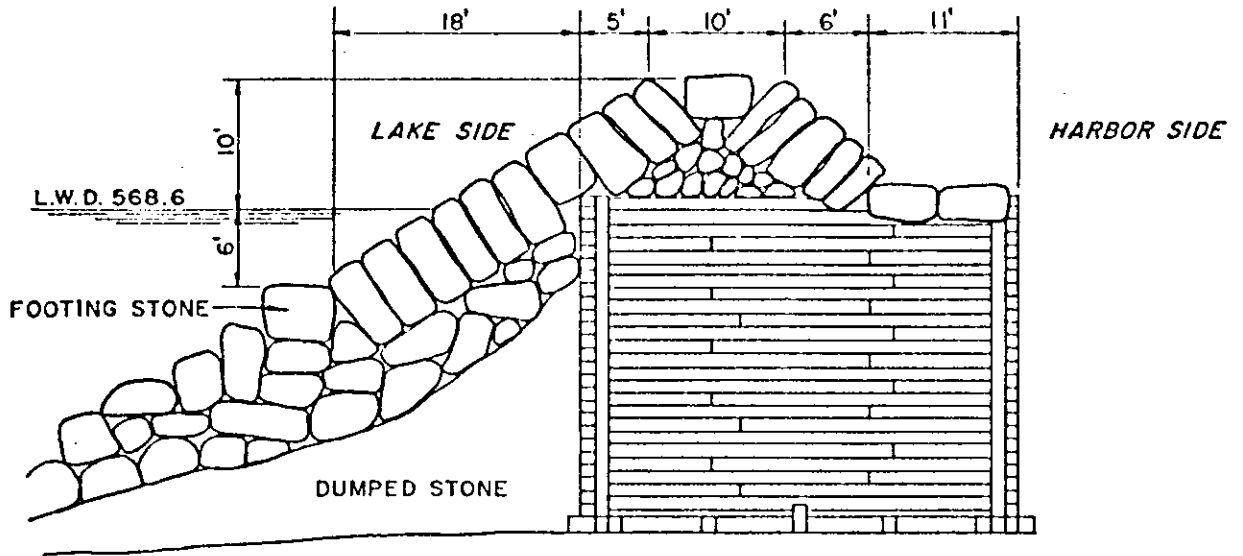
- DECK STONE - MIN. WEIGHT 8 TONS.
- A STONE - MIN. WEIGHT 3 TONS, NOT LESS THAN 50% 8 TONS OR MORE.
- B STONE - MIN. WEIGHT 100 LBS.
- C STONE - NOT LESS THAN 35% 75 LBS OR MORE, NOT MORE THAN 3% LESS THAN 1 LB.
- D STONE - MIN. WEIGHT 3 TONS.
- TOE STONE - MIN. WEIGHT 7 TONS.

**CLEVELAND HARBOR
OHIO**

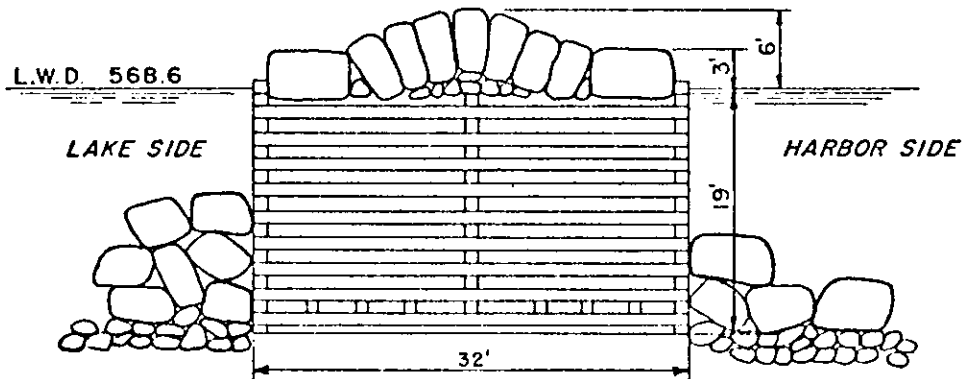
CORPS OF ENGINEERS

BUFFALO N. Y.

PLATE 9



SECTION "Y"
EAST BREAKWATER
 BUILT 1887-1900
 STONE SUPERSTRUCTURE BUILT 1917-1926



SECTION "X"
EAST BREAKWATER
 BUILT 1887-1900
 STONE SUPERSTRUCTURE BUILT 1917-1926

**CLEVELAND HARBOR
 OHIO**

CORPS OF ENGINEERS

BUFFALO, N.Y.

PLATE 10

Table 6 - Waterborne Freight Traffic (Foreign), 1972
(Short tons)

Commodity	Total	Overseas		Canadian	
		Imports	Exports	Imports	Exports
TOTAL	5,071,949	873,534	57,862	3,770,528	370,025
Sorghum Grains	42	-	42	-	-
Oilseeds, Nec	18	18	-	-	-
Hay and Fodder	22	-	22	-	-
Field Crops, Nec	252	105	147	-	-
Coffee	166	166	-	-	-
Fresh & Frozen Vegetables	87	87	-	-	-
Animals and Products, Nec	143	143	-	-	-
Miscellaneous Farm Prods.	220	220	-	-	-
Crude Rubber & Allied					
Gums	136	136	-	-	-
Forest Products, Nec	53	53	-	-	-
Iron Ore & Concentrates	2,586,011	-	-	2,586,011	-
Aluminum Ores,					
Concentrates	7,543	7,543	-	-	-
Manganese Ores,					
Concentrates	9,967	-	46	9,921	-
Nonferrous Ores,					
Concentrates, Nec	5,399	5,091	308	-	-
Limestone	5	-	5	-	-
Building Stone, Unworked	15,763	13	-	15,750	-
Sand, Gravel, Crushed					
Rock	971,503	-	1	971,502	-
Clay	2,220	1,413	807	-	-
Nonmetallic Minerals, Nec	385,390	40,369	2	39,561	305,458
Ordnance and Accessories	4	4	-	-	-
Meat and Products, Nec	84	22	62	-	-
Tallow, Animal Fats & Oil	2,251	-	2,251	-	-
Animal By-Products, Nec	294	-	294	-	-
Dairy Products, Nec	365	365	-	-	-
Fish and Shellfish					
Prepared	489	447	42	-	-
Vegetables and Prep, Nec	422	370	29	23	-
Prep. Fruit and Veg.					
Juice, Nec	790	747	43	-	-
Prepared Animal Feeds	14	14	-	-	-

Table 6 - Waterborne Freight Traffic (Foreign), 1972 (Cont'd)
(Short tons)

Commodity	Total	Overseas		Canadian	
		Imports	Exports	Imports	Exports
Grain Mill Products, Nec	48:	-	48	-	-
Alcoholic Beverages	7,256:	7,031	164	61:	-
Vegetable Oils, Margarine:					
Short	3,973:	28	3,945	-	-
Misc. Food Products	72:	69	3	-	-
Tobacco Manufactures	31:	31	-	-	-
Basic Textile Products	770:	683	86	1:	-
Textile Fibers, Nec	62:	51	11	-	-
Apparel	137:	31	106	-	-
Logs	643:	-	643	-	-
Wood Chips, Staves					
Moldings	38:	38	-	-	-
Lumber	1,401:	38	1,363	-	-
Veneer, Plywood, Worked					
Wood	424:	415	9	-	-
Wood Manufactures, Nec	82:	81	1	-	-
Furniture & Fixtures	306:	291	15	-	-
Standard Newsprint Paper	15,680:	-	-	15,680:	-
Paper and Paperboard	1,021:	695	326	-	-
Pulp & Paper Prods., Nec	80:	75	5	-	-
Printed Matter	216:	157	59	-	-
Basic Chemicals and					
Products, Nec	12,848:	5,057	2,137	5,654:	-
Plastic Materials	1,150:	659	491	-	-
Synthetic Rubber	3,993:	2,794	1,199	-	-
Synthetic (Man-Made) Fibers:	96:	1	95	-	-
Drugs	8:	3	5	-	-
Soap	106:	56	50	-	-
Paints	230:	43	187	-	-
Gum and Wood Chemicals	27:	27	-	-	-
Insecticides,					
Disinfectants	64:	-	64	-	-
Fertilizer & Materials,					
Nec	255:	255	-	-	-
Misc. Chemical Products	3,158:	274	2,884	-	-
Gasoline	26:	-	26	-	-
Distillate Fuel Oil	33,861:	-	-	33,861:	-
Residual Fuel Oil	91,011:	-	-	91,011:	-
Lubricating Oils & Grease:	1,236:	18	1,218	-	-
Asphalt Blgs. Materials	83:	4	79	-	-
Petroleum & Coal Products:					
Nec	324:	111	213	-	-

Table 6 - Waterborne Freight Traffic (Foreign), 1972 (Cont'd)
(Short tons)

Commodity	Total	Overseas		Canadian	
		Imports	Exports	Imports	Exports
Rubber & Misc. Plastic Products	1,244	661	531	52	-
Leather & Leather Prods.	147	143	4	-	-
Glass & Glass Prods.	3,306	2,919	380	4	3
Building Cement	13	-	13	-	-
Structural Clay Products	1,264	1,143	56	65	-
Cut Stone & Stone Prods.	729	726	3	-	-
Misc. Nonmetallic Prods.	754	608	81	65	-
Coke, Pet Asphalts, Solvents	76,596	-	13,322	-	63,274
Iron & Steel Primary Forms	22,440	22,252	188	-	-
Iron, Steel Shapes, Exc. Sheet	195,712	195,683	10	19	-
Iron & Steel Plates, Sheets	498,098	496,468	472	1,158	-
Iron & Steel Pipe & Tube	7,860	6,989	871	-	-
Ferroalloys	43	19	24	-	-
Iron & Steel Prods., Nec	12,888	11,906	963	19	-
Nonferrous Metals, Nec	283	244	39	-	-
Copper Alloys, Unworked	954	925	29	-	-
Lead & Zinc, Unworked	4,816	4,816	-	-	-
Aluminum & Alloys, Unworked	1,404	1,166	210	28	-
Fabricated Metals Prods.	27,144	25,712	1,432	-	-
Machinery, Except Electrical	22,626	7,402	15,175	49	-
Elec. Machinery & Equip.	4,136	3,142	986	8	-
Motor Vehicles, Parts, and Equipment	12,374	11,493	857	24	-
Aircraft & Parts	56	1	55	-	-
Ships & Boats	76	75	1	-	-
Misc. Transportation Equipment	3,273	644	1,873	-	756
Instr. Time, Photo, Opt. Goods	42	31	11	-	-
Misc. Manufactured Prods.	610	573	36	1	-
Iron & Steel Scrap	601	67	-	-	534
Nonferrous Metal Scrap	908	870	38	-	-
Textile Waste, Scrap Sweep	667	150	517	-	-
Commodities, Nec	364	364	-	-	-
Dept. of Defense & Sci	152	-	152	-	-

Table 7 - Waterborne Freight Traffic (Domestic), 1972
(Short tons)

Commodity	Total	Coastwise		Lakewise		Internal	
		Shipments	Receipts	Shipments	Receipts	Shipments	Receipts
TOTAL	18,793,861	9,609	18,190,891	560,358	7,482	25,521	
Barley and Rye	1,968	-	1,968	-	-	-	-
Wheat	116,129	-	116,129	-	-	-	-
Fresh Fish							
Except							
Shellfish	37	-	-	-	-	-	37
Iron Ore and							
Concentrates	14,864,149	-	14,864,149	-	-	-	-
Limestone	2,476,937	-	2,476,937	-	-	-	-
Sand, Gravel,							
Crushed Rock	406,117	-	381,897	-	-	24,220	
Nonmetallic							
Minerals, Nec	486,329	-	-	486,329	-	-	-
Crude Tar, Oil,							
Gas Products	10,528	9,609	919	-	-	-	-
Gasoline	9,420	-	9,420	-	-	-	-
Distillate Fuel:							
Oil	20,893	-	20,893	-	-	-	-
Residual Fuel							
Oil	49,788	-	41,042	-	7,482	1,264	
Asphalt, Tar							
and Pitches	38,727	-	38,727	-	-	-	-
Coke, Petroleum:							
Coke	1,907	-	-	1,907	-	-	-
Building Cement:	121,305	-	121,305	-	-	-	-
Pig Iron	70,115	-	-	70,115	-	-	-
Iron, Steel							
Shapes Except:							
Sheet	2,007	-	-	2,007	-	-	-
Iron & Steel							
Scrap	117,505	-	117,505	-	-	-	-

Table 8 - Comparative Statement of Shipping Traffic 1963-1972

<u>Year</u>	<u>:</u>	<u>Tons</u>	<u>:</u>	<u>Passengers</u>
1963	:	16,986,246	:	99,675
1964	:	20,336,807	:	154,287
1965	:	21,960,213	:	37,802
1966	:	24,020,820	:	23,045
1967	:	20,685,918	:	25,145
1968	:	23,307,504	:	20,520
1969	:	24,649,054	:	18,686
1970	:	22,857,537	:	15,209
1971	:	20,551,928	:	103,278
1972	:	23,865,810	:	67,771
	:		:	

2.3.3 Character and Nature of Harbor Sediments. Sediments enter the harbor through surface water runoff, bank and shoreline erosion, and deposition of industrial and municipal solid wastes. Dissolved constituents from agricultural activities and some industrial processes also enter the harbor waters where they are absorbed to some extent by the sediments.

Due to the enlargement of the Cuyahoga River channels for navigation, current velocities are very low so that only limited amounts of sediment are carried naturally into Lake Erie. The pollutants are sufficiently concentrated to inhibit animal life and natural oxidation processes in the river area, while the degree of inhibition is somewhat lessened in the outer harbor area.

The table below is illustrative of the sediment loading and flow characteristics of the Cuyahoga River as measured from the railroad bridge north of Harvard-Denison Bridge at the end of Denison Road (River Mile 6.6).

Table 9 - Sediment Loading and Flow Characteristics
Cuyahoga River, * 1967-1968

Date	Temp.	CFS	Total Solids		Chlorides		Total Phosphorus	
	°C	Momentary	mg/l	#/sec.	mg/l	#/sec.	mg/l	#/sec.
2-13-67	5.0	1,440	785	71.4	142	12.92	1.27	0.116
3-1-67	1.0	559	1,062	37.2	274	1.00	0.39	0.014
3-15-67	7.0	2,320	605	88.3	100	14.60	0.75	0.110
4-19-67	11.0	754	588	28.2	98	4.70	2.77	0.133
5-4-67	8.0	1,321	544	45.2	79	6.56	2.40	0.199
5-18-67	13.0	2,110	548	72.3	78	10.30	1.47	0.194
6-2-67	-	409	693	18.0	133	3.46	1.43	0.037
6-8-67	21.5	346	909	20.0	137	3.01	2.83	0.062
6-19-67	22.0	281	1,247	22.4	179	3.22	6.43	0.116
7-6-67	19.0	293	778	14.0	161	2.90	2.47	0.044
7-20-67	22.0	351	720	15.8	154	3.39	2.65	0.058
8-3-67	24.0	616	784	30.6	181	7.06	2.80	0.109
8-15-67	22.0	253	977	15.6	187	2.99	4.03	0.064
8-30-67	21.0	320	921	18.4	173	3.46	2.24	0.045
9-14-67	20.0	259	1,001	16.0	196	3.14	2.21	0.035
9-27-67	19.0	278	864	15.6	157	2.83	1.99	0.036
10-9-67	17.0	474	771	23.1	122	3.66	1.60	0.048
10-26-67	13.0	345	846	18.6	150	3.30	2.77	0.061
11-8-67	9.0	398	857	21.4	146	3.65	2.77	0.069
11-20-67	5.5	887	619	34.7	115	6.44	1.50	0.084
12-7-67	8.0	915	693	40.2	99	5.74	1.79	0.104
12-20-67	6.0	720	602	27.1	78	3.51	2.11	0.095
1-2-68	2.0	430	776	21.0	163	4.40	2.93	0.079
1-16-68	2.5	247	977	15.6	232	3.71	2.58	0.041
1-30-68	2.0	8,901	998	559.9	71	39.83	1.73	0.971

* Source: Lake Erie South Shore Tributary Loading Data Summary 1967, U. S. Dept. of Interior, August 1968.

During 1972 the U. S. Environmental Protection Agency (Region V) conducted a survey of the sediments in Cleveland Harbor. The results of this sediment analysis and the location of the sampling sites are shown in Table 10 and Plate 11 respectively.

According to the United States Environmental Protection Agency standards, the sediments within the inner harbor area are considered polluted. In addition, the sediments of the outer harbor area, although comparatively less contaminated than those in the Cuyahoga River, are also still considered to be polluted. Thus, dredge spoil from both of these areas should be deposited in specially designed diked containment sites as long as such facilities are available.

2.3.4 Water Quality.

2.3.4.1 General. The State of Ohio Water Pollution Control Board has established the water uses currently in effect in the Cleveland Harbor area for which the applicable water quality criteria are to be maintained. The document establishing water uses was adopted by the Board on 11 April 1967, and designates the harbor water uses as industrial water supply and Aquatic Life A. The applicable water quality criteria currently in effect were adopted by the Board on 14 April 1970. In addition to meeting the specific requirements for the two designated uses, the criteria require the meeting of four general requirements applicable to all waters of the State and also include a requirement for maintaining existing quality where present water quality is better than the applicable standards. Copies of these two documents have been included as an appendix to this report.

CLEVELAND HARBOR
DREDGING STUDY
1972
PLATE II

LAKE ERIE

CITY OF CLEVELAND

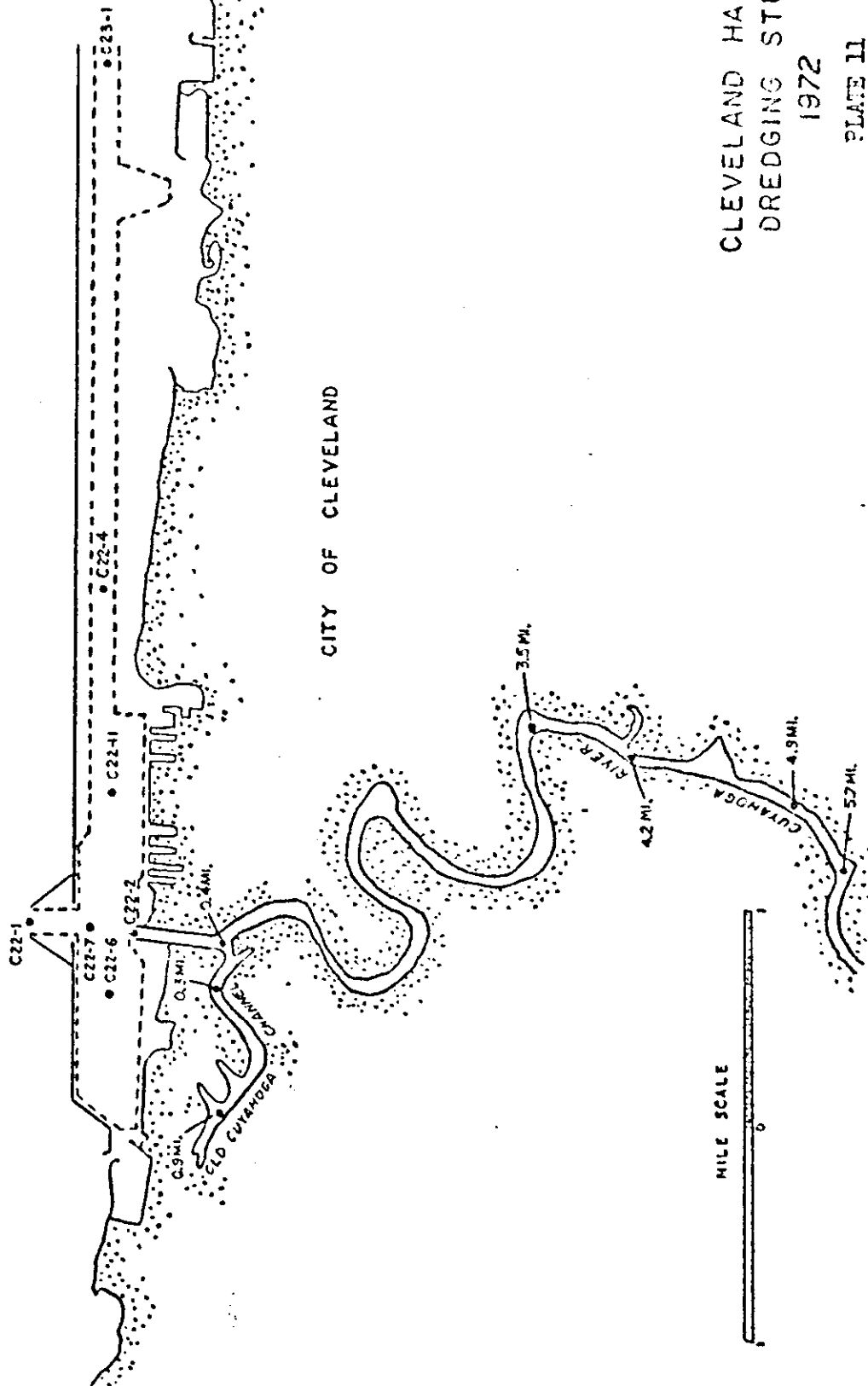


Table 10 - Cleveland Harbor
 Cuyahoga River Sediment Study - November 3, 1972
 (mg/g Conc.)*

Station Identification	Percent:Volatile: Solids	COD	Oil	Kjel-N:as PO ₄	Grease	Total P:	Mercury	Lead	Zinc	Cadmium	Chromium	Cyanide	Phenol
C22-7	43.09	88.8	3.7	2.32	5.4	0.00048	0.02	0.767	0.014	0.083	-	-	
C22-6	60.78	69.0	3.9	1.44	4.7	0.00032	0.16	0.690	0.011	0.091	-	-	
C22-2	47.12	80.0	6.1	2.91	7.5	0.00024	0.24	1.222	0.017	0.109	-	-	
C22-1	70.32	38.4	1.7	0.84	0.1	0.00011	0.08	0.317	0.006	0.035	-	-	
C22-11	48.75	72.9	7.1	2.23	7.1	0.00042	0.23	1.048	0.017	0.115	-	-	
C22-4	43.67	79.5	7.5	1.23	6.2	0.00043	0.25	0.986	0.017	0.110	-	-	
C22-6	44.75	60.9	95.1	4.3	1.71	5.5	0.00032	0.20	0.735	0.013	0.095	-	
C23-1	53.27	48.8	122	3.4	1.04	5.4	0.00020	0.15	0.504	0.008	0.068	-	
Old Cuyahoga River 0.3	41.98	87.2	138	7.7	2.44	7.5	0.00030	0.25	1.054	0.015	0.138	-	
Old Cuyahoga River 0.9	13.86	176.3	255	3.1	3.42	8.4	0.00024	0.21	1.083	0.011	0.277	-	
Cuyahoga River 0.4	57.7	63.3	95.7	9.8	1.28	7.4	0.00026	0.23	1.237	0.011	0.144	0.012	
Cuyahoga River 3.5	46.2	77.3	137.5	12.8	1.59	9.5	0.00030	0.24	1.443	0.017	0.120	0.022	
Cuyahoga River 4.2	49.1	79.8	119.2	12.6	2.28	7.9	0.00035	0.29	1.427	0.018	0.167	0.014	
Cuyahoga River 4.9	44.1	91.5	152.8	14.4	3.56	10.7	0.00037	0.24	0.934	0.031	0.180	0.014	
Cuyahoga River 5.7	27.3	213.5	578.1	61.1	8.96	26.3	0.00056	0.56	2.387	0.067	0.542	0.035	

* Percent solids in percent.

Source - U. S. Environmental Protection Agency

At present it is understood that plans are underway by the four States bordering Lake Erie and the Federal Environmental Protection Agency to review water use and quality criteria for the lake waters. A report entitled, "A Plan for Water Pollution Control" dated August 1968, prepared by the Federal Water Pollution Control Administration (FWPCA), whose functions are now administered by the Federal Environmental Protection Agency, contains information on waste sources and pollution problems. The report states that three geographical areas are primarily responsible for the present polluted condition of Lake Erie. The greater Cleveland-Akron area is one of the three. Seven bathing beaches in the Cleveland area were listed as unsafe.

Wastewater studies currently being conducted by this office indicate that the following pretreatment wastes are being discharged in the Cleveland-Akron area: phosphorus (39,000 pounds per day), chlorides (1,700,000 pounds per day), BOD (351,000 pounds per day), toxic metals, toxic chemicals, oil acids, and some others. The foregoing figures include domestic, stormwater and industrial discharges.

2.3.4.2 Cuyahoga River/Inner Harbor Water Quality. The water quality of the Cuyahoga River was derived from data contained in the report entitled, "Water Resources Data from Ohio Part 2 Water Quality Records 1971," prepared by the U. S. Department of Interior Geological Survey.

Water quality is continuously monitored at river mile 3 in the vicinity of the West Third Street highway Bridge in Cleveland. A summary of the water quality is presented in the following table.

Table 11 - Water Quality Data
 Cuyahoga River, Ohio
 October 1970-September 1971 - River Mile 3.0

Date	Bicarbonate: HCO ₃	Sulfate: SO ₄	Chloride: CL	Diss. Fluoride: mg/l	Nitrate: NO ₃	Total Phosphorous: mg/l	Residue at 180° C: mg/l	Diss. Solids: Micro-MHOS	Specific Conductance: (AVG)	Ph Stand.: (AVG)	Diss. Oxygen: mg/l	Temperature: °C (AVG)
10-9-70	106	170	190	2.3	48	0.84	730	1160	7.2	1.3	1.3	26.3
10-14-70	-	-	-	-	-	-	-	-	7.0	5.4	5.4	21.0
10-15-70	108	96	49	1.1	13	0.72	344	537	7.5	6.6	6.6	19.5
11-13-70	105	180	150	2.8	51	0.67	676	1070	6.9	3.8	3.8	20.8
11-30-70	101	120	77	1.0	22	1.3	422	680	7.0	8.7	8.7	11.0
12-14-70	86	94	72	.8	16	0.55	400	592	7.0	11.3	11.3	6.8
12-31-70	94	150	190	1.7	43	1.0	688	1170	6.9	9.2	9.2	9.3
1-12-71	100	110	110	1.4	37	0.28	472	845	6.9	7.0	7.0	9.0
1-30-71	109	160	280	2.5	140	0.22	920	1590	6.9	8.4	8.4	9.0
2-13-71	80	110	330	1.1	35	0.70	868	1510	7.2	10.1	10.1	6.3
2-23-71	69	57	69	0.5	19	0.81	330	533	7.0	11.3	11.3	3.3
3-1-71	74	78	73	0.6	14	0.34	328	548	7.0	10.9	10.9	5.5
3-10-71	81	120	250	1.1	29	0.79	706	1190	7.2	10.2	10.2	6.3
4-7-71	93	140	130	1.4	36	0.52	560	930	6.9	7.7	7.7	-
4-28-71	110	160	140	1.7	52	0.33	740	1210	6.9	1.1	1.1	18.8
5-4-71	107	170	190	2.2	47	1.3	706	1220	6.9	0.1	0.1	20.8
5-26-71	118	110	98	1.0	15	2.1	438	797	7.5	1.6	1.6	18.8
6-2-71	-	-	-	-	-	-	-	-	7.3	0.1	0.1	25.5
6-5-71	118	160	220	2.1	40	1.1	784	1320	7.1	0.1	0.1	28.3
6-8-71	114	170	85	1.2	30	2.8	540	841	7.3	0.1	0.1	24.5
7-9-71	110	150	270	2.9	59	3.4	690	1290	7.2	0.3	0.3	31.8
7-11-71	92	110	120	0.8	19	1.9	422	762	7.2	1.1	1.1	26.8
8-7-71	124	170	120	2.0	61	2.2	860	1430	7.0	0.2	0.2	27.5
8-25-71	114	160	200	1.9	53	2.9	800	1240	7.3	0.3	0.3	28.5
9-1-71	120	150	200	1.7	53	3.3	684	1220	7.2	0.3	0.3	28.5
9-21-71	100	120	120	1.1	20	1.5	466	847	7.2	1.6	1.6	21.8

2.3.4.3 Lake Erie/Cleveland Outer Harbor Water Quality. Less recent data on the water quality ranges found in the Cleveland Outer Harbor area are shown on Table 12. These analyses were conducted during 1967 by the Federal Water Pollution Control Administration and reflect the maximum and minimum values encountered during the period.

Table 12 - Concentration Ranges of Water Constituents
Cleveland Outer Harbor, 1967

<u>Constituent</u>	<u>Range</u>
Total P mg/l	0.08 - 0.55
Soluble P mg/l	0.03 - 0.16
Organic N mg/l	0.22 - 1.93
Ammonia N mg/l	0.36 - 2.42
Nitrate N mg/l	0.43 - 1.50
Chloride mg/l	32 - 90
Phenol ug/l	1 - 86
Total Solids mg/l	219 - 585
Dissolved Solids mg/l	173 - 428
Conductivity umhos/cm	260 - 620
Coliforms/ 100ml	1,400 - 58,000

Source: Interim Summary of Cleveland Harbor Dredging Effects Investigation, Robert P. Hartley, Cleveland Program Office Federal Water Pollution Control Administration, December 1967 (Revised September 1968).

2.3.5 Land Use. The land adjacent to the Cleveland Harbor is characterized by high-intensity land use activities. Lake Erie shoreline lands east of the mouth of the Cuyahoga River support commercial pier and dock facilities, the Municipal Stadium, the Burke Lakefront Airport and several marina complexes with beach areas further to the east. Railroad lines and general industrial and commercial facilities are located along the

western lake shoreline with beaches further to the west. The Cuyahoga River shoreline is also lined with industrial and commercial activities. A transportation corridor, formed by the East Memorial Shoreway, U. S. Interstate 90 and the Penn-Central Railroad lines, roughly parallels and separates the lake shoreline from inland areas. The Cleveland central business district is directly south of the corridor and east of the river. The remaining inland areas adjacent to the corridor include general industrial, commercial and residential complexes.

2.3.6 Harbor Recreation. Recreational boating is limited in the Cleveland Harbor at the mouth of the Cuyahoga River due to the heavy commercial traffic in the area. The East and West Harbor Basins, located beyond the lake approach entrance channel, offer a variety of recreational boating facilities at five private yacht clubs and four public marinas. Many of the 22,616 recreational craft registered in Cuyahoga County take advantage of the harbor's waters and facilities during the May 1 through October 1 recreational boating season. Other recreational activities in the harbor include periodic extensive fishing from boats and the municipal piers and boat tours of the Cleveland waterfront and river.

2.3.7 Historical and Archaeological Sites. There are no significant historical, archaeological or natural landmark sites immediately within the boundaries of the proposed project area; The National Register of Historic Places has been consulted and no National Register properties will be affected by the project. Comments concerning Cleveland Harbor

sites have been requested from the Ohio State Historical Society and the U. S. Department of Interior and are included in this Final Environmental Impact Statement.

2.3.8 Fishery Resources. The Cuyahoga River which takes in the inner portion of the Cleveland Harbor facility is of poor quality and generally does not support more than a few species of fish. On the other hand, the outer harbor area exhibits a wide variety of fish species which vary seasonally in abundance.

In the Cuyahoga River area, only the gold fish (Carassius auratus) and the emerald shiner (Notropis atherinoides) are known to be permanent residents. Gold fish reproduction has also been noted in the lower 3 miles of the river. Some fish species do attempt to migrate up the Cuyahoga, but are generally blocked by high concentrations of pollutants. On occasion, a wide diversity of fish species can be found in the lower portions of the river during certain periods of the year. The presence of these species has been connected with a natural process by which lake water is forced up the river for some distance bringing with it the typical lake fish species. These fish actually inhabit the higher quality lake water rather than the poorer quality waters of the Cuyahoga River.

The outer harbor to the west and east of the Cuyahoga River along with the areas of Gordon Park and Edgewater are capable of supporting a diversity of fish species, since the lake waters here are well oxygenated and much less polluted by comparison. Fish species which have been frequently

collected at different intervals in this area over the past few years
include the following:

Yellow Perch
Sheepshead
Emerald Shiner
Gizzard Shad
Golden Shiner
Alewife
White Sucker
Blunt-nose Minnow
Smelt
Spottail Shiner
White Bass
Bluegill
Northern Pike
Carp
Goldfish
Pumpkinseed Sunfish
Walleye
Black Bullhead
Stonecat
Chinook Salmon
White Crappie
Black Crappie
Large Mouth Bass
Warmouth Sunfish
Muskellunge
Trout Perch
Burbot
Brown Bullhead
Channel Catfish
Sand Shiner
Eastern Quillbacked Carpsucker
Short Head Redhorse
Black Redhorse
Coho Salmon
Spotfin Shiner
Rock Bass

Perca flavescens
Aplodinotus grunniens
Notropis atherinoides
Dorosoma cepedianum
Notemigonis crysoleucas
Alosa pseudoharengus
Catostomus commersoni
Notropis spp.
Osmerus mordax
Notropis hudsonius
Marone chrysops
Lepomis macrochirus
Esox lucius
Cyprinus carpio
Carassius auratus
Lepomis gibbosus
Stizostedion vitreum
Ictalurus melas
Noturus flavus
Oncorhynchus tshawytscha
Pomoxis annularis
Pomoxis nigromaculatus
Micropterus salmoides
Chaenobryttus gulosus
Esox masquinongy
Percopsis omiscomaycus
Lota lota
Ictalurus nebulosus
Ictalurus punctatus
Notropis stramineus
Cariodes cyprinus
Moxostoma breviceps
Moxostoma duquesnei
Oncorhynchus kisutch
Notropis spilopterus
Ambloplites rupestris

The above fishery data was provided by Dr. Andrew White of John Carroll
University, Cleveland, Ohio.

2.3.9 Bird Life. Information relative to the bird life in the Cleveland area was provided by individuals from the Cleveland Museum of Natural History and John Carroll University. The whole south shore of Lake Erie is on a migratory flyway. The Chagrin River Valley, east of Cleveland, is on the eastern edge of the Mississippi flyway. Large quantities of ducks, as well as Canadian geese and whistling swans pass through the area. The latter have been observed coming up the Chagrin River Valley and turning west toward the Sandusky marshes. Generally, these migratory birds fly west in February and March and east in the fall. Snowy owls come south in winter and inhabit the breakwater area. Shore birds migrating west include, among many others, sandpipers and snipe. Occasionally, avocets, singly or in small groups, have been observed. The migratory birds move north when the winter retreat temperatures rise and sometimes move into the northern areas before the ice is gone. At such times spots where there is open water are attractive. The warm waters adjacent to the power plants in Cleveland Harbor offer such refuge. In bad weather, ducks congregate in great masses. The area also is a path for hawks migrating from central and western States up the Ohio River Valley. There have been 260 species of birds observed in the Cleveland area and many do nest in the vicinity.

2.3.10 Municipal Water and Waste Treatment Facilities. Public water supply is obtained through water intake tunnels which extend from the Cleveland Shoreline under the harbor and out into Lake Erie. There are four intakes in the Cleveland Metropolitan area according to the

report entitled, "Lake Erie, Ohio, Pennsylvania, New York Intake Water Quality Summary 1970" prepared by the U. S. Environmental Protection Agency (three intakes are illustrated within the limits of Plate 3).

Specifications relative to these water intake areas follows:

<u>Intake</u>	<u>Diameter (inches)</u>	<u>Type</u>	<u>Distance From Shore (feet)</u>
Crown	96	Concrete	13,000
Division	120	Concrete	20,000
Baldwin	108	Concrete	17,000
Nottingham	120	Concrete	18,000

All of the raw water municipal intakes are located far from the Cleveland Harbor facility. In addition, these pipelines are situated at depths great enough to permit deep draft shipping and dredging activities without interference.

There are two power plant intakes at the eastern end of the Cleveland Outer Harbor which draw their water supply from the inner harbor area.

Sewage treatment facilities in the Cleveland Harbor area (Plate 1) are situated near the western extremity of the harbor at the terminus of Old River (westerly wastewater plant). One other treatment plant, which affects water quality in the river navigation channel, is located about 6.5 miles upstream of Lake Erie outside of the areas discussed in this statement.

3. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

3.1 Beneficial Impacts.

a. Annual dredging of the harbor to project depths will permit continued safe navigation for medium and deep draft vessels. Thus, a severe economic burden on local and some non-local industry and commerce, as illustrated in Section 5a, will be averted.

b. Consumers will be indirectly benefited by the project. Industries in Cleveland and vicinity, which require port facilities for their operations, will continue to receive needed port services. This will allow the industries to make uninterrupted availability of their products to the consumer market.

c. The labor, material and fuel expended for the maintenance of Cleveland Harbor is considered beneficial, especially during the current energy crisis, since lakes shipping provides a relatively inexpensive mode of transport for materials and goods. Should Cleveland Harbor close, materials would be required to be shipped by other means, possibly using more fuel and energy in the process as shown in the U. S. Department of Interior comment - response section.

d. Bottom habitats of dredged areas will improve since polluted sediments will be removed. If pollution abatement measures are realized upstream, however, this could revert to a permanent adverse impact. The dredging operations would then be removing non-polluted sediment capable of providing desirable habitat for aquatic flora and fauna.

e. Water quality around dredged areas will improve since organics removed with the sediments will not be oxidized. This process would place a severe strain on the dissolved oxygen content in the water. In addition, the removed sediments will not have the opportunity to re-introduce nutrients and heavy metals into solution or suspension.

f. Removal of spoil from the project area and the deposition of this material into diked disposal areas will eliminate the possibility of the polluted sediment being discharged into Lake Erie during periods of increased flow and velocity in the Cuyahoga River.

g. Maintenance and repairs to the piers and breakwaters will impede the effects of weathering. If left to continue unrestrained, weathering would eventually render the piers and breakwaters completely ineffective in providing protection to the harbor. The suitability of the harbor as a refuge for large and small craft would be diminished.

3.2 Adverse Impacts.

a. Removal of the existing bottom habitats for fish and benthic macro-invertebrate communities will result from dredging. U. S. Environmental Protection Agency data indicate the sediments are "polluted" and are not conducive to high biologic productivity. Thus, dredging may presently provide a beneficial impact to habitats. Should pollution abatement be realized upstream, this would revert to becoming a very adverse impact. The dredging operations would then be removing non-polluted sediment capable of providing desirable habitat for aquatic flora and fauna.

b. Deposition of dredged spoil into diked disposal areas will create odors ranging from mild non-pungent to noxious.

c. Turbidity caused by dredging operations will decrease light penetration with consequent reductions of phytoplankton populations and short-term decreases in biological productivity.

d. Increased suspended solids caused by disturbance of bottom sediments may clog and damage gill filaments of fish in the area. There may also be a temporary migration of fish from this area to other locations during project activities.

e. Disturbance of sediments will release some nutrients and heavy metals into solution or suspension and cause a short-term reduction in water quality (followed by water quality improvement mentioned in Section 3.1 (e)). Annual dredging operations normally occur six days a week between April - July 1 and mid-October - December 1 in the river and during April in the outer harbor. 1974 schedules are expected to deviate somewhat from this.

f. Water color may temporarily change during dredging operations. This will create an adverse aesthetic effect.

g. A temporary hazard to small boaters and deep draft shipping will occur during the presence and operation of dredging equipment in the rivers and outer harbor.

h. During maintenance and repairs to piers and breakwaters, noise and dust will be generated. Although these impacts are only temporary, the Contractor performing the work will be required to minimize these

and other effects by following the procedures and regulations outlined in the "Civil Works Construction Guide Specification for Environmental Protection" (CE-1300, May 1970).

i. Unfinished construction of diked disposal Site 12 may necessitate consideration of open lake dumping of approximately 50,000 cubic yards of summer shoaling during 1974, which may result in biological and chemical degradation of Lake Erie. The polluted nature of the deposited sediments will alter Lake Erie at an unnatural rate and may contribute to significant changes or degradations in chemical and biological characteristics within the lake.

j. Power plant intakes (located immediately south of the outer harbor project, near its eastern extremity), may be adversely affected by siltation and suspended solids caused by maintenance operations. The Buffalo Engineer District is currently accomplishing design of remedial measures to eliminate this potential adverse effect. Follow on remedial construction by the Buffalo District has been approved by higher Corps authority.

3.3 General Impacts.

a. The National Register of Historic Places has been consulted and no National Register properties of historical or archeological significance will be affected by the project. The Ohio Historical Society and U. S. Department of the Interior have been consulted in this respect. Letters requesting information from these agencies are included in Appendix C.

b. Disturbance of the bottom sediments will result in the accretion of light silt material over a large area since currents and littoral drift will transport this light sediment.

c. No nesting waterfowl habitats will be affected by the project.

d. The Cleveland Water Works will not be adversely affected in any way. The water intake pipe for this plant is located in Lake Erie west of the open lake disposal grounds. It is expected that water quality near the intake will not be impaired in any way during maintenance operations.

e. Sewage treatment facilities, (one at the river mouth and the other several miles upstream), will not be adversely affected by the operations and maintenance activities.

4. ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED PROJECT BE IMPLEMENTED

a. Dredging causes annual, periodic, short-term, localized problems with turbidity, suspended solids and sedimentation. This situation is in turn aggravated by the presence of nutrients and heavy metals in the sediments, which are released during sediment disturbances. Water quality and nektonic, planktonic, and benthic habitats will also be adversely affected. Fish will probably migrate out of the area during the actual dredging activities and will likely return upon annual project completion. Benthic macro-invertebrates will begin to reestablish annually after project activities cease, but will be halted from attaining full development by the ensuing year's dredging.

b. Noise and dust created during repair and maintenance of piers and breakwaters will, despite mitigative efforts, still occur to some extent. These short-term problems have been recognized and regulations will be incorporated into the engineering plans and specifications to control construction activities thereby reducing the detrimental effects to minimum levels.

c. There will be some odor ranging from mild non-pungent to noxious which will be encountered during the spoil pumping process into specially constructed disposal areas.

d. Power plant intakes (located immediately south of the outer harbor project, near its eastern extremity), may be adversely affected by siltation and suspended solids caused by maintenance operations.

The Buffalo Engineer District has currently designed remedial measures to preclude the potential adverse impact. Follow-up remedial construction by the Buffalo Engineer District has been approved by higher Corps authority.

e. A temporary hazard to small boaters and deep draft shipping will occur during the annual presence and operation of dredging equipment in the rivers and outer harbor.

f. The most significant adverse environmental effect which probably cannot be avoided in limited quantity (50,000 cubic yards) is the practice of open-lake dumping of dredged sediments in 1974. Both outer harbor and river sediments have been classified as "polluted" by the EPA. The polluted sediments will be open-lake dumped only if construction of diked disposal site No. 12 is not completed at the time pilot sites 9 and 13 have been filled to capacity.

The environmental impacts of open lake dumping are variable depending on the nature of the pollutants in the sediments. Pathogenic agents such as bacteria and viruses can cause serious human health problems and may also affect aquatic organisms. Nutrients such as nitrates and phosphates contribute to algal growth which ultimately leads to low dissolved oxygen levels in water. Such a process is very detrimental to fish and other lake biota. Toxic materials such as heavy metals can be incorporated into the low levels of the lake's food chain and ultimately be concentrated at higher levels, resulting in fish destruction and possible human health hazards. Data in Chapter 2 indicate Cleveland

Harbor sediments to contain most of the pollutants listed above (data on other parameters are not currently available).

5. ALTERNATIVES TO THE PROPOSED ACTION

a. Discontinuance of Dredging. Dredging is practiced at Cleveland Harbor and other harbors because waterborne sediments as well as littoral materials are deposited annually in the harbor by natural forces. These deposits obstruct the existing channels and limit navigation. The primary impact of stopping dredging would be to limit the shipping in and out of Cleveland Harbor and therefore, place a severe social and economic burden on local and some non-local industry and commerce. A study published by the Cleveland-Cuyahoga County Port Authority in 1971 indicated a total of approximately 100,000 jobs in the Cleveland area to be directly or indirectly related to the Harbor. An excerpt from this study illustrating economic and social effects of discontinued dredging follows:

Cleveland Metropolitan Area Employment Estimates (March 1971)		
<u>TYPE EMPLOYMENT</u>	<u>TOTAL</u>	<u>PORT RELATED</u>
Transport & Related	52,000	
Overseas Cargo related		3300
Lake cargo related		6700
Heavy Industry:		
Primary Metals	37,600	21,300
Fabricated Metals	37,400	9,100
Machinery	71,800	4,300
Transp. Equip.	33,900	2,300
Misc. Manufacturing	79,000	3,000
Trade, Const., Services	<u>509,900</u>	<u>50,000</u>
TOTAL	839,100	100,000
EST. PAYROLLS	\$6.3 BILLION	\$1 BILLION

As indicated, the biggest specific category of employment is in primary metals, reflecting the fact that Cleveland has four steel mills located on the Cuyahoga and dependent upon vessel deliveries for their source of iron ore. These mills in turn are responsible in large measure for the concentration of metals fabrication, machinery and transportation equipment manufacturing in the area. While facilities for overseas cargo and some in-transit iron ore are located on the lakefront where dredging is less critical, the mills are on the Cuyahoga where dredging is approaching crisis.

In an attempt to quantify the impact of discontinuance of dredging, we have determined that there is no acceptable alternative to delivery of raw materials to the mills via vessels. The Cleveland Steel District is located at the western extremity of the area using Eastern Canada ores,--and is at the eastern extremity of the area using upper lakes ores. In short, it would be the high-cost producer if forced to rail, if in fact the railroads could cope with a sudden increment of 17 million plus tons.

It appears that continued shoaling of the Cuyahoga would produce the following series of events:

First, progressive reduction in the revenue producing cargos carried in the vessels going upriver, resulting in losses to the vessel operators subsequently reflected in contract carriage rates,-- or possible contract cancellations based on "force majeure."

Second, when the vessels could not reach the mills for economic or physical reasons, unloading at the lakefront with transfer to the mills via truck or rail at steep increases in unit costs.

Third, if lakefront unloading were impractical for economic or physical reasons, the vessels would be unloaded at nearby ports such as Lorain or Ashtabula, with additional overland transfer cost and energy consumption.

Fourth, if the alternate ports were not dredged either and/or the Cleveland mills were no longer cost competitive, the local mills would begin shutting down and satellite industry would face higher costs for steel from alternate sources.

In regard to the first stage of added cost, it is estimated that the vessels presently serving the Cuyahoga carry about 80 to 100 tons per inch of draft. The published Duluth/Cleveland rate on iron ore is currently \$2.45 per G/T with contract rates somewhat lower. In effect, the typical vessel loses about \$245 per trip for each inch of draft lost to shoaling. Restating the above, based on vessel operating costs being about the same light or loaded, the additional cost per inch pro-rated against the cargo that is hauled upriver progresses from 1.5¢ per ton at 16,000 tons capacity to 2.5¢ per ton at 10,000 tons capacity.

Representative Vessels Calling the Cuyahoga

<u>Vessel</u>	<u>Max. Draft</u>	<u>Max. Long Ton Capacity</u>
Roesch	25'0"	19,225
Frontenac	22'3"	13,300
Pontiac	22'2"	13,350
Cadillac	25'1-1/2"	16,600

In 1973, shoaling reduced safe drafts in the Cuyahoga to about 21' and the above vessels had to load light or unload at the lakefront from 1200 to 4800 tons each trip. Using an average 2 ft. of draft lost to shoaling and an average additional cost of 2¢ per ton, the ± 10 million tons of ore moved upriver in 1973 cost somebody about \$4.8 million extra. If the draft limit in 1974 is 19', the penalty will approach \$9.6 million or about \$1.00 per ton of ore.

In regard to the second stage, published unloading rates at lakefront facilities are 69¢ per ton from vessel to cars direct, \$1.57 via stockpile. Since the local mills are not geared to rail receipts, neither they nor the railroads could cope with unit trainloads and the usual transfer would be via stockpile. The cost saved by not unloading vessels at the mill would largely be offset by rail car unloading. Accordingly \$1.25 would be a conservative average additional handling cost. That plus the \$2.02 per ton rail switch gives \$3.27 per ton extra cost. Hence, in a 10 million ton year like 1973, stage two would cost Cleveland \$32,700,000.

Extrapolating from the published lakefront to inland point rates, the rail haul to Cleveland from Lorain or Ashtabula would be about \$3.00 vs. \$2.02. Hence, stage three would cost Cleveland about \$42 million a year,-- probably a combination of lost wages and industry profits.

Finally, as a matter of information, the all-rail rates to Cleveland from customary ore sources are: Marquette and Menominee ranges--\$10.55

per ton, Mesabi range--\$13.31 per ton. Rates on ores imported via Baltimore and Philadelphia are \$6.01 per ton, but that is no solution because of mine ownership.

In summary, Cleveland can ill afford the competitive disadvantage already experienced by the limitations of the Cuyahoga. The penalty of further shoaling, stages four, three, two, or even one, are prohibitive in view of the nominal impact on the environment from diked spoil disposal,--or the minimal impact from open lake dumping.

Cleveland Harbor has been described as the cornerstone of the Cleveland economy.

In regard to environmental effects, the cessation of dredging would probably not stop some pollutants in the sediment from reaching the lake. The polluted material would probably enter the lake ecosystem in gradual amounts during periods of low flow and in surges during periods of high flow.

b. Open Lake Dumping of All Harbor Sediments. The materials dredged annually from Cleveland Harbor and Cuyahoga River are derived primarily from the erosion of upstream land areas and stream banks with various amounts of industrial and sanitary wastes. While open lake dumping of this material is the most economical disposal alternative, it is the position of the Corps of Engineers that any addition

of pollutants to the Great Lakes is ecologically detrimental and should be avoided if at all possible. Socially, open lake dumping eliminates the dredge spoil disposal problem from sight. Its possible adverse environmental effects may return to haunt the people, however. During part of 1974, open lake dumping of Cuyahoga River sediments may become necessary until diked disposal site 12 is constructed if the available depths for navigation in Cleveland Harbor are not to be significantly reduced.

c. Control of Upstream Erosion. Through improved agricultural practices, construction regulations, and land use management, upstream erosion may be controlled and inhibited. This practice would reap many environmental benefits since valuable topsoil would be retained on land and a source of sediment and nutrient loading of streams would be controlled. Economic benefits of retained topsoil and nutrient-fertilizers would be high but costs of implementation might also be high (figures for this concept are unavailable since it is not a formalized plan). The direct social benefit as related to this project would be the partial or total cessation of dredging thereby eliminating adverse aesthetic impacts associated with dredging and filling of diked disposal areas. These practices, while desirable, are idealistic at this time, and largely the jurisdiction of other Federal, State and local agencies.

d. Pollution Abatement Measures. Future pollution abatement measures along the entire Cuyahoga will reduce the addition of toxic

and nutritive constituents to sediments and eventually allow for open lake disposal of non-polluted sediments. This practice is expected to be costly, but social and environmental benefits, including safe water contact recreation and more pollution intolerant aquatic flora and fauna, derived from "clean, unpolluted" water are to be gained. This goal, while not currently reached, will hopefully be attained as municipalities and industries implement pollution abatement measures required by law.

e. Chemical Treatment of Sediments. Treatment of sediments by chemical means to allow for unpolluted open lake dumping of dredge spoil, while technically feasible and environmentally desirable, is economically unfeasible at this time. The Board of Consultants' report to the U. S. Army Corps of Engineers titled: Dredging and Water Quality Problems in the Great Lakes; Department of the Army, Buffalo District, Corps of Engineers, January 1969, states the following: "At Cleveland, Ohio, where open lake disposal costs \$0.78 per cubic yard, the least expensive treatment process would cost \$5.11 per yard." In addition, the Final Environmental Impact Statement, Diked Disposal Area Site No. 12, Cleveland Harbor, Cuyahoga County, Ohio," prepared by U. S. Army Engineer District, Buffalo and issued 2 January 1973 states: "...previous studies have shown that it (chemical treatment) would be more than twice as costly as other proposals considered to produce satisfactory results" (of dredge spoil disposal including diked facilities). The social benefits derived from this alternative would be the same as open lake

dumping in that the dredge spoil disposal problem would be eliminated from sight. In addition adverse environmental effects would not return to haunt the people.

Other suggested alternatives and our response to them is presented in the comment-response section.

NOTE: The following two alternatives were suggested in a 29 March 1974 coordinating meeting at Buffalo, NY between representatives of the U. S. Army Corps of Engineers, U. S. Environmental Protection Agency, Ohio Environmental Protection Agency, and Ohio Department of Natural Resources. These two alternatives are proposals at this time that could become finalized plans if site 12 is not completed by August 1974 (thereby necessitating an alternative plan for deposition of approximately 50,000 cubic yards of summer shoal dredging). Both of the alternatives are considered by USEPA and Ohio EPA to be preferable to open-lake dumping.

f. Dump Scow Bottom Dumping in Uncompleted Site 12 During Part of 1974. Dump scows would enter the disposal area through the uncompleted open section of the southern dike wall, bottom dump their load (total dumped volume to approximate 50,000 cubic yards) and exit the area as they had entered. This alternative to lake dumping is a concept whose adverse environmental impacts would accrue in direct relation to the length of uncompleted southern dike wall since dumped material could escape through the opening into the outer harbor (time

does not permit design and installation of a filter or removeable door at this opening). Since outer harbor material is already designated polluted by the Federal EPA, any volume of material to escape the dike would be comparatively less harmful to the surrounding area than lake dumping. This concept would be more socially desirable than purposely lake dumping polluted sediments but would be more costly (exact cost figures have not been computed at this time).

g. Transfer of Compacted Site 9 Material to Unfinished Site 12 and Subsequent Deposition of Newly Dredged Material in Inclosed Site 9 During Part of 1974. Another alternative to open lake dumping would be to transfer enough of the more compacted material in adjacent Site 9, to uncompleted site 12, to allow for deposition of approximately 50,000 cubic yards of freshly dredged material. This would minimize the volume of material to escape through the unfinished dike wall since the material would be more compact and solidified. Thus the environmental impact of the previous proposal would be mitigated. However, crane booms required to transfer the material from Site 9 to adjacent Site 12 might interfere with the flight patterns at Burke Lakefront Airport and possibly create a dangerous approach and takeoff hazard. Although not calculated, the costs would also be greater for this alternative than lake dumping. The social impacts of this proposal would be similar to those mentioned for the previous proposal.

6. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The project's annual local short-term use of man's environment will insure the continued operation of Cleveland Harbor. Consequently, a severe economic burden on local and some non-local industry and commerce will be avoided.

The long-term physical effect of spoil disposal in Lake Erie is creation of areas shallower than their surroundings, but still deep enough for any purpose but commercial navigation. The long-term ecological effect must be considered in the context of adding pollutants to Lake Erie at an unnatural rate. On this basis, any additional pollution, however slight, is considered undesirable.

7. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Continuance of open lake disposal practices may degrade Lake Erie's water and sediment quality and may change its biota and uses. It has not been determined whether these alterations will be irreversible.

The labor, material and fuel committed to the operations and maintenance activities of Cleveland Harbor will not be retrievable and may be considered to be significant commitments of resources.

8. COORDINATION WITH OTHERS

8.1 General. During the course of studies for this project, agencies having an interest in the operations and maintenance of Cleveland were contacted and where appropriate their views have been reflected in this final statement. While public meetings have been conducted for the diked disposal areas in Cleveland, and the meetings described in their corresponding Environmental Impact Statements, no public meetings or workshops have been held in relation to this operations and maintenance project.

On 29 March 1974 a coordinating meeting at Buffalo, NY, between representatives of the U. S. Army Corps of Engineers, U. S. Environmental Protection Agency, Ohio Environmental Protection Agency and Ohio Department of Natural Resources was held to facilitate finalizing the Draft Environmental Impact Statement. At this meeting, alternatives presented in Sections 5f and 5g were suggested.

Necessary aids to navigation during the actual dredging and maintenance operations will be provided and maintained by the United States Coast Guard.

The Draft Environmental Impact Statement was sent to the following agencies for comment:

Citizens for a Safe Environment
Citizens for Clean Air and Water
Citizens for Land and Water Use
Cleveland Audubon Society
Cleveland City Planning Commission

Cleveland-Cuyahoga County Port Authority
Cleveland Department of Public Utilities
Cleveland Metropolitan Park District
Cleveland Museum of Natural History
Cuyahoga County Department of Health
Great Lakes Basin Commission
Greater Cleveland Growth Association
Lake Erie Watershed Conservation Foundation
League of Ohio Sportsman
League of Women Voters-Lake Erie Basin Committee
Mayor, City of Cleveland
Northeast Ohio Areawide Coordinating Agency
Ohio Department of Health
Ohio Environmental Protection Agency
Ohio Historical Society
Regional Planning Commission
Sierra Club
The Ohio Environmental Council
Three Rivers Watershed District
Tri County Regional Planning Commission
U. S. Coast Guard
U. S. Department of Commerce
U. S. Department of Commerce (NOAA)
U. S. Department of Housing and Urban Development
U. S. Department of Health, Education and Welfare
U. S. Department of the Interior
U. S. Environmental Protection Agency

8.2 Comments and Responses on Draft EIS.

Citizens for Land and Water Use

COMMENT: We believe we have passed the peak of pollution in the Cuyahoga River. We believe the river is cleaner today. Therefore, the spoil is not as deleterious to Lake Erie as it has been in the past.

RESPONSE: The updated Draft and Final Environmental Impact Statements do not contain adequate comparative data over a sufficient length of time to support or refute this comment.

COMMENT: In the interest of providing a favorable situation for navigation, we believe the shipping channel should be maintained for optimum use. Even if this necessitates depositing the spoil in the open lake dumping grounds until new dike sites are available.

RESPONSE: We concur.

COMMENT: This is not an endorsement for open dumping of dredge material.

RESPONSE: No response required.

COMMENT: We need stronger demands, insisting that municipal waste water treatment plants do a better job consistently. We do not approve of discharging municipal waste effluent farther out into Lake Erie.

RESPONSE: No response required.

Cleveland City Planning Commission

COMMENT: We commend you for producing one of the most complete Environmental Impact Statements it has been our task to review.

RESPONSE: No response required.

COMMENT: Under Chapter 5 "Alternatives to the Proposed Action," sub-item a. "Discontinuance of Dredging," it would be much more meaningful and impressive if figures could be provided to quantify the extent of the economic burden on Cleveland industry and commerce in the event of discontinuance of harbor dredging. It is our understanding that the Cleveland industry and commerce in the event of discontinuance of harbor dredging. It is our understanding that the Cleveland-Cuyahoga County Port Authority can supply data of this nature.

RESPONSE: Cleveland-Cuyahoga County Port Authority has supplied the necessary data and it has been incorporated into the statement where suggested.

COMMENT: We would like to see Chapter 3.2 "Adverse Impacts," item j discussed at greater length in view of recent questions raised by the City Utilities Director as to Munny Light Plant cold water intake disturbance created by Dike 12.

RESPONSE: Preliminary findings of a contracted environmental study indicate possible adverse impacts to the Munny Light Plant cold water intake caused by the location of diked disposal site 12 have arisen. The Corps of Engineers is currently designing remedial measures to alleviate these adverse effects. Follow-on construction by the Buffalo District has been authorized.

The Cleveland-Cliffs Iron Company

COMMENT: The Cleveland-Cliffs Iron Company supports your position of open lake dumping of river spoil as soon as existing space in pilot site No. 9 is filled, and until dike site No. 12 is completed and available for dredge spoil as indicated in your updated draft Environmental Statement - Cleveland Harbor Operations and Maintenance of January 1974.

RESPONSE: We concur. In addition, site No. 13 will be filled to capacity with dredged spoil before the use of Site No. 12 or open lake dumping is necessitated.

COMMENT: The Cleveland-Cliffs Iron Company manages a fleet of 14 Great Lakes bulk carriers with a trip capacity of 230,925 tons. Eight of these vessels are termed Cuyahoga River vessels. The river ship dimensions vary from 600 to 620 feet in length with beams from 60 feet to 64 feet and have a carrying capacity from 12,350 to 16,400 when fully loaded. Maximum drafts vary from 22 feet to 25 feet 1-1/2 inches. The Cleveland-Cliffs Iron Company is obligated to transport all of the Great Lakes iron ore requirements for Republic Steel, which includes 1974 delivery to 4,700,000 tons to the Republic Cuyahoga plants. This tonnage is more than the eight vessels may carry during a normal season operation, and it is, therefore, necessary to employ the services of other river-size vessels to complement the Cliffs fleet. The limited number of Great Lakes river-size vessels makes it most imperative that the vessels transiting the Cuyahoga River operate at maximum drafts and efficiencies.

RESPONSE: No response required.

COMMENT: Cleveland-Cliffs not only favors open lake dredge spoil dumping so as to meet your suggested draft of 19 feet for 1974, but encourages consideration to dredge the River to the project depth of 23 feet LWD to make possible full utilization of the Cuyahoga River as intended by the Corps of Engineers and Congress when the 23-foot draft project was approved.

RESPONSE: A depth of 21 feet is proposed for the Phase I dredging operation which will fill the old disposal areas. The Phase II contract dredging operation, using the new disposal area if completed, is intended to provide a 23-foot depth, later in 1974. If the new disposal area is not completed, for the Phase II dredging, only the shoals deposited in the summer will be removed and the material, not to exceed 50,000 c.y. will be placed in the lake. The relation between depth and draft varies with lake level and vessel characteristics. Depth of navigable channel, rather than draft, is the basis for Corps dredging operations.

COMMENT: Cleveland-Cliff's reasons for urging restoration of the Cuyahoga River to its full authorized project and the completion of projects authorized but not underway are as follows:

The immediate impact of failure to keep the Cuyahoga River open to full authorized effectiveness creates an adverse effect on the economic position of the vessel companies delivering raw materials to the steel industry. 1974 vessel rates are not expected to reflect the loss brought about by less than full project operations. The competitiveness of the vessel fleets transiting cargo to upriver locations is a keen consideration because a river vessel does not have the economic potential of the large lakefront vessel. Economics are most important when considering new ships, future planning, and future rate setting for the steel industry.

Economic considerations have immediate impact on jobs for the City of Cleveland and wherever steel is made, sold and consumed as a result of the Cuyahoga River industrial structure. For example, 1,000,000 tons of the Republic upriver dock delivery is transshipped to the Warren and Youngstown district plants. The Cuyahoga River consequently has an affect on the final steel cost produced at Warren and Youngstown. Steel from Cuyahoga delivered raw materials is used nationwide and affects many jobs.

RESPONSE: No response required.

Immediate Impact

COMMENT: Reduced Vessel Drafts - Economics. About 376 trips of river-size steamers will be required to deliver 1974 commitments to Republic upriver docks. Any reduction in allowed freeboard draft will affect each ship transit about 80 tons per inch. Consequently, one inch of reduced draft for 376 trips is equal to 30,080 tons or two vessel loads a year at a cost of \$70,000.

Other tonnages delivered to Republic include 850,000 tons of stone and 200,000 tons of Canadian ore. J&L also receives 2,500,000 tons, U. S. Steel receives approximately 1,500,000 tons, and Cleveland Builders about 500,000 tons in ships which are equally affected by vessel drafts.

RESPONSE: No response required.

COMMENT: River Transit Time - Lack of full river draft creates a longer steamer transit time, which is an extra operating expenditure of approximately \$225 each delay hour. A favorable Cuyahoga River passage from harbor entrance to the upriver docks is approximately

three hours and 15 minutes. Some passages require as long as five or six hours because of slow going when full project depths are not available. Vessels experience steering difficulty when moving through channel silt, and also, at the turns when the bow and stern leave the exact center of the channel and encounter shallow drafts at edge of the government project. The Cuyahoga River is perhaps the world's most difficult channel to navigate with a 600-foot vessel. The transiting of the turns is a difficult maneuver. Full authorized project depth would help the passage.

RESPONSE: No response required.

COMMENT: Energy - The increased time required to navigate the river because of insufficient water volume is also an increase in fuel energy required to operate the main engine. This energy consideration comes from:

1. the extra revolutions required to drive the ship through the mud, and
2. the extra time required to transit the river. The energy demand between an optimum passage and one hindered by lack of draft is about 500 to 1,000 extra gallons of fuel valued at \$130 to \$260 per passage.

RESPONSE: No response required.

COMMENT: Ship Handling - Great Lakes vessel masters are experts at handling ships with small water tolerance between vessel and the bottom and river banks and docks. However, the Cuyahoga River is an exasperating experience for the most professional of vessel masters.

The economics of Great Lakes shipping require that the largest possible vessel be used. The Cuyahoga River vessel limitation is generally accepted as being a 630-foot vessel with a 68-foot beam, with a draft limitation which will permit the vessel to move through the river bottom sludge without stopping. Vessels start the season at a limitation of about 20 feet and gradually increase the draft to a maximum limitation of 23 feet if channel depths permit. Bernoulli's Theorem application greatly affects the vessel control when moving through the sludge and when making turns, meeting vessels, or passing a vessel at a dock.

Consequently, masters occasionally lose vessel control and vessel accidents occur. Accidents also increase operating costs. The pushing of a vessel through the mud is a known source of wear on the bottom plates as dry docking inspections demonstrate.

RESPONSE: No response required.

Full Authorized Draft

COMMENT: The intricacies of ship handling and consequent delays caused by lack of a full authorized draft is a reason for recommending that the river be dredged to the full 23-foot authorized channel and not only the suggested 19-foot LWD. The expected 1974 plus 4-foot Lake Erie gauge and the full 23-foot channel authorized depth will permit faster and safer transits, and allow increased draft for the two Cliffs' Maritime Class ships, S/S CADILLAC and S/S CHAMPLAIN. These two ships normally lighter by 3,500 tons of cargo at the Erie Ore Dock and then make river transit at 20-foot draft. Other deep draft vessels transiting to other upriver docks are known to offload 5,000 tons before arrival in Cleveland in order to make the transit up the river at maximum river drafts.

RESPONSE: No response required.

Safety

COMMENT: The need for an adequate flow of water to vessel intakes for main engine operations is often overlooked by vessel observers. The Cliffs Fleet has experienced numerous engine problems at shallow river locations because silt and mud plug the condenser intakes needed to operate the main engine. Even though astute operation procedures are followed, ships have been known to lose not only the main engine, but the complete power plant and the vessel becomes dead in the water because intakes plug with silt.

RESPONSE: No response required.

Competitive Position

COMMENT: Vessel Dimension - The competitive position of the vessel companies transiting ore to upriver docks is a most serious economic matter. The average cargo on the Cuyahoga River is approximately 12,500 tons as compared with 25,000 to 58,000-ton cargoes unloaded at lakefront docks such as Burns Harbor.

A 25,000-ton vessel unloading at a lakefront dock delivers cargo at 45 percent of the cost of a ship transiting the Cuyahoga River under best conditions.

RESPONSE: No response required.

COMMENT: The U. S. Army Engineer studies for the Cleveland Harbor and Cuyahoga River should be expedited to assist competitive delivery of raw materials to steel mills located at upriver locations. The physical dimension of a steel plant and the divisions needed for a

coordinated operation do not lend themselves to transfer to a more suitable lakefront location either environmentally or economically. It is, therefore, most urgent that the Cuyahoga River be maintained in the best possible authorized manner and that improvements be contemplated.

RESPONSE: No response required.

COMMENT: Immediate and Future Impact - Cleveland Jobs - The immediate impact of the complete closing of the Cuyahoga River would have a traumatic effect upon employment in the Cleveland steel mills, the Cleveland industries depending upon steel, and steel supporting industries. An estimated 100,000 Cleveland jobs are attributed to the steel industry.

There is no other economical means to transport raw material to the Cleveland plants. Even if cargoes were unloaded at the Cleveland lakefront, the nearest location, and shipped by rail to the upriver steel plants, a prohibitive extra railroad cost of \$3.73 per ton would be added to delivery of raw material. Railroad delivery charges from the Missabi Range to Cleveland of \$14.17 per ton is prohibitive.

In addition, steel mill, manufacturing, and allied support jobs would be affected in the Warren district which receives 1,000,000 tons of iron ore transported by the River Terminal Railroad from the Republic unloading dock.

Each ton of steel requires 11 man-hours of production which is multiplied many times when used to produce manufactured products throughout the nation.

We are preparing an appendix to your letter on the subject of handling of dredged material and open lake dumping which will be forwarded to you early next week.

RESPONSE: No response required. (Above mentioned appendix is attached in this report with letters of comment - Appendix D).

Port of Cleveland
Cleveland-Cuyahoga County Port Authority

COMMENT: The Cleveland-Cuyahoga County Port Authority is an economic development agency concerned with maximizing the utilization of the Cleveland waterfront. Our expertise is in the area of economics, trade and commerce, and not in biological analysis. However, we have had the opportunity to review other environmental impact statements and we have reviewed this one thoroughly. With that caveat, we believe the Maintenance Dredging Impact Statement accurately conveys the environmental and economic situation at Cleveland Harbor with and without maintenance dredging. We believe, however, additional emphasis could be given to the adverse economic consequences of the latter alternative, and will expand upon this later.

RESPONSE: No response required.

COMMENT: With respect to one minor technical detail, we would suggest restatement of the last paragraph on page 47 to clarify that there is one sewage treatment plant located at the western extremity of the Harbor, (the "Westerly Wastewater" plant) plus the "Southerly" plant, correctly located upstream on the Cuyahoga.

RESPONSE: Restatement of this detail has been incorporated into the Final Environmental Impact Statement as suggested.

COMMENT: Also, the Westerly plant outfall extends outside the Harbor and breakwaters, and only the Southerly plant effluent affects Harbor water quality.

RESPONSE: The updated Draft Environmental Impact Statement is in concurrence with this comment.

COMMENT: With respect to alternatives to maintenance dredging as discussed on page 55, I would like to amplify and partially quantify the statement that discontinuance of dredging would, "place a severe economic burden on local and some non-local industry and commerce."

A study published by the Port Authority in 1971 indicated a total of approximately 100,000 jobs in the Cleveland area to be directly or indirectly related to the Harbor. An excerpt from this study is as follows:

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<u>TYPE EMPLOYMENT</u>	<u>TOTAL</u>	<u>PORT RELATED</u>
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EST. PAYROLLS	\$6.3 BILLION	\$1 BILLION

As indicated, the biggest specific category of employment is in primary metals, reflecting the fact that Cleveland has four steel mills located on the Cuyahoga and dependent upon vessel deliveries for their source of iron ore. These mills in turn are responsible in large measure for the concentration of metals fabrication, machinery and transportation equipment manufacturing in the area. While facilities for overseas cargo and some in-transit iron ore are located on the lakefront where dredging is less critical, the mills are on the Cuyahoga where dredging is approaching crisis.

In an attempt to quantify the impact of discontinuance of dredging, we have determined that there is no acceptable alternative to delivery of raw materials to the mills via vessels. The Cleveland Steel District is located at the western extremity of the area using Eastern Canada ores,--and is at the eastern extremity of the area using upper lakes ores. In short, it would be the high-cost producer if forced to rail, if in fact the railroads could cope with a sudden increment of 17 million plus tons.

It appears that continued shoaling of the Cuyahoga would produce the following series of events:

First, progressive reduction in the revenue producing cargos carried in the vessels going upriver, resulting in losses to the vessel operators subsequently reflected in contract carriage rates,--or possibly contract cancellations based on "force majeure."

Second, when the vessels could not reach the mills for economic or physical reasons, unloading at the lakefront with transfer to the mills via truck or rail at steep increases in unit costs.

Third, if lake front unloading were impractical for economic or physical

reasons, the vessels would be unloaded at nearby ports such as Lorain or Ashtabula, with additional overland transfer cost and energy consumption.

Fourth, if the alternate ports were not dredged either and/or the Cleveland mills were no longer cost competitive, the local mills would begin shutting down and satellite industry would face higher costs for steel from alternate sources.

In regard to the first stage of added cost, it is estimated that the vessels presently serving the Cuyahoga carry about 80 to 100 tons per inch of draft. The published Duluth/Cleveland rate on iron ore is currently \$2.45 per G/T with contract rates somewhat lower. In effect, the typical vessel loses about \$245 per trip for each inch of draft lost to shoaling. Restating the above, based on vessel operating costs being about the same light or loaded, the additional cost per inch pro-rated against the cargo that is hauled upriver progresses from 1.5¢ per ton at 16,000 tons capacity to 2.5¢ per ton at 10,000 tons capacity.

Representative Vessels Calling the Cuyahoga

<u>Vessel</u>	<u>Max Draft</u>	<u>Max Long Ton Capacity</u>
Roesch	25'0"	19,225
Frontenac	22'3"	13,300
Pontiac	22'2"	13,350
Cadillac	25'1-1/2"	16,600

In 1973, shoaling reduced safe drafts in the Cuyahoga to about 21' and the above vessels had to load light or unload at the lakefront from 1,200 to 4,800 tons each trip. Using an average 2 ft. of draft lost to shoaling and an average additional cost of 2¢ per ton, the + 10 million tons of ore moved upriver in 1973 cost somebody about 4.8 million extra. If the draft limit in 1974 is 19', the penalty will approach \$9.6 million or about \$1.00 per ton of ore.

In regard to the second stage, published unloading rates at lakefront facilities are 69¢ per ton from vessel to cars direct, \$1.57 via stockpile. Since the local mills are not geared to rail receipts, neither they nor the railroads could cope with unit trainloads and the usual transfer would be via stockpile. The cost saved by not unloading vessels at the mill would largely be offset by rail car unloading. Accordingly, \$1.25 would be a conservative average additional handling cost. That plus the \$2.02 per ton rail switch gives \$3.27 per ton extra cost. Hence, in a 10 million ton year like 1973, stage two would cost Cleveland \$32,700,000.

Extrapolating from the published lakefront to inland point rates, the rail haul to Cleveland from Lorain or Ashtabula would be about \$3.00 vs. \$2.02. Hence stage three would cost Cleveland about \$42 million a year,--probably a combination of lost wages and industry profits.

Finally, as a matter of information, the all-rail rates to Cleveland from customary ore sources are: Marquette and Menominee ranges--\$10.55 per ton, Mesabi range--\$13.31 per ton. Rates on ores imported via Baltimore and Philadelphia are \$6.01 per ton, but that is no solution because of mine ownership.

In summary, Cleveland can ill afford the competitive disadvantage already experienced by the limitations of the Cuyahoga. The penalty of further shoaling, stages four, three, two, or even one, are prohibitive in view of the nominal impact on the environment from diked spoil disposal,--or the minimal impact from open lake dumping.

RESPONSE: The comment has been incorporated into the Final Environmental Impact Statement as suggested.

COMMENT: Cleveland Harbor has been described as the cornerstone of the Cleveland economy. Accordingly, we respectfully submit that there is no justifiable alternative to maintenance dredging, and until dike space is available we approve and recommend open lake dumping.

RESPONSE: We concur.

Cleveland Metropolitan Park District

COMMENT: As you know, we operate a public swimming beach at Huntington Reservation in Bay Village, OH, and we have been continually aware of the pollution of the Lake.

RESPONSE: No response required.

COMMENT: We note that over recent years this pollution is declining slightly.

RESPONSE: The Environmental Impact Statement does not contain adequate comparative data over a sufficient length of time to support or refute this comment.

COMMENT: We feel that the dumping of any pollutants into the open lake from the Cuyahoga River, or any other river, would materially degrade the waters of Lake Erie and to some extent, add more pollutants to our public bathing area.

RESPONSE: We are in concurrence that the dumping of dredged material addressed in the Environmental Impact Statement would materially degrade the waters of Lake Erie since it has been designated "polluted" by the U. S. Environmental Protection Agency. We do not have the necessary data to support or refute the comment that, "...the dumping of any pollutants into the open lake from... any other river would materially degrade the waters of Lake Erie." We also cannot support or refute the comment that open lake dumping of Cuyahoga River pollutants would add more pollutants to your public bathing area.

COMMENT: We further note from your report that you believe in foreseeable future dredgings from the Cuyahoga River will be free of pollutants and can be dumped into the lake. We would sincerely like to see this hope become a reality.

RESPONSE: Current plans call for containment of dredged spoil in diked disposal facilities for the next 9-1/2 to 10-1/2 years after which reversion back to open lake dumping of "unpolluted" sediments is scheduled to occur.

Jones & Laughlin Steel Corporation

COMMENT: Your Environmental Statement as it concerns the dredging of the Cuyahoga River has been reviewed by Jones & Laughlin Steel Corporation. This present unfortunate and pressing situation demands immediate action. If dredging in this River is eliminated or reduced, it will have a very significant and direct economic impact on our Cleveland Works steelmaking operations.

RESPONSE: No response required.

COMMENT: All of the iron ore used in our steelmaking operations is received at our Cleveland Works ore dock which is located approximately five miles from the River mouth. Using your Statement listing the total water borne commerce in 1973 as 23,865,810 tons (Table 7), tonnage to Jones & Laughlin accounts for approximately 8.5% of river traffic. In 1973 approximately 200 vessels carried more than 2 million tons of iron ore; 321,000 gross tons of stone; 30,000 gross tons of scrap; and 18,596,000 gallons of oil to be unloaded at this location.

RESPONSE: No response required.

COMMENT: The nine-month lake shipping season must be utilized to transport sufficient iron ore from our Minnesota and Michigan mines to supply this plant with iron ore for the entire 12-month period. A timely arrival of iron ore is absolutely dependent on the navigational conditions of the Cuyahoga River. We have no other reasonable alternative to transport and unload this amount of material. As you are aware, annual maintenance dredging is required to maintain sufficient ship draft.

RESPONSE: No response required.

COMMENT: J&L presently employs more than 6,000 people at our Cleveland Works. Annual steel shipments from this plant to our customers exceed 1,390,000 tons. This plant is the prime steel supplier for our Hennepin Works in Illinois. Moreover, it is the prime source of steel for our Cleveland Steel Service Center and our Toledo and Cleveland Container Plants. In addition, numerous customers are dependent on Cleveland Works to maintain their operations.

RESPONSE: No response required.

COMMENT: In this era of a short steel supply, it is unlikely that additional steel sources would be available to replace steel that we would be unable to produce at Cleveland if we could not obtain the necessary iron ore.

RESPONSE: No response required.

COMMENT: In addition to increased unemployment roles and reduced tax revenues, the impact could create a major decline in the Ohio economy which would be felt throughout the Nation.

RESPONSE: No response required.

COMMENT: Jones & Laughlin is but one of the many industries located along, and dependent on, the Cuyahoga River for shipping.

RESPONSE: No response required.

COMMENT: We realize that open lake dumping of some river dredged spoils during 1974 could result in some deterioration of the lake water quality for a short period of time. This should be recognized as a short range environmental setback compared to the major economic impact that would be created if dredging were eliminated or reduced.

RESPONSE: The temporal aspects of lake water deterioration resulting from open lake dumping have not been unequivocally determined.

COMMENT: We concur with your opinion that the most viable alternative is to dredge the River and dump material in Lake Erie as required until the new dike disposal site is completed. Urgent implementation of this dredging program, in our opinion, is an absolute necessity.

RESPONSE: No response required.

The Kinsman Marine Transit Company
Great Lakes Transportation

COMMENT: If the navigable portion of the Cuyahoga River is not dredged to the project depth for the 1974 navigation season, it will be almost impossible for Republic, Jones & Laughlin and U. S. Steel to receive the raw materials necessary to keep their plants operating in the coming year. It is necessary that a navigable channel be maintained to the proper depth not only this year but, in coming years.

RESPONSE: No response required.

COMMENT: The steel industry of this country has been operating at record production capacity for the last year and indications are that they will continue to do so for the remainder of this year and probably for several years in the future.

RESPONSE: No response required.

COMMENT: It is important to, not only the Cleveland area, but to the country at large that the productive capacity of these plants not be interrupted. We do not feel that the necessary raw materials can be supplied by any other method than by lake vessels that have been delivering these tonnages.

RESPONSE: No response required.

COMMENT: If necessary, until the new dike disposal area dispute has been resolved, it would seem that the momentary adverse effect of temporary and immediate open-lake dumping of dredge spoils would be outweighed by the beneficial effect to Cleveland and our country of continuing production at these plants.

RESPONSE: The temporal aspects of lake water deterioration resulting from open-lake dumping have not been unequivocally determined.

COMMENT: We do not recommend open-lake dredging except in dire emergency such as faces us at this time.

RESPONSE: We concur.

Lake Carriers Association

COMMENT: The Lake Carriers' Association consists of some 15 separate managements owning and/or operating a total of 168 vessels documented under the laws of the United States and engaged in trade and commerce on the Great Lakes, principally in the movement of basic bulk commodities such as iron ore, coal, grain, limestone, sand, cement and petroleum products. One of the principal ports served by vessels of Lake Carriers' Association members is Cleveland, OH, with about 10.3 million transported to docks on the Cuyahoga River.

RESPONSE: No response required.

COMMENT: The continuance of annual dredging to project depths is essential for safe navigation of commercial vessels transporting essential raw materials for basic industries into the Port of Cleveland, OH. If maintenance dredging were discontinued, the economic impact on Great Lakes vessel operations would be substantial. Cargo movement arrangements are generally made by multiple year contracts based on vessel transport capability at project depths. The failure to dredge would result in one of the following:

1. Dwindling revenues and financial hardships due to decreased available draft at receiving dock.
2. Discharging part of cargo at a facility where sufficient water is available and then proceeding to regular receiving dock with resulting adverse financial impact from time lost in unloading at two docks.
3. Possible cancellation of contract based on "force majeure."

RESPONSE: No response required.

COMMENT: Any unfavorable economic effect on the Great Lakes vessel industry would be reflected throughout Greater Cleveland and, in fact, northeast Ohio with its ripple effect on basic and satellite industries.

RESPONSE: No response required.

COMMENT: Lake shipping is a frugal user of energy that efficiently transports raw materials. Any lessening of the use of this mode of transportation due to lack of dredging would not be in the best interest of the National economy.

RESPONSE: No response required.

COMMENT: The Rivers and Harbors Act of 1970, Public Law 91-611, subsection (1), provides authorization for the Corps of Engineers to

undertake a comprehensive nationwide study and experimentation relating to dredge spoil including alternative methods for its disposal. If diked disposal site No. 12 is not constructed when pilot sites 9 and 13 have been filled to capacity, then in the interim dredge spoils should be deposited in the open lake. This will afford an opportunity for a comprehensive study to be made with appropriate testing, assessment, and evaluation of open-lake dumping.

RESPONSE: The decision on whether to conduct a comprehensive study of open-lake dumping effects (should it become necessary) will be made at a later date.

COMMENT: Even though dredge spoil from Cleveland Harbor has been disposed of in the open lake for many years, there is no body of scientific data concerning this matter.

RESPONSE: While some data do exist on the effects of open-lake dumping of dredged spoil, results are inconclusive.

COMMENT: It is recommended by Lake Carriers' Association that part of the funds for Fiscal Year 1975 for the Dredged Material Research Program be utilized for a field study on dredge spoil from Cleveland Harbor deposited in Lake Erie.

RESPONSE: The decision on this recommendation has not been made.

The Lake Erie Watershed Conservation Foundation

COMMENT: Your Updated Draft Environmental Impact Statement, Cleveland Harbor, Maintenance, Cuyahoga County, OH, has been reviewed, although because of the press of other matters, not in the depth to which we would like.

RESPONSE: No response required.

COMMENT: There are a number of matters on which we might like more evidence, especially in reference to statements on pages 48-53 referring to beneficial or adverse impacts.

RESPONSE: your comment is not specific enough for us to provide additional impact supportive data.

COMMENT: ...but it seems to us these may not have as much bearing under present circumstances as the principal 1974 issue: dump in the Lake or stop dredging. On this issue we see no choice.

RESPONSE: Alternatives are addressed in Chapter 5.

COMMENT: We need the navigation channel at depth to support economic shipping, which supports the steel mills and others.

RESPONSE: We concur.

COMMENT: ...and permits them enough income to continue their expenditures to control the wastes they generate. Break this chain and we lose the gains already made in cleaning up the river and protecting the lake.

RESPONSE: We lack the industrial economic data to support or refute this comment. In addition, concentrations of many parameters in industrial waste effluents are now regulated by law, regardless of costs incurred by implementation of regulatory processes and facilities.

COMMENT: Less directly, but importantly in respect to sediment quality, the city needs to keep its industry running so that the Sewer District will have the funds to continue its overall program of waste control.

RESPONSE: The Draft and Final Environmental Impact Statements lack sufficient evidence to support or refute this comment.

COMMENT: The lack of diked space for "contained" disposal of dredging is unfortunate, but the presumptive undesirability of direct lake disposal is insufficient cause to inhibit the means to further progress in pollution control.

RESPONSE: The Updated Draft and Final Environmental Impact Statements lack sufficient evidence to support or refute the direct relationship between open-lake dumping and industrial pollution control progress along the Cuyahoga River.

State of Ohio Environmental Protection Agency

COMMENT: The Ohio Environmental Protection Agency has been charged, by the Governor, with lead agency and review coordination responsibilities for the State of Ohio on Federal Environmental Impact Statements. The above referenced Updated Draft Environmental Impact Statement has been reviewed by sections of this agency, the Ohio Department of Natural Resources, the Ohio Department of Economic and Community Development, the Ohio Department of Health, Ohio Historical Society and the Conservation Foundation. The following comments constitute those received from the above agencies and have been coordinated under the auspices of the State Clearinghouse.

RESPONSE: No response required.

COMMENT: The Updated Draft Environmental Impact Statement is adequate in that it recognizes the more significant environmental impacts associated with the dredging and disposal of spoil material in Cleveland Harbor. It raises one serious issue, however. That issue centers around the likelihood that site 12 will not be completed prior to commencement of dredging activities and your suggestion that the polluted harbor spoil be disposed of by open-lake dumping. Such an action would be contrary to Section 123 of PL 91-611, to United States Environmental Protection Agency policy on disposal of polluted sediments, and to our efforts in the area of water pollution abatement in Lake Erie.

RESPONSE: No response required.

COMMENT: At the December, 1973 meeting of the Dredging Work Group of the International Joint Commission, preliminary results of sediment sampling in harbor areas of the Great Lakes were presented by Dr. J. Posner of the University of Michigan. The most clearly evident aspect of the data presented was that heavy metal concentration levels from Cleveland Harbor were extremely high in comparison to other sampled areas. Table 9 documents that analysis of sediments in the lower Cuyahoga River and the Cleveland Harbor area indicates high concentrations of volatile solids, chemical oxygen demand, nitrates, phosphates, and grease and oil. A proposal to open-lake dump dredged spoil with such constituents appears ill advised.

RESPONSE: No response required.

COMMENT: Recognizing the necessity to protect the integrity of shipping activities in the Port of Cleveland as well as our responsibilities for water quality and National and International commitments, we offer the following for your consideration:

1. Soundings in the Cuyahoga River, in addition to the proposed

soundings in the outer harbor, should be made in order to determine the exact amount of dredged spoil which will be involved in this year's dredging activities.

RESPONSE: Cuyahoga River soundings have been conducted this year and it is estimated that 480,000 cubic yards will be dredged from the river in 1974.

COMMENT: 2. The alternatives of temporary land disposal of the polluted sediments should be assessed. As a temporary measure, the possibility of piling spoil (if necessary temporarily diking using riprap) on unused land in the harbor area appears to exist and should be explored.

RESPONSE: During site 12 selection, several other sites were rejected for adverse environmental economic and/or social effects as addressed in the previously cited site 12, Environmental Impact Statement. Their lack of availability and/or required preparation measures eliminate these sites from consideration as temporary disposal areas in 1974.

COMMENT: 3. The possibility of adding height to the sides of the two existing disposal sites, thereby increasing their storage capacity, should be analyzed.

RESPONSE: This suggestion has been eliminated because of the close proximity of the areas to the Burke Lakefront Airport, the difficulty of construction and the questionable structural stability of an add-on section.

COMMENT: 4. The possibility of closing off portions of the site 12 structure and depositing in that area until the entire disposal area is available merits consideration.

RESPONSE: The plan has been, and remains, to deposit spoil in the area before final completion. The plan provides for deposit of spoil as soon as the containing dikes have been constructed high enough to prevent overflow from the area into the surrounding harbor. At the present degree of completion, a change in the plan to seal off part of the area could not be completed, to a point where spoil deposition could start, sooner than the present plan.

COMMENT: 5. Consideration should also be given to placing the most contaminated spoil in sites 9 and 13 so that the least contaminated spoil, might, as a last resort upon exhausting every other alternative, be considered for open lake disposal.

RESPONSE: Table 9 shows that, for most parameters, the most polluted sediments were found at Mile 4.9 and Mile 5.7. Nearly all the Phase I

dredging will be done between Mile 4.6 and Mile 5.7, because the remainder of the channel downstream is already close to project depth. During Phase I dredging, material above the 21-foot depth will be removed and placed in the Sites 9 and 13. The next stage will remove remaining material above the 23-foot depth in the same part of the river, dumping it in Site 12. Open-lake dumping of approximately 50,000 c.y. will be considered only to accomodate summer shoaling until site 12 is completed. Since there is no information to show whether pollution varies with depth, it must be assumed that all material to be removed in maintenance dredging is relatively highly polluted. Considering the lack of information on pollutant content, as related to location and depth, and the method of dredging, which tends to make long narrow cuts and mix materials therefrom, it will not be possible to guarantee that only the least polluted materials are dredged for open-lake dumping.

COMMENT: In addition to these suggestions, it should be noted in the Final Statement that Lake Erie is still approximately 1.5 feet above normal level. The effect this higher lake level may have, if any, on the amount of maintenance dredging necessary should be discussed.

RESPONSE: This detail was incorporated into 1974 plans discussed in the Draft Environmental Impact Statement.

COMMENT: More detail should be given to the effect on open lake dumping on overall efforts and progress made in improving the water quality of Lake Erie.

RESPONSE: Data available to assess the consequences of open-lake dumping on lake water quality cannot be stated unequivocally as indicated in the report from the Board of Consultants to the U. S. Army Corps of Engineers and found in: "Dredging and Water Quality Problems in the Great Lakes, Department of the Army, Buffalo District, Corps of Engineers, January 1969." Open-lake dumping is considered undesirable, however, and possible adverse effects have been described in the Updated Draft Environmental Impact Statement. This Environmental Impact Statement is not written with the intent of specifying the overall efforts and progress made in improving the quality of Lake Erie.

COMMENT: Although open-lake dumping is proposed, no attempt to quantify the amount of disposal in this manner is evident.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: No detail is given as to the area in which open-lake dumping would take place, or on the long-range effect of open-lake dumping.

RESPONSE: On page 7, the Draft Environmental Impact Statement states that, "... open -lake dumping of river spoil will probably occur at the area presently used for placing outer harbor sediments." This area is described on page 1 and delineated on Plate 3, page 4, of the same statement. The long-range effect has been answered in response to your previous comment.

COMMENT: Can assurance be given that the selected area would not adversely affect the water intake structures in the short and long run?

RESPONSE: Open-lake dumping in the selected area will not adversely affect the water intake structures during periods of normal littoral currents (toward northeast), should conditions (storms), temporarily reverse the littoral currents, consideration would be given to temporarily suspending open-lake dumping if a problem to the water intakes was anticipated.

COMMENT: It is stated on page 51 of the Draft Statement that power plant intakes "...may be adversely affected by siltation and suspended solids caused by maintenance operations." What remedial actions will be taken by the Corps if this is found to be the case?

RESPONSE: Preliminary findings of a contracted environmental study indicate possible adverse impact to the Muny Light Plant cold water intake caused by the construction of diked disposal site 12. The Buffalo District is currently designing remedial measures and has been authorized to proceed with construction of same.

COMMENT: The following soils data could be included in the Final Statement in Section 2.1.1 "Geology and Topography" in order to better describe and identify the soils which developed from glacial till and sediments:

The soils occurring along the shore, immediately adjacent to the spoil disposal sites and the harbor are primarily the Painesville soil association. Painesville sandy loam soils are somewhat poorly drained and most commonly occur adjacent to beach ridges of former glacial lakes. These soils formed in 18 to 32 inches of loamy sediments overlying silt loam glacial till. Other soils which occur to a minor extent in the association are Red Hook, Tyner, Otisville, Conotton, and Conneaut.

The Ellsworth-Mahoning soil association are the soils most commonly occurring in the glacial till plain located adjacent to the Cuyahoga River Valley. The Ellsworth-Mahoning soils formed in limy, silty, clay loam or silty clay glacial till on nearly level to very steep topography. The moderately, well drained Ellsworth soils are on

gently sloping to very steep topography. Mahoning soils are somewhat poorly drained and occupy nearly level and gently sloping positions.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: It should be noted that upon completion of a diked disposal area which would have a point source discharge, the site would fall under the requirements of the National Pollutant Discharge Elimination System.

RESPONSE: This comment should have been directed to a previous Environmental Impact Statement pertaining to site 12 (cited in Chapter 1) since the matter is not within the scope of this Environmental Impact Statement.

COMMENT: In summary, our major concern is with the proposed open-lake disposal of contaminated sediment material. It is recommended that the Corps of Engineers exhaust all feasible alternative actions before further consideration of this measure.

RESPONSE: We concur.

COMMENT: Open-lake disposal will be considered only after such action is completed and the results analyzed by the Ohio Environmental Protection Agency and the United States Environmental Protection Agency.

RESPONSE: No response required.

Regional Planning Commission

COMMENT: The Executive Committee of the Regional Planning Commission reviewed the Corps of Engineers Environmental Impact Statement (EIS) at its 26 February 1974 meeting. As determined by the criteria and guidelines of the Ohio Environmental Protection Agency, the Corps of Engineers indicates four alternative actions. Three alternatives are unacceptable and this leaves only open lake dumping which has been opposed by this agency in the past.

RESPONSE: No response required.

COMMENT: However, the Executive Committee approved a temporary two month plan of open lake dumping into Lake Erie on a limited basis until the completion of site #12 is constructed.

RESPONSE: No response required.

COMMENT: After a two month plan is implemented, the Corps of Engineers will then resubmit the Environmental Impact Statement for full approval of the Executive Committee.

RESPONSE: The Final Environmental Impact Statement was scheduled to be submitted approximately two months after submittal of the Updated Draft EIS. However, numerous comments were received after the 45-day review deadline and these have appreciably detained submittal of the Final EIS.

COMMENT: The Regional Planning Commission urges the completion of site #12 at its earliest convenience.

RESPONSE: No response required.

Republic Steel Corporation

COMMENT: Republic Steel Corporation, hereinafter referred to as Republic, maintains at its Cleveland operations the largest of its fully-integrated basic steel producing facilities. Approximately 25 percent of Republic's total steel output is produced in its Cleveland plants.

In 1973, Republic's Cleveland District steel plants provided employment for some 6,900 people with annual wages, salaries and related employment costs of approximately \$117.9 million.

Since 1950 Republic has spent upwards of \$688.6 million for new plants and for improvements to existing plants in its Cleveland District. For example, the year 1971 saw Republic complete its new 84 inch Hot and Cold Strip Mill complex in the Cuyahoga River Valley. The Hot Strip Mill can produce more than 3 million tons of rolled sheet steel annually. The cold reducing mill can turn out more than 2-1/2 million tons of cold rolled sheet steel each year. Construction and start-up costs of these mills amounted to more than \$250 million.

Environmental control expenditures in Republic's Cleveland District in the period since 1950 now approximate \$63.4 million. An additional expenditure of \$25 million has been approved to assure continued progress in Republic's air quality control programs.

RESPONSE: No response required.

COMMENT: Despite the increased industrial activity in the Cleveland community, air and water qualities are better than before.

RESPONSE: The updated Draft and Final Environmental Impact Statements do not contain adequate comparative data over a sufficient length of time to support or refute this comment.

COMMENT: Republic believes its air and water quality control programs have contributed significantly to this result.

RESPONSE: No response required.

COMMENT: In its Cleveland District plant, Republic uses large quantities of iron ore and limestone in the steelmaking process. These bulk commodities are transported by lake vessels to docks at this plant located some five miles up the Cuyahoga River. During 1974, it is planned to move approximately 3,900,000 gross tons of iron ore and 855,000 gross tons of limestone to these docks for use in the Cleveland District blast furnaces. The bulk of the iron ore originates in Minnesota and Michigan and the bulk of the stone originates at Presque Isle, Michigan. This stone quarry is not served by rail facilities,

leaving water transportation as the only practical mode of movement. Therefore, the continued water transportation of iron ore and limestone to its docks on the Cuyahoga River is of vital concern to Republic.

RESPONSE: No response required.

COMMENT: At the commencement of the 1972 navigation season, Cleveland Cliffs Iron Company, pursuant to their contract with Republic, began to transport Republic's iron ore requirements for Upper Lake Ports to Lower Lake Ports including deliveries to Republic's dock at the Cleveland District. Starting at the outset of the 1974 navigation season, Kinsman Marine Transit Company, pursuant to their agreement with Republic, will begin to transport Republic's stone requirements from Presque Isle, Michigan, to Republic's dock locations including those located at the Cleveland District plant.

RESPONSE: No response required.

COMMENT: At its Cleveland District steel mill, Republic produces steel sheet, strip and bars which are marketed at points throughout the United States in competition with other producers, including producers whose steelmaking facilities are located on the shores of Lake Erie and Lake Michigan at Lackawanna, New York; Burns Harbor, Gary and Indiana Harbor, Indiana, and South Chicago, Illinois. At some of these lake front docks, vessels, larger than those which can navigate the Cuyahoga River, are now being unloaded. Such vessels can transport as much as 50,000 tons of iron ore as compared to Cuyahoga River vessels of much less carrying capacity. (A vessel carrying approximately 15,000 tons is the largest that can navigate the Cuyahoga if the river is dredged to 23 feet, project depth). Steel producers employing these larger vessels, therefore, enjoy a distinct advantage because of large vessel economics.

If Republic is to continue to be competitive with those producers having lake front docks, it is imperative that lake vessels available to Republic are able to deliver these vital inbound raw materials to its Cleveland District docks.

RESPONSE: No response required.

COMMENT: At this point in time Republic cannot speculate as to the actual adverse effect it would experience by the disruption of normal dredging in the Cuyahoga River until Dike 12 is completed as planned. However, should lake vessels be unable to navigate the river thereby forcing Republic to devise some other means of transporting iron ore and limestone to its Cleveland furnaces from the lake front docks in Cleveland, the added transportation expense, as hereinafter set forth,

would be extremely costly and would place Republic at a further economic disadvantage in competing with the aforementioned lake front steel mills.

During navigation season Republic stores certain quantities of iron ore on the C & P lake front docks in Cleveland which are reshipped via rail to its Cleveland plant in the winter months when the lakes are closed. This tonnage is a very small percentage of the total annual iron ore requirement of the Cleveland District plant. It is not known at this time if the C & P dock and its storage area has the capacity of receiving, storing, reloading to rail cars and shipping the entire yearly requirements but, assuming this is feasible, the added costs to Republic would be approximately \$3.73 per gross ton which applied to 3,900,000 tons per year would amount to \$14,547,000.00.

If the foregoing is determined to be feasible, and this has not been ascertained, to unload stone over another lake front dock (the C & P dock cannot handle stone) and rail to the Cleveland plant, Republic estimates that such additional changes would approximate \$4.00 per gross ton of stone which applied to the 855,000 gross ton annual stone requirement of the Cleveland District would amount to \$3,420,000.00. In addition, it is more costly for the Cleveland plant to unload iron ore and limestone from rail cars than from lake vessels at its docks. Republic's Accounting Department estimates that the extra cost of unloading the aforementioned annual tonnages of iron ore and limestone from rail cars would amount to \$3,549,000.00.

The following recap of these figures represent the added costs to Republic, assuming it would be physically possible to do so, of unloading iron ore and limestone at Cleveland lake front docks and moving via rail to the plant:

Railing iron ore -	\$14,547,000.00
Railing limestone -	3,420,000.00
Extra cost of unloading rail cars -	<u>3,549,000.00</u>
Total	\$21,516,000.00

RESPONSE: No response required.

COMMENT: In 1973, Republic's Cleveland District mills produced and shipped 2,030,000 net tons of steel to its customers. The added penalty of \$21.5 million, hereinabove referred to, would add an extra \$10.60 to the cost of every ton of steel produced. Certainly such an added penalty to Republic, reflected directly in the cost of producing steel, would place Republic's up river steel mill in Cleveland at a distinct disadvantage in competing with other steel producers with docks having lake front locations.

In addition to this extra expense which would be added to the cost of making steel in the Cleveland District, the expense of moving iron ore to our blast furnaces at Warren and Youngstown would also be increased should vessels be unable to navigate the Cuyahoga River.

During 1973, Cleveland Cliffs Iron Company delivered to Republic's Cleveland District docks 974,350 gross tons of iron ore which was transferred to rail cars and reshipped to Republic's plants located at Warren and Youngstown, Ohio. Republic estimates that by transferring this tonnage to rail cars over its own docks, a savings of approximately 66¢ per gross ton of iron ore was realized as compared to the cost of reshipping this tonnage over outside, railroad docks.

Therefore, this savings of approximately \$643,071.00 on the Warren and Youngstown ore would also be lost should vessels be unable to navigate the Cuyahoga River and Republic be required to move this ore through railroad docks on Lake Erie.

Further, from the studies that have been made, Republic is convinced that the extra costs of moving iron ore from the mines and pellet plants in trainload movement direct to Republic's furnaces at Cleveland, Warren and Youngstown would exceed those extra costs outlined above in raiiling ore from lake front docks. In the case of the limestone movement, the quarry at Presque Isle, Michigan, is not served by a railroad and truck transportation from the quarry is out of the question because of the great distances involved.

RESPONSE: No response required.

COMMENT: In 1973 the steel industry of the United States operated at capacity and it is expected that capacity operations will continue in 1974. Even with this high operating rate, the demands of consumers have not been met. Certainly the inability of Republic's Cleveland District plant to produce steel at a maximum rate caused by a disruption of normal navigation on the Cuyahoga River would have an adverse effect on the national economy.

RESPONSE: No response required.

COMMENT: Aside from the added cost to Republic of unloading ore and stone at lake front docks in Cleveland and shipping by rail to its Cleveland plant, it is significant that this method of movement is wasteful of energy and represents an uneconomical use of vital and scarce rail equipment. There is no question that vessel transportation to Republic's dock would conserve energy in the form of fuel as compared with the fuel that would be required for rail movement from the lake front. Furthermore, large numbers of rail cars, even if available,

(and their availability is quite questionable) would be needed to transport this large tonnage in what amounts to local switch movements. In this period when shippers, including steel mills, are experiencing severe car shortages, the use of the required quantities of rail equipment in such a short switch movement could not be justified.

Thus from the standpoint of economics, including the huge added costs to Republic, the waste of energy and the waste of vital rail equipment which would be required in the movement from the lake front, it seems to Republic that normal dredging of the Cuyahoga River is fully justified even though it may be necessary to waste some of the dredged material in the open lake until Dike 12 is completed.

RESPONSE: No response required.

COMMENT: Republic has retained the services of Mr. John E. Kinney, a Consultant-Sanitary Engineer, to review the updated Draft Environmental Statement and to formulate comments thereon. Mr. Kinney's comments are presented below and are incorporated here as a part of Republic's comments.

The Corps of Engineers updated draft of the Environmental Statement applicable to the operation and maintenance of the Cuyahoga harbor presents an adequate review of the physical features and a good summary of the issues involved.

RESPONSE: No response required.

COMMENT: However, the report could be strengthened by a positive analysis of the alternatives for disposal of the dredged spoil.

RESPONSE: A more comprehensive discussion of alternatives is included in the Final Environmental Impact Statement.

COMMENT: The present draft attempts to argue for and against lake disposal as an alternative to diked disposal and, as a result, subjects the Corps of Engineers to the criticism that the decision to use lake disposal will by the Corps admission harm the lake and that this harm is justified only because the dike is not ready.

RESPONSE: The updated Draft Environmental Impact Statement fully intended to present beneficial and adverse impacts of the project (including open lake dumping) and we invite comments from the public. It is the policy of the Corps of Engineers to carefully and responsibly identify and study the environmental impacts of proposed projects and to ultimately select an alternative course of action, (or no action), consistent with the spirit of the National Environmental Policy Act of 1969 (NEPA).

COMMENT: The fact that the dike is not ready should be the basis for the Corps to review its earlier policy on lake disposal and thus be more specific in its determination of impact. The following comments are directed towards that end.

1. The report of the board of consultants to the Corps stated no long-term adverse impact on the lake could be from their studies but that such an impact should be assumed. This acted as justification for the prior decision of the Corps to keep dredged spoil described as "polluted" by the EPA out of the lake.

RESPONSE: No response required.

COMMENT: 2. Analysis of the data in the consultant's report offers the conclusion that an impact of disposal of spoil in the lake can be proved and that the impact depends on the manner and location of the disposal site. Where disposal was near shore or in shallow water (less than 30 feet) or where the spoil was pumped out into the lake, the spoil was dispersed and did have an adverse effect in the water and on the beaches. Where the spoil was bottom dumped into deep water and where the bottom was sandy, the cohesive spoil quickly settled and with time was covered with sand. The lake disposal of Cuyahoga harbor spoil has taken place under both conditions. A site 10 miles out in the lake was used until 1956. The study showed that site became covered with sand. Seepage of nutrients provides fish food and supports a fishery in the area. Deposition adjacent to the breakwater reduced the haulage distance and thus the cost but left the spoil subjected to wave and current dispersal.

RESPONSE: No response required.

COMMENT: 3. The analytical data in the environmental impact report (Tables 8, 9, 10, 11) represent old data (1967-1972). However, assuming that the data are representative of present conditions, some conclusions can be drawn:

- a. The bottom sediments in the Cuyahoga other than Mile Points 4.9 and 5.7 and Old Cuyahoga River 0.9 are quite consistent--in the harbor and the river.

RESPONSE: No response required.

COMMENT: b. Decision on determining the material which should go into diked areas 9 and 13 would seem to point towards those two areas--upstream from mile point 5 and the upper end of the Old Cuyahoga. The rest of the material is sufficiently similar to that in the outer harbor so that if the outer harbor material can be disposed of in the lake, so should the lower river (below mile point 5 at least).

RESPONSE: In 1974, nearly all the dredging will be done between mile 4.6 and mile 5.7, because the remainder of the channel downstream is already close to project depth. In the 1974 Phase I government plant dredging operation, material above the 21-foot depth will be removed and placed in Sites 9 and 13. The Phase II contract dredging operation will remove remaining material above the 23-foot depth in the same part of the river, and deposit it in diked disposal Site 12. If the site is not completed, only shoal areas formed during the summer will be dredged and this material, not to exceed 50,000 cubic yards will be placed in the lake or disposed of by other means as addressed in Sections 5f and 5g.

COMMENT: c. The concentrations of substances in the flowing river are not unlike the concentrations found in other streams flowing directly into Lake Erie.

RESPONSE: The updated Draft Environmental Impact Statement has insufficient data to support or refute this comment. In addition, the purpose or intent of this statement is not clear and seems irrelevant.

COMMENT: d. The principal control limiting aquatic life in the navigation reaches of the Cuyahoga is depletion of dissolved oxygen, not concentration of pollutants.

RESPONSE: While dissolved oxygen concentrations appear to be limiting to aquatic life in the navigation reaches of the Cuyahoga during certain periods of the year (Table 10), sediment data presented in Table 9 for volatile solids, COD, grease-oil, total kjeldahl nitrogen, lead, and zinc exceed the U. S. Environmental Protection Agency's criteria for determining the acceptability of spoil disposal to the nation's waters. These latter criteria are felt to be more relevant to the Corps dredging project than your comment since dissolved oxygen concentration standards for the Cuyahoga are not direct limiting factors in determining the acceptability of spoil disposal of Cuyahoga sediments in Lake Erie (although sediment chemical constituents, and dissolved oxygen concentrations of the surrounding water are highly related).

COMMENT: The conflict between the Congressional mandate of maintaining the shipping and the Corps policy of protecting the lake by preventing the disposal of material into the lake whenever possible requires that there be as factual a basis for keeping the material out of the lake as there is for deciding the need for dredging. This conflict will continue well beyond the ten years that the Corps is planning to use diking.

RESPONSE: No response required.

COMMENT: The recent agreement by the Federal EPA that the standards for the lower Cuyahoga are unenforceable and the past assertions of the technical personnel of the Ohio EPA that the combination of land drainage and stilling basin effect of the navigation channel in the Cleveland portion of the river will cause the bottom deposits to be "polluted" by EPA standards for many years to come should force attention now to the review of the "no lake dumping" policy.

RESPONSE: This Environmental Impact Statement has forced attention to review of the "no lake dumping" policy.

COMMENT: The Corps has not followed the recommendation of its board of consultants that continuing studies be used to determine more information on what the constraints on lake dumping should be.

RESPONSE: Further testing to obtain conclusive data in this matter would require the continuation of undesirable open lake dumping.

COMMENT: The expected necessity of having to resort to lake dumping this year could provide and opportunity for such a study.

RESPONSE: Consideration will be given to such a study if open lake dumping is necessitated.

COMMENT: Meanwhile, the report should be edited to remove statements which exhibit a less than factual and positive concern about the lake. For example:

- a. Page 51. "The polluted nature of the deposited sediments will alter Lake Erie at an unnatural rate and may contribute to significant changes or degradations in chemical and biological characteristics within the lake." This sentence has a positive assertion that cannot be proved ("will alter Lake Erie at an unnatural rate") and an opinion that is also offered without proof ("may contribute to significant changes or degradations").

RESPONSE: We do not concur. Open lake dumping will concentrate a volume of polluted dredge spoil from the Cuyahoga into Lake Erie in a manner that would not occur if the Corps did not intervene (i.e., natural rate). Thus, Lake Erie will be unnaturally altered. The phrase "may contribute to significant changes or degradations" is certainly correct since the word "may" has qualified the statement. Further study to quantify the effects of the unnatural alteration rate previously alluded to may expose changes or degradations in chemical and biological characteristics within the lake.

COMMENT: Two sentences prior to this, there is the flat assertion that lake dumping in 1974 will "result in biological and chemical degradation of Lake Erie" but no evidence is offered as to how much or in what manner.

RESPONSE: As stated previously, further studies are needed to quantify the effects of the unnatural alteration of Lake Erie resulting from open lake dumping. The Final Environmental Impact Statement will be revised to read: "may result in biological and chemical degradation of Lake Erie."

COMMENT: If the Corps sincerely believes these statements are true, then the disposal in the lake should not be permitted.

RESPONSE: No response is required.

COMMENT: Page 54. "The most significant adverse environmental effect which probably cannot be avoided is the practice of open lake dumping of dredged sediments in 1974." This action is not an environment effect but an activity which may or may not have an adverse effect depending on the quality of the spoil, the manner of handling and the location of the disposal site.

RESPONSE: We concur. The U. S. EPA has labeled the Cuyahoga Lower River and Outer Harbor sediments as polluted.

COMMENT: Part of this is noted in the first sentence of the next paragraph.

RESPONSE: We concur.

COMMENT: The rest of the next paragraph offers a number of possibilities but without any supporting evidence that the possibilities will become realities, and, if so, to what extent.

RESPONSE: Your comment adequately illustrates why the impacts were designated as "possibilities."

COMMENT: In fact, none of them were in evidence in the Corps' study of effect in the outer lake disposal area study.

RESPONSE: Their deletion does not affect their validity. The report pointed out that more studies need to be conducted to determine effects.

COMMENT: Page 55. "It is the position of the Corps of Engineers that any addition of pollutants to the Great Lakes is ecologically detrimental and should be avoided if at all possible." The Corps would be on much sounder footing if the policy were to control the placing of any materials in or along the shores of the Great Lakes in such a manner as to minimize possible ecological detriment.

RESPONSE: The Corps policy includes minimizing possible ecological detriment to all areas affected by its projects. Your comment extracts out of context a quote from our updated Draft Environmental Impact Statement and is not considered pertinent in this matter.

COMMENT: The diked areas are not impervious and during the filling as well as afterwards there is a discharge of these same "pollutants" to the lake so diked storage does not eliminate discharge to the lake. And since the drainage is into the shore waters where the lake problems, particularly algal growth, are most acute, the diked storage is of ecological detrimental effect. Data from the Corps lake studies proved this to be so.

RESPONSE: These impacts, resulting from construction and use of diked disposal areas, have been addressed in previous statements (i.e., Final Impact Statement, Diked Disposal Area Site No. 12, Cleveland Harbor, Cuyahoga County, Ohio.

COMMENT: Page 57. "The long-term physical effect of spoil disposal in Lake Erie is creation of areas shallower than their surroundings but still deep enough for any purpose but commercial navigation." This is not true if the disposal site is in 60 feet of water.

RESPONSE: Your comment is irrelevant since the near-shore disposal site occurs in water depths of 15-33 feet as shown in Plate 3.

COMMENT: "The long-term ecological effect must be considered in the context of adding pollutants to Lake Erie at an unnatural rate. On this basis, any additional pollution, however slight, is considered undesirable." The long-term ecological effect can only be considered in terms of effect, not in terms of addition.

RESPONSE: We believe you have interpreted our passage incorrectly and consider your criticism a matter of semantics. The statement will remain as originally written.

COMMENT: If not, the Corps is in the position of agreeing that the drainage from the diked area is undesirable and should be eliminated.

RESPONSE: These impacts, resulting from construction and use of diked disposal areas, have been addressed in previous Environmental Impact Statements.

COMMENT: Page 58. "Continuance of open lake disposal practices will degrade Lake Erie's water and sediment quality and may change its biota and uses. It has not been determined whether these alterations will be irreversible." Previous comments apply to this kind of statement.

RESPONSE: Your comment is not specific enough for response.

COMMENT: The suggested rewrite would emphasize the necessity for continuing data on lake disposal impact as pollution abatement progress continues.

RESPONSE: The U. S. EPA will continue monitoring harbor sediment and water quality to determine their classification.

COMMENT: ...and as the consequences--economic and physical--of diked disposal are appraised.

RESPONSE: As stated before, these impacts, resulting from the construction and use of diked disposal areas, are addressed in separate Environmental Impact Statements.

COMMENT: It would emphasize the desirability of containing those spoils which are particularly high in undesirable constituents.

RESPONSE: The U. S. EPA has emphasized that all dredged sediments at Cleveland are polluted and require containment.

COMMENT: It would eliminate the assertions of damage that cannot be proved.

RESPONSE: We do not believe assertions have been stated without prior qualification or proof.

COMMENT: The Glossary in the Appendix could be modified to advantage. For example, how many of these terms are used in the report?

RESPONSE: While all the terms are not used in the report their inclusion is intended to amplify other related terms.

COMMENT: BOD - A water quality parameter which measures the rate of oxygen consumption during biological oxidation of organic matter under

specified conditions.

RESPONSE: We feel the modification as specified is unwarranted.

COMMENT: COD - A water quality parameter which measures the quantity of material oxidizable by a strong chemical reagent in hot solution.

RESPONSE: We feel the modification as specified is unwarranted.

COMMENT: DO - The weight of oxygen dissolved in a given volume of water. (The second sentence is misleading and not relevant to a definition.)

RESPONSE: We feel the modification as specified is unwarranted.

COMMENT: Effluent - The discharge from a pipe or drain or from a subterranean storage.

RESPONSE: We feel the modification as specified is unwarranted.

COMMENT: pH (note that the p is always lower case, even when starting a sentence) - the log of the reciprocal of the hydrogen ion concentration.

RESPONSE: We are well aware of the lower case p. The typographical error has been corrected.

Sierra Club

COMMENT: In order to gain additional perspective on the dredging disposal problem we read the Summary (Volume 1) of the Corps 1969 study entitled "Dredging and Water Quality Problems in the Great Lakes." Our understanding of the economic impact of dredging, or lack thereof, was gained from the Cleveland-Cuyahoga County Port Authority letter of 6 February commenting on the Environmental Statement.

RESPONSE: No response required.

COMMENT: Diked disposal of dredgings was originally planned for 10 years, after which there would be a reversion to open-lake dumping. This 10-year period, starting about 1967, was supposed to allow time for various water pollution control projects to become operational and to sufficiently reduce the pollution load of the dredged sediments so as to preclude the need for further diked disposal.

RESPONSE: Current plans call for containment of dredged spoil in diked disposal facilities for the next nine and one half to ten and one half years or approximately until 1984.

COMMENT: Water pollution control in the Cuyahoga Basin has not proceeded as rapidly as the planners had hoped, and River dredgings are still heavily polluted. There are a number of reasons for this unhappy state of affairs, not the least of which is the high density of people and industry in the Basin. Ohio EPA recently revised the water quality standards for the lower Cuyahoga to reflect the realities of cleaning up the Navigation Channel. It is indicative of the fragmented state of water management in this area that OEPA made no mention of the dredging problem in relation to water quality standards.

RESPONSE: No response required.

COMMENT: The 1969 dredging report stated (page 9.13) that "a major portion of the Corps dredging activity is in fact performing the function of regional waste management and disposal rather than its assigned function of improving and maintaining navigation channels." The same report also recognized (page 9.76) the "Reclamation of the Cuyahoga River through abatement of industrial and municipal pollution in the Cuyahoga Valley appears to be the key to the Cleveland situation."

RESPONSE: No response required.

COMMENT: The navigation channel and outer harbor is a settling basin

which traps an estimated 95 percent of the suspended solids entering from the River or discharged directly into the channel. These solids include the residual wasteload from municipal and industrial treatment plants as well as a variety of untreated and partially treated wastes from the same sources. There is also a large component from surface runoff, which at the present time largely defies measurement, control, or treatment. It is difficult to define what the background or "natural" level of dredged solids would be since surface runoff is largely determined by human land-use. For purposes of water quality planning it may be wise to assume that present surface runoff is the background level that will be approached as municipal and industrial point sources are cleaned up.

RESPONSE: No response required.

COMMENT: Disposal of dredgings are of concern because of their actual or potential effect on Lake Erie water quality. In its present state Lake Erie is still a good water supply. Other beneficial uses of the Lake, such as commercial and sport fishing, and littoral swimming, have deteriorated rapidly in the last several decades. These changes have been accompanied, but not necessarily caused, by accelerated eutrophication. There is no evidence that this process has been arrested or slowed to a natural rate of Lake ageing. On the contrary, there have been a number of dire warnings about Lake Erie approaching a condition of continual self-fertilization, leading to oxygen-depleted conditions over expanded portions of Lake Erie for lengthening periods of the year. (e.g. see Project Hypo report, 1972) Such conditions, if they do occur, would have drastic effects on water supply and on the health and welfare of Lake Erie basin residents.

RESPONSE: No response required.

COMMENT: The experts do not agree on the validity of such predictions, or on the effect of dredgings on the Lake. The Board of Consultants to the Corps 1969 study found that the "effect of lake dumping on eutrophication and water quality cannot yet be stated unequivocally, ...even though it must be acknowledged that in-lake disposal of heavily polluted dredgings must be considered presumptively undesirable because of its long-term adverse effects..."

RESPONSE: No response required.

COMMENT: Taken by itself, this analysis leads to the conclusion that open lake dumping should not be resumed until the sediments have been cleaned up, or until more is known about the interaction of sediments and water quality. However, we must also consider the following factors:

- 1) Diked disposal sites will not be available for the bulk of 1974 dredgings.

RESPONSE: The project entails dredging about 1,225,000 cubic yards of sediment annually. Current estimates of capacity, in Sites 9 and 13, allow for the additional placement of 200,000 cubic yards in these areas which will be deposited there during the first stage of river dredging. If Site 12 is completed on schedule in August, it will be used at that time for deposition of 280,000 cubic yards of additional river sediment. If the site is not complete at this time, only the shoals deposited in summer will be removed and the material, not to exceed 50,000 cubic yards, will be deposited in the lake or other alternative dumping techniques will be used. Outer harbor dredging will not commence until Site 12 is completed.

COMMENT: 2) Future diked sites will be increasingly difficult to plan and build at any cost.

RESPONSE: Site 12 is designed to contain two and one half to three years of dredged material. Site selection and design studies are underway for areas to contain seven to seven and one half years of additional dredged spoil.

COMMENT: 3) Failure to dredge will apparently place a severe economic penalty on Cleveland industry.

RESPONSE: We concur.

COMMENT: 4) This penalty may work against continued cleanup of the industrial portion of the pollution load to the River, and would defer the time when dredged sediments are no longer a hazard to Lake Erie.

RESPONSE: We concur.

Comment: The Sierra Club agrees with the Corps 1969 report that pollution control in the Cuyahoga Basin is the key to the Cleveland situation. An inclusive basin-wide effort which resulted in 80 to 90 percent control of suspended solids, heavy metals, BOD, oil, and phosphate, from all industrial and municipal sources, would go a long way towards eliminating the "presumptively undesirable" effects of open-lake dumping.

RESPONSE: No response required.

COMMENT: The Sierra Club sees no way around dredging Cleveland Harbor to authorized project depths for the 1974 shipping season. Open-lake dumping seems similarly unavoidable. This should be accompanied by on-going and intensive monitoring and study of the quality and sources of dredged sediments by Federal EPA, Corps of Engineers, and other cooperating agencies. A serious effort should be mounted to determine the quantities of the above-mentioned pollutants which originate from

municipal, industrial, and non-point sources. This information should be presented to the public along with an analysis of what must be done to control each of the source categories. This will help determine whether pollution control priorities are in order and whether resources (such as Federal funding of municipal treatment facilities) are adequate.

RESPONSE: No response required.

COMMENT: Disposal of dredgings represents one of the most complex environmental issues of which we have been asked to comment. Thank you for the opportunity.

RESPONSE: No response required.

Department of Transportation
United States Coast Guard

COMMENT: This office has received and reviewed the above referenced Draft Environmental Impact Statement, and at this time we have no comments or objections to offer.

RESPONSE: No response required.

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

COMMENT: In the course of effecting normal coordinating procedures relative to projects that may impact upon fishery resources of concern to this agency, we note that the dumping of polluted spoil from maintenance dredging of Cleveland Harbor into the open waters of Lake Erie is proposed.

RESPONSE: No response required.

COMMENT: We understand that this spoiling into the open waters is being proposed because of a delay in completion of disposal site No. 12; originally scheduled for December, but now projected for June 1974.

RESPONSE: Completion of disposal site 12 is now scheduled for August, 1974.

COMMENT: In view of the relatively short time until site No. 12 will be usable, and the undesirability of spoiling polluted material in the open waters of Lake Erie, we invite your further evaluation of the Cleveland Harbor project. Specifically, we believe it would be desirable if initial dredging could be limited to the amount containable in sites 9 and 13 or, possibly, held in abeyance until site No. 12 is completed.

RESPONSE: Discontinuance of dredging is addressed in the alternatives chapter.

COMMENT: Another alternative that we hope can be considered, and its feasibility determined, is that of utilizing a temporary confinement site within the proposed boundaries of site 12.

RESPONSE: The plan has been and remains, to deposit spoil in the area before final completion. The plan provides for deposit of spoil as soon as the containing dikes have been constructed high enough to prevent overflow from the area into the surrounding harbor. At the present degree of completion, a change in the plan to seal off part of the area could not be completed, to a point where spoil deposition could start, sooner than the present plan.

COMMENT: We are concerned that continued spoiling in Lake Erie will tend to negate efforts of municipalities, and of local, State, and Federal agencies directed toward waste control and other actions that seek to promote environmental improvement. We realize that continued degradation of Lake Erie is of equal concern to the Corps of Engineers and it is in this light that we solicit your consideration of the above alternatives.

RESPONSE: No response required.

Department of Housing and Urban Development

COMMENT: Annual dredging is performed in Cleveland Harbor to maintain navigation. The DEIS proposes continuance of dredging accumulated sediments. The project would dispose harbor spoil in sites 9 and 13 until these have reached holding capacity, but the unfinished construction of diked disposal site 12, in the Corps of Engineer's judgment, may require open-lake dumping of dredged spoil during 1974, resulting in biological and chemical degradation of Lake Erie.

RESPONSE: No response required.

COMMENT: Addition of pollutants to Lake Erie is contrary to the pollution abatement efforts of the United States and Canadian governments.

RESPONSE: We concur.

COMMENT: Any open-lake dumping of dredged polluted spoil must be avoided if at all possible, so as not to negate efforts to improve the quality of the Great Lakes.

RESPONSE: We concur.

COMMENT: The DEIS appears deficient in making no attempt to quantitatively evaluate the amount of open-lake dumping contemplated, if site 12 remains incompleated...

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: ...or to assess the deleterious consequences to the quality of the lake from open dumping.

RESPONSE: Data available to assess the consequences of open-lake dumping on lake water quality cannot be stated unequivocally as stated in the following passage from the Board of Consultants report to the U. S. Army Corps of Engineers and found in: Dredging and Water Quality Problems in the Great Lakes; Department of the Army, Buffalo District, Corps of Engineers; January 1969:

"Up to the present time the usual method of disposal of dredgings from harbors, rivers, and channels is their discharge from dredges or scows into the Great Lakes at prescribed sites, situated normally at suitable depths, in the open lake at convenient distance from harbor entrances. Just what the long-term impact of this practice will be on lake eutrophication and useful water quality cannot yet be stated unequivocally, in the opinion of the Board, even though it must be

acknowledged that in-lake disposal of heavily polluted dredgings must be considered presumptively undesirable because of its long-term adverse effects on the ecology of the Great Lakes. This is evidenced among other things by the results of bio-assay tests that have been made at the Board's request.

In view of this conclusion, the Board recommends that all harbors being dredged should be studied intensively to ascertain the causes and degree of their pollution and their response to dredging and extensively to assay the magnitude and variance of associated lake pollution and of environmental pollution produced by necessary disposal of their dredgings. Investigations of this kind can, furthermore, provide the basis for priorities for pollution abatement in Great Lakes Harbors by identifying the most critical situations and the order of their attack. A correctional campaign based on inadequate evidence may be self-defeating." Possible adverse effects have been described in the Updated Draft Environmental Impact Statement.

COMMENT: The DEIS gives little detail to the overall progress in reducing pollutants entering the Cleveland Harbor or the time frame for achieving reduction of toxic and nutrient components of sediments to levels allowing safe open-lake disposal of non-polluted sediments.

RESPONSE: The U. S. Army Corps of Engineers is not responsible for monitoring pollution levels or enforcing legislation relating to pollution abatement of municipal and industrial effluents. As stated in the Updated Draft Environmental Impact Statement (page 8), "...site 12 is designed to contain 2-1/2 to 3 years of dredged material. Site selection and design studies are underway for areas to contain 7 to 7-1/2 years of additional dredged spoil. When these areas are filled to capacity, plans call for reversion back to open-lake dumping of all harbor sediments. Sediments should then be unpolluted due to implementation of pollution abatement measures by industries and municipalities along the Cuyahoga and tributaries."

COMMENT: The DEIS does not analyze conditions of harbor sediments in such a way to indicate that the least polluted deposits might be "reserved" for open-lake dumping, if no temporary holding system or other alternative is possible.

RESPONSE: Table 9 shows that, for most parameters, the most polluted sediments were found at Mile 4.9 and Mile 5.7. Nearly all the dredging will be done between Mile 4.6 and Mile 5.7, because the remainder of the channel downstream is already close to project depth. In Phase I 1974 river dredging, material above 21-foot depth will be removed and placed in direct disposal sites 9 and 13. Phase II 1974 dredging will remove remaining material above the 23-foot depth in the same part of the river and deposit it in site 12. If the site is not completed,

only shoal areas formed during the summer will be dredged and this material, not to exceed 50,000 c.y., will be placed in the lake or disposed of by other means as addressed in sections 5f and 5g. Since there is no information to show whether pollution varies with depth, it must be assumed that all material to be removed in maintenance dredging is relatively highly polluted. Considering the lack of information on pollutant content, as related to location and depth, and the method of dredging, which tends to make long, narrow cuts and mix materials therefrom, it will not be possible to guarantee that only the least polluted materials are dredged for open-lake dumping.

COMMENT: The DEIS does not treat the failure to complete containment site 12 in depth. No penalties enforced on the Contractor are mentioned.

RESPONSE: The delay in completion is in part due to a labor dispute arising from transportation of materials, and in part to difficulties in obtaining acceptable materials. The contract does not provide for assessment of punitive damages for failure to have the disposal area usable on schedule. The only penalty which can be assessed is to require the Contractor to reimburse the United States for costs of inspection after the scheduled date of completion.

COMMENT: We trust that the Corps of Engineers will cooperate closely with State and Federal Environmental Protection Agencies and will act in the fullest extent to avoid degradation of Lake Erie.

RESPONSE: The Corps of Engineers has in the past and will continue to cooperate and coordinate on this project, as in all projects, with the State and Federal Environmental Protection Agencies. The Corps will act in the fullest extent to avoid degradation of Lake Erie. In this regard, the Buffalo Engineer District is currently accomplishing two studies; the Lake Erie - Demonstration Wastewater Management Study, and the Cuyahoga River Restoration Study, which will define ways of cleaning up and restoring Lake Erie.

United States Department of the Interior

COMMENT: Throughout the statement it is stated that, during part of 1974, open lake dumping of sediments from the Cuyahoga River and the outer harbor may become necessary. The actual discontinuance of dredging does not appear to have been given serious consideration, since this would presumably place undue economic burden on local industry and commerce.

RESPONSE: We disagree. Discontinuance of dredging was addressed and received serious consideration as an alternative on page 55 of the updated Draft Environmental Impact Statement.

COMMENT: The statement should point out that discontinuance of dredging may not eliminate waterborne commerce, but would reduce the amount of cargo that could be carried by the deeper draft vessels.

RESPONSE: As pointed out on page 55 of the updated Draft Environmental Impact Statement: "The primary impact of stopping dredging would be to limit the shipping in and out of Cleveland Harbor..."

COMMENT: It also should attempt to qualify just how severe the economic burden would be if dredging was curtailed until the containment facility, Site No. 12, was completed.

RESPONSE: Quantification of the economic burden severity, should dredging be curtailed until Site 12 completion, has been included in the Final Environmental Impact Statement in Section 5a.

COMMENT: 1. PROJECT DESCRIPTION - This section should contain additional information regarding the construction status of Site No. 12. The reader cannot tell from the environmental statement whether construction is in the beginning stages or if the structure is nearing completion.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: Since open lake dumping will probably occur in 1974 due to the Site 12 facility not being completed on schedule, an estimate should be made of the amount of spoil to be dumped.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: 2.2.4 Fishery Resources - Table 4 on page 22 lists fish taken by trawling in 1971, but quantitative fish data are lacking. The statement would be strengthened if the 12 sampling stations were

identified and if relative abundance data were provided.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: 2.3.6 Harbor Recreation - Although pier fishing is identified as a recreational activity within the harbor, an estimate of the amount of fisherman use, both from boats and piers, should be included.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: 2.3.8 Fishery Resources - This section states that the gold fish (Carassius auratus) and the emerald shiner (Notropis atherionoides) are known to be permanent residents of the Cuyahoga River. Water quality data (Table 10, page 41) show very low dissolved oxygen levels, i.e., 0.1 mg/l, coupled with relatively high water temperature during much of the year. If these data are representative of water quality in the inner portion of the Cleveland Harbor Facility, it is highly doubtful that either of these species could survive permanently under such conditions.

RESPONSE: Recent surveys conducted by faculty of John Carroll University indicate the gold fish (Carassius auratus) and the emerald shiner (Notropis atherinoides) are permanent residents of the Cuyahoga River.

COMMENT: 3.1 Beneficial Impacts

c. This item states that because lake shipping is inexpensive, the labor, material and fuel expended for harbor maintenance is environmentally beneficial. Claiming such a benefit is questionable.

RESPONSE: While the item commented on does not state these expenditures will be beneficial environmentally (except for implied energy conservation), the comparative economic benefits of these expenditures are seen in the following table found in a March 1972 publication by the Oak Ridge National Laboratory titled: Energy Consumption for Transportation in the United States.

Table 13

Energy - Efficiency for Inter-City Freight Transport

<u>Mode of Transport</u>	<u>Ton-Miles per Gallon</u>
Airplanes	3.7
Trucks	58.
Railroads	200.
Waterways	250.
Pipelines	300.

COMMENT: Are the costs of annual dredging and the construction and operation of dredge spoil containment facilities considered when referring to inexpensive shipping costs?

RESPONSE: The cost of annual dredging and construction and operation of dredge spoil containment facilities are not considered when referring to "relatively" inexpensive shipping costs since maintenance and support facilities costs are not calculated into the shipping costs for many modes of transport (i.e., airports and roads for airplanes and trucks, respectively).

COMMENT: 3.2 Adverse Impacts

e. The releasing of nutrients and heavy metals into solution is definitely an adverse impact and should receive further elaboration. Paragraph d on page 48 states that bottom habitats of dredged areas will improve due to the removal of polluted sediments. However, once these sediments are buried, pollutants are essentially sealed off from the aquatic environment.

RESPONSE: While the pollutants in the sediments may be "essentially sealed off from the aquatic environment" the text of the updated Draft Environmental Impact Statement was addressing the bottom (benthic) habitat and not the aquatic environment.

COMMENT: Since the annual dredging operations continually disrupt these sediments, the type, amount, and areal extent of pollutants being re-introduced to the environment should be identified.

RESPONSE: The type and concentration of sediment chemistry parameters are shown in Table 9. The volume of material dredged is stated in Chapter I and the Cuyahoga River and Cleveland Harbor linear dimensions and area are illustrated in Plates I, II, and III.

COMMENT: The time of year and total days of annual dredging also should be mentioned in this section.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: Page 49, paragraph h states that the diked disposal area will provide a permanent piece of alongshore property. Filling these alongshore areas also should be considered as an adverse impact since it represents an irretrievable loss of shoal waters.

RESPONSE: Section 3.1.h is being deleted from the Final Environmental Impact Statement since this impact pertains to the diked disposal program

and was addressed in: Final Environmental Impact Statement, Diked Disposal Area Site No. 12, Cleveland Harbor, Cuyahoga County, OH.

COMMENT: Secondary adverse impacts resulting from the encouragement of shipping to the Cleveland area should be discussed. These would include increased potential for oil spills and effects of prop wash on benthos and water quality.

RESPONSE: We do not agree. Since we feel that existing safety and discharge laws regarding watercraft and ships in Cleveland Harbor are being implemented and enforced.

COMMENT: 3.3 General Impacts

b. The areal extent of the accretion of light silt material carried by currents and littoral drift should be provided. The possibility that this fine silt material also may carry other contaminants such as heavy metals should be mentioned.

RESPONSE: Areal extent of the accretion of light silt material carried by currents and littoral drift is unpredictable since suspended solids introduced into the water from dredging practices vary annually, in addition to varying weather conditions which affect differences in waves and currents.

COMMENT: 4. ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED PROJECT BE IMPLEMENTED

f. The practice of open lake dumping could be avoided by curtailment of dredging until adequate containment facilities can be constructed.

RESPONSE: It is not clear whether you are objecting to the proposed project or the inclusion of open lake dumping as an adverse environmental effect which cannot be avoided should our proposed project be implemented. Suggested changes to our proposed project should be addressed to our alternatives section, Chapter 5 (where we have included curtailment of dredging). We disagree with you if you are objecting to our inclusion of open lake dumping as an unavoidable adverse effect of our project.

COMMENT: Since the Corps of Engineers has been directed to contain polluted dredge spoils, the conversion of shoal water areas to diked containment facilities should be included in this section.

RESPONSE: This impact pertains to the diked disposal program and was addressed in : Final Environmental Impact Statement, Diked Disposal Area Site No. 12, Cleveland Harbor, Cuyahoga County, OH.

COMMENT: 5. ALTERNATIVES TO THE PROPOSED ACTION

e. Chemical Treatment of Sediments - Chemical treatment for sediments has been determined to be infeasible due to the costs, but no comparative cost figures are given to support this decision. We suggest that the final statement include such figures.

RESPONSE: The Final Environmental Impact Statement has been expanded in response to your comment.

COMMENT: Since open lake dumping is highly undesirable environmentally, the feasibility of using Site No. 12 before completion should be considered. It may be feasible to temporarily seal off a portion of Site No. 12 to handle the spoil while continuing construction of the structure itself. Even if a complete seal could not be realized, an attempt at containment or at least depositing spoil within the containment site would seem to be preferable to open lake disposal.

RESPONSE: The plan has been, and remains, to deposit spoil in the area before final completion. The plan provides for deposit of spoil as soon as the containing dikes have been constructed high enough to prevent overflow from the area into the surrounding harbor. At the present degree of completion, a change in the plan to seal off part of the area could not be completed, to a point where spoil deposition could start, sooner than the present plan. Sections 5f and 5g of the Final EIS address your second suggestion.

COMMENT: The restriction of the harbor to shallower draft vessels is an alternative that has not been considered. Utilization of smaller ships would decrease the amount of dredging needed to provide adequate draft.

RESPONSE: The U. S. Army Corps of Engineers is authorized to dredge the Cuyahoga River and outer harbor area to specific project depths. This authorization, of course, impacts on vessel drafts (impacts of draft restriction addressed in Chapter 5a) but the Corps has no direct jurisdiction to restrict vessel drafts and therefore this comment suggestion cannot be considered as a project alternative.

COMMENT: Upland disposal should be considered as an alternative.

RESPONSE: During Site 12 selection, upland sites were rejected for adverse environmental, economic, and/or social effects as addressed in the previously cited Site 12 Environmental Impact Statement. Their lack of availability and/or required preparation measures eliminate these sites from consideration as temporary disposal areas in 1974.

COMMENT: The above alternatives would reduce pollution of the waters of Lake Erie with its attendant adverse effects on recreation and the aquatic

environment. Once the amount of spoil to be removed has been estimated, it may be determined that, although the cost is high, the volume of spoil is within limits which would allow for a more satisfactory method of disposal and would help prevent the further degradation of Lake Erie.

RESPONSE: Please refer to alternatives presented and being considered in Sections 5f and 5g.

COMMENT: 6. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY - This section should mention that if aquatic sites are used, acres of littoral habitat will be replaced with a terrestrial environment upon completion of the spoil containment facilities.

RESPONSE: This impact pertains to the diked disposal program and was addressed in: Final Environmental Impact Statement, Diked Disposal Area Site No. 12, Cleveland Harbor, Cuyahoga County, OH.

COMMENT: 7. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED - The commitment of aquatic resources for use as spoil disposal sites, and the construction of breakwaters and piers represents an irretrievable commitment of resources and should be mentioned in this section.

RESPONSE: We do not concur. The commitment of aquatic resources for spoil disposal sites and breakwaters and piers is reversible.

COMMENT: By letter of March 4 we provided Department of the Interior comments on the updated Draft Environmental Statement for Cleveland Harbor Operations and Maintenance, Cuyahoga County, OH. As was discussed with Mr. Paul Lang today, an additional concern has surfaced within this Department since that time.

RESPONSE: No response required.

COMMENT: The planned disposal area in Lake Erie appears well situated with respect to the Cleveland Water Works intake during normal conditions, since longshore drift of lake water is predominantly toward the northeast. However, the draft environmental statement fails to mention exceptional conditions in which littoral current may move in a different direction. Information should be provided on the probability of suspended sediment derived from the polluted dredge spoils being transported toward Cleveland's water intake, and resulting environmental impact. Strong easterly or northeasterly winds seem likely to be associated with a reversal of the normal current, and this possibility

should not be completely overlooked because of the high degree of pollution in the sediments to be dumped in Lake Erie. If evidence is not available from other sources, we suggest that ERTS imagery may reveal abnormal movement of suspended sediment plumes under the influence of winds having a strong easterly component. Consideration should be given to suspension of the open lake dumping at any time when currents at the dump site are observed or are predicted to have a significant component of movement toward the west.

RESPONSE: Should conditions, (i.e., storms), temporarily reverse the littoral currents, consideration would be given to temporarily suspending open lake dumping if a problem to the water intakes was anticipated.

COMMENT: Should this comment reach you too late for consideration in the Final Environmental Impact Statement, you may wish to simply consider it in other aspects of project planning.

RESPONSE: No response required.

United States
Environmental Protection Agency

COMMENTS: We have completed our review of the updated Draft Environmental Impact Statement (EIS) for Cleveland Harbor Maintenance in Cuyahoga County, OH, as requested in your letter dated January 15, 1974. In light of our review and in accordance with agency policy, we have classified our comments as Category EU-1. Specifically, this means that we believe the project is Environmentally Unsatisfactory and there is sufficient information in the EIS to make this determination. We object to the proposal to dispose of polluted dredged spoil in the open waters of Lake Erie. The classification and the date of our comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. A copy of our classification system is attached for your immediate reference.

RESPONSE: No response required.

COMMENT: As stated in Mr. Mayo's letter to you on February 8, 1974 (copy attached), it is impossible for us to condone the disposal of grossly polluted dredged spoil into open waters since it would unquestionably be a violation of the Federal Government's environmental responsibility for Lake Erie. This responsibility includes the assurance that no polluted materials are discharged into Lake Erie that would violate water quality standards (WQS). Sediment data presented in Table 9 of the EIS for volatile solids, COD, grease-oil, total kjeldahl nitrogen, lead and zinc exceed our criteria for determining the acceptability of spoil disposal to the nation's waters. Also, as noted in the EIS, the disposal of grossly polluted dredged spoil into Lake Erie is "ecologically detrimental" (page 55) and ". . . will degrade Lake Erie's water and sediment quality. . ." (page 58). Open lake disposal practices will result in several violations of existing State of Ohio WQS for Lake Erie-Section EP-1-05, and also our proposed recommended WQS for Lake Erie-Section EP-1-05, which includes appropriate standards from existing Sections EP-1-02 and EP-1-07 (copy attached). General WQS will be violated for resulting sludge deposits, color, turbidity, toxic substances, and possibly for specific WQS parameters for dissolved solids, iron and lead.

RESPONSE: No response required.

COMMENT: The long-term effects of channel maintenance on Cuyahoga River's water quality should be examined with respect to attaining satisfactory compliance with WQS. Although channel maintenance of the Cuyahoga River removes polluted bottom sediments that might be discharged into the harbor and Lake Erie during periods of increased flow, the short-term effects have a severe adverse impact on the water quality of the reach being dredged.

RESPONSE: We concur. This effect has been stated in Section 3.2.e of the updated Draft Environmental Impact Statement.

COMMENT: Since the maintenance and enlargement of the Cuyahoga River channels for navigation substantially reduce stream flow velocities, existing flows in the lower 5 miles of Cuyahoga River are sluggish and allow only limited amounts of sediments to be carried naturally into Lake Erie. Upstream water supply reservoirs also tend to inhibit stream flows particularly during periods of droughts. For these reasons, most sediments are deposited in the river. Such sedimentation results in the reoccurrence of shoals and the necessity for repeated maintenance dredging. Unless sediment deposition in the Cuyahoga River is reduced, frequent maintenance dredging of the shipping channels will continue to be required for navigation interests.

RESPONSE: We concur.

COMMENT: Pollution and sediment loads to the Cuyahoga are significant due to inadequate industrial and municipal wastewater treatment in the basin, numerous sand and gravel pits along the banks of the Cuyahoga River upstream, urban and rural surface water runoff, and stream bank and valley wall erosion. As a result of the continuing need for maintenance dredging in combination with the present pollutant loadings in the river, the Ohio EPA is proposing a temporary revision of WQS in the Lower Cuyahoga River. The public hearing for the WQS revision is scheduled for today, March 8, 1974. Less stringent limits in the revised WQS are being proposed for dissolved oxygen, ammonia, and temperature . . . to be effective until late in the 1970's. At that time, water quality conditions resulting from channel maintenance dredging will be the major factor prohibiting present WQS from being attained (Dalton, Dalton, & Little, 1971 Report entitled "Industrial Waste Survey, Program for the Lower Cuyahoga River"). The long-term water quality effects of channel maintenance and the proposed remedial measures for satisfactorily attaining existing WQS should be addressed.

RESPONSE: Further study will be required to assess the long-term water quality effects of channel maintenance and the proposed remedial measures for satisfactorily attaining existing WQS.

COMMENT: Of the alternatives and the proposal presented in the EIS, we find only the Discontinuance of Dredging and Chemical Treatment of Sediments are acceptable and that both should be examined in greater detail.

RESPONSE: Discontinuance of dredging and chemical treatment of sediments have been covered more comprehensively in the Final Environmental Impact Statement.

COMMENT: In addition, we believe that other alternatives, temporary or permanent, exist that would allow 1974 maintenance dredging if needed, for commercial navigation without the adverse environmental impacts of open lake disposal. Some alternatives that might be considered are the interim utilization of private containment facilities with or without the option of removing and transferring dredged spoil to Site 12 upon its completion; acceptable inland disposal sites having the capability of containing dredge spoil until Site 12 is completed; and/or temporary holding areas such as slips that may be designed to contain dredged spoil until the spoil can be transferred to Site 12.

RESPONSE: During Site 12 selection, other sites were rejected for adverse environmental, economic, and/or social effects as addressed in the previously cited Site 12 Environmental Impact Statement. Their lack of availability and/or required preparation measures eliminate these sites from consideration as temporary disposal areas in 1974. Please refer to alternatives presented, and being considered, in Sections 5f and 5g.

COMMENT: We are interested in arriving at a mutual solution for dredged spoil disposal in the Cleveland area. Toward this end, we would be happy to meet with you and explore alternative plans of action after you have completed your soundings to delineate those areas of heaviest shoaling. These soundings will enable a better determination of whether dredging can be cancelled or postponed this year or if full required channel depths could be reduced until adequate containment capacities for dredge spoil is available. We appreciate the opportunity to review this Draft EIS. Should you have any questions regarding our comments, please contact Gary A. Williams, Chief, Environmental Impact Statement Review Section, or me at your convenience.

RESPONSE: No response required.

APPENDIX A

Glossary of Terms

Appendix A

GLOSSARY OF TERMS

BENTHIC - Relating to or occurring at the bottom of a body of water.

BIOTA - The flora and fauna of a region.

BOD - Biochemical oxygen demand. A water quality parameter which specifies the amount of oxygen needed by organisms while consuming organic material in the water.

CFS - Cubic feet per second.

COD - Chemical oxygen demand. A parameter of water quality which specifies the quantity of oxidizable material in a water sample.

D.O. - Dissolved oxygen. The amount of oxygen dissolved in water. Approximately 4 to 14 parts per million dissolved oxygen are required to support game fish.

DRAFT - Depth of water a ship draws especially when loaded.

ECOSYSTEM - A complex of producer, consumer, and decomposer organisms and their environment, which forms a functioning whole in nature. A rotten log, a pond, or a desert are examples of ecosystems of varying sizes.

EFFLUENT - The outflow of water from subterranean storage.

EUTROPHICATION - Refers to bodies of water, which are rich in mineral nutrients and organic materials, therefore productive. Oxygen may be deficient seasonally.

FAUNA - The animal life inhabiting a specific area.

FLORA - The plant life inhabiting a specific area.

HABITAT - The sum total of environmental conditions of a specific place that is occupied by an organism, a population, or a community.

LITTORAL - Of or relating to the shore of a lake or ocean.

LITTORAL CURRENT - A current which approximately parallels the shore of a lake.

GLOSSARY OF TERMS (Contd)

LITTORAL DRIFT - Suspended material such as sands or silts which are transported and deposited by a littoral current.

LWD - Low water datum or chart datum is a fixed reference plane selected by the United States and Canada, so that the majority of the time during the navigation season on the Great Lakes actual levels will be above that plane. The LWD for Lake Erie is 568.6 feet above mean water level at Father Point, Quebec International Great Lakes Datum.

PH - A measure of the number of hydrogen ions in a solution, if the PH exceeds 7 the solution is considered to be basic, if less than 7 it is acidic.

PHYTOPLANKTON - Planktonic life belonging to the plant kingdom.

PLANKTONIC - Free floating.

PRIMARY TREATMENT - The first stage in waste water treatment in which substantially all floating or settleable solids are mechanically removed by screening and sedimentation.

SECONDARY TREATMENT - Waste water treatment beyond the primary stage, in which bacteria consume the organic parts of the wastes. This biochemical action is accomplished by use of trickling filters or the activated sludge process. Customarily, disinfection by chlorination is the final stage of the secondary treatment process.

SEICHE - An oscillation of the elevation of a lake or inland sea that varies in period from a few minutes to several hours.

SPOIL - Earth and rock removed by dredging.

TILL - Nonsorted, nonstratified sediment carried or deposited by a glacier.

TURBIDITY - The condition of a body of water that contains suspended material such as clay or silt particles, dead organisms, or their parts, or small living plants and animals.

ZOOPLANKTON - Planktonic organisms belonging to the animal kingdom.

APPENDIX B

Water Quality Criteria Adopted by the
State of Ohio's Water Pollution Control Board

WATER POLLUTION CONTROL BOARD
DEPARTMENT OF HEALTH
COLUMBUS, OHIO

WATER QUALITY CRITERIA ADOPTED BY THE BOARD 11 APRIL 1967,
FOR LAKE ERIE AND THE INTERSTATE WATERS THEREOF

The Ohio Water Pollution control Board hereby adopts the following water quality criteria for Lake Erie and the interstate waters thereof which may affect the State of Michigan, the Commonwealth of Pennsylvania, the State of New York, and the Province of Ontario of the Dominion of Canada.

Water Quality - Conditions and Criteria

All Waters. All the waters considered herein shall meet the following conditions at all times:

- (1) They shall be free from substances attributable to municipal, industrial, or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits;
- (2) They shall be free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, or other discharges in amounts sufficient to be unsightly or deleterious;
- (3) They shall be free from materials attributable to municipal, industrial, or other discharges producing color, odor, or other conditions in such degree as to create a nuisance, and,
- (4) They shall be free from substances attributable to municipal, industrial, or other discharges in concentrations or combinations which are toxic or harmful to human, animal, plant, or aquatic life.

Lake Erie Water Quality Criteria for Various Uses are: (1) the Stream-Water Quality Criteria for Various Uses adopted by the Ohio Water Pollution Control Board on 14 June 1966, copy attached, which shall apply as a minimum to all Lake Erie waters in Ohio, and (2) the existing lake water quality which shall apply where better than the criteria for streams adopted by the Board. The existing lake water quality shall be as reported by the Federal Water Pollution Control Administration in the chapter on Water Quality in report "Program for Water Pollution Control - Lake Erie - 1967."

Lake Erie outside the established harbors at Lorain, Cleveland, and Ashtabula shall meet the Lake Erie water quality criteria for all uses.

The Lorain, Cleveland, and Ashtabula Harbor waters in Lake Erie shall meet the Lake Erie water quality criteria for industrial water supply and aquatic life.

Implementation and Enforcement Plan

The Ohio Water Pollution Control Board, under the provisions of Sections 6111.01 to 6111.03, 6111.31 to 6111.38, and 6111.99, Ohio Revised Code, has authority to control, prevent, and abate pollution in the waters of this state. In accordance with such authority, the Board hereby adopts the following program and requirements for the prevention, control, and abatement of new or existing pollution of the waters of Lake Erie:

- (1) The "Recommendations and Conclusions - 12 August 1965" agreed upon by conferees from Michigan, Indiana, Ohio, Pennsylvania, New York, and the U. S. Public Health Service following conference under Section 8 of the Federal Water Pollution Control Act in the matter of pollution of the interstate and Ohio intrastate waters of Lake Erie and its tributaries held in Cleveland, Ohio, 3-6 August 1965, and in Buffalo, New York 10-12 August 1965, and "Report of the Lake Erie Enforcement Conference Technical Committees - March 1967" are included as a part of this program insofar as applicable to Lake Erie waters in Ohio (see attached copies);
- (2) All plans and proposals for abatement or correction of pollution will be approved by the Ohio Department of Health as required by law and such approvals shall constitute approval by the Board;
- (3) All sewage will be given secondary treatment (biochemical oxidation), and the facilities to provide such treatment will be constructed and placed in operation without delay, and in no instance later than the dates specified in the attached lists;
- (4) All effluents will be satisfactorily disinfected to meet the criteria for Lake Erie water uses and the facilities to provide such disinfection will be installed without delay;
- (5) All industrial wastes will be adequately treated to meet the Lake Erie water quality conditions and criteria and the facilities to provide such treatment will be constructed and placed in operation without delay, and in no instance later than the dates specified in the attached lists;
- (6) Local programs will be initiated to control and reduce pollution resulting from (a) bypassing, (b) spillages, and (c) discharges resulting from construction or breakdowns;
- (7) Necessary studies will be made and, where feasible, plans and construction programs will be developed as rapidly as possible for reducing pollution from combined sewer overflows;

WATER POLLUTION CONTROL BOARD
OHIO DEPARTMENT OF HEALTH
COLUMBUS, OHIO

RESOLUTION ESTABLISHING AMENDED CRITERIA OF STREAM-WATER QUALITY
FOR VARIOUS USES ADOPTED BY THE BOARD ON 14 APRIL 1970

WHEREAS, Section 6111.03, of the Ohio Revised Code, provides, in part, as follows:

"The water pollution control board shall have power:

(A) To develop programs for the prevention, control and abatement of new or existing pollution of the waters of the state" and

WHEREAS, Primary indicators of stream-water quality are needed as guides for appraising the suitability of surface waters in Ohio for various uses; and

WHEREAS, The stream-water quality criteria for various uses and minimum conditions applicable to all waters adopted by the Board of 14 June 1966, have been amended by the Ohio River Valley Water Sanitation Commission; and

WHEREAS, The criteria adopted by the Board on 10 October 1967, have been further amended by the Ohio River Valley Water Sanitation Commission;

THEREFORE BE IT RESOLVED, That the following amended stream-water quality criteria for various uses, and minimum conditions applicable to all waters, and policies for protection of high quality waters and for water quality design flow, are hereby adopted in accordance with amendments of the Ohio River Valley Water Sanitation Commission, and the recommendations of the Federal Water Pollution Control Administration.

AND BE IT FURTHER RESOLVED, That the amended stream-water quality criteria for various uses, for minimum conditions, for protection of high quality waters, and, for water quality design flow, be made applicable to the following waters of the state:

1. Maumee, Tiffin, St. Joseph, and St. Marys River Basins;
2. Lake Erie & Interstate Waters thereof;
3. Great Miami, Whitewater, and Wabash River Basins;
4. Ashtabula River, Conneaut and Turkey Creeks;
5. Ohio River of Ohio-West Virginia and Ohio-Kentucky;
6. North Central Ohio Tributaries of Lake Erie;
7. Scioto River Basin;
8. Little Miami River Basin;
9. Rocky, Cuyahoga, Chagrin, and Grand River Basins;
10. Muskingum River Basin;
11. Hocking River Basin.

MINIMUM CONDITIONS APPLICABLE TO
ALL WATERS AT ALL PLACES AND AT ALL TIMES

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.
2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.
3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.
4. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

PROTECTION OF HIGH QUALITY WATERS

Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality, pursuant to the Ohio water pollution control statutes, so as not to interfere with or become injurious to any assigned uses made of, or presently possible, in such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the most effective waste treatment available under existing technology. The Ohio Water Pollution Control Board will cooperate with other agencies of the state, agencies of other states, interstate agencies and the Federal Government in the enforcement of this policy.

WATER QUALITY DESIGN FLOW

Where applicable for the determination of treatment requirements the water quality design flow shall be the minimum seven-consecutive-day -average that is exceeded in 90 percent of the years.

STREAM-QUALITY CRITERIA

FOR PUBLIC WATER SUPPLY

The following criteria are for evaluation of stream quality at the point at which water is withdrawn for treatment and distribution as a potable supply:

1. Bacteria: Coliform group not to exceed 5,000 per 100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml in more than five percent of such samples.
2. Threshold-odor Number: Not to exceed 24 (at 60 deg. C.) as a daily average.
3. Dissolved solids: Not to exceed 500 mg/l as a monthly average value, nor exceed 750 mg/l at any time.
4. Radioactivity: Gross beta activity not to exceed 1,000 picouries per liter (pCi/l), nor shall activity from dissolved strontium-90 exceed 10 pCi/l, nor shall activity from dissolved alpha emitters exceed 3 pCi/l.
5. Chemical constituents: Not to exceed the following specified concentrations at any time.

<u>Constituent</u>	<u>Concentration (mg/l)</u>
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium (hexavalent)	0.05
Cyanide	0.025
Fluoride	1.0
Lead	0.05
Selenium	0.01
Silver	0.05

FOR INDUSTRIAL WATER SUPPLY

The following criteria are applicable to stream water at the point at which the water is withdrawn for use (either with or without treatment) for industrial cooling and processing:

1. Dissolved oxygen: Not less than 2.0 mg/l as a daily-average value, nor less than 1.0 mg/l at any time.
2. pH: Not less than 5.0 nor greater than 9.0 at any time.
3. Temperature: Not to exceed 95 deg. F. at any time.
4. Dissolved solids: Not to exceed 750 mg/l as a monthly average value, nor exceed 1,000 mg/l at any time.

FOR AQUATIC LIFE A

The following criteria are for evaluation of conditions for the maintenance of a well-balanced, warm-water fish population. They are applicable at any point in the stream except for areas necessary for the admixture of waste effluents with stream water:

1. Dissolved oxygen: Not less than an average of 5.0 mg/l per calendar day and not less than 4.0 mg/l at any time.
2. pH:
 - a. No values below 6.0 nor above 8.5.
 - b. Daily fluctuations which exceed the range of pH 6.0 to pH 8.5 and are correlated with photosynthetic activity may be tolerated.
3. Temperature:
 - a. No abnormal temperature changes that may affect aquatic life unless caused by natural conditions.
 - b. The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.
 - c. Maximum temperature rise at any time or place above natural temperatures shall not exceed 5 deg. F. In addition, the water temperature shall not exceed the maximum limits indicated in the following Table.

WATERS	Maximum Temperature in Deg. F. During Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All waters except Ohio River	50	50	60	70	80	90	90	90	90	78	70	57
Main Stem-Ohio River	50	50	60	70	80	87	89	89	87	78	70	57

4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

FOR AQUATIC LIFE B

The following criteria are for evaluation of conditions for the maintenance of desirable biological growths and, in limited stretches of a stream, for permitting the passage of fish through the water, except for areas necessary for admixture of effluents with stream water:

1. Dissolved oxygen: Not less than 3.0 mg/l as a daily-average value, nor less than 2.0 mg/l at any time.
2. pH: Not less than 6.0 nor greater than 8.5 at any time.
3. Temperature: Not to exceed 95 deg. F. at any time.
4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

FOR RECREATION

The following criterion is for evaluation of conditions at any point in waters designated to be used for recreational purposes, including such water-contact activities as swimming and water skiing:

Bacteria: The fecal coliform content (either MPN or MF count) not to exceed 200 per 100 ML as a monthly geometric mean based on not less than five samples per month; nor exceed 400 per 100 ML in more than ten percent of all samples taken during a month.

FOR AGRICULTURAL USE AND STOCK WATERING

The following criteria are applicable for the evaluation of stream quality at places where water is withdrawn for agricultural use or stock-watering purposes:

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.
2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.
3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.
4. Free from substances attributable to municipal, industrial or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

APPENDIX C

Letters Requesting Historical and Archeological Data



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

NCBED-ER

Miss Judith Kitchen
The Ohio Historical Society
Ohio Historical Center
Interstate 71 and 17th Avenue
Columbus, OH 43211

Dear Miss Kitchen:

We are requesting information regarding the potential effects of the proposed operations and maintenance activities in Cleveland Harbor, Ohio upon the historical, archaeological and paleontological resources of the project area. We are particularly concerned as to whether any properties listed in the National Register of Historic Places will be affected by the proposed project.

We have inclosed a copy of the Updated Draft Environmental Impact Statement, Maintenance, Cleveland Harbor, Ohio for your reference.

If we can be of any further assistance, please do not hesitate to contact us.

Sincerely yours,

CHARLES T. MYERS III
Major, Corps of Engineers
Acting District Engineer

1 Incl
as stated



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

NCBED-ER

Mr. Chester L. Brooks
Regional Director
Northeast Region
National Parks Service
U.S. Department of the Interior
143 South 3rd Street
Philadelphia, PA 19106

Dear Mr. Brooks:

We are requesting information regarding the potential effects of the proposed maintenance activities in Cleveland Harbor, Ohio upon the historical, archaeological and paleontological resources of the project area. We are particularly concerned as to whether any properties listed in the National Register of Historic Places will be affected by the proposed project.

We have inclosed a copy of the Updated Draft Environmental Impact Statement, Maintenance, Cleveland Harbor, Ohio for your reference.

If we can be of any further assistance, please do not hesitate to contact us.

Sincerely yours,

A handwritten signature in cursive script that reads "Charles T. Myers III".

CHARLES T. MYERS III
Major, Corps of Engineers
Acting District Engineer

1 Incl
as stated

APPENDIX D
Letters of Comment

CITIZENS FOR LAND AND WATER USE

Water
Is Not Free
To Modern Man



Dilution
Is No Longer The
Solution To
Pollution

"Water is Life"

February 21, 1974

Major Charles T. Myers, III,
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

Thank you for the invitation to comment on the Cleveland Harbor Maintenance Dredging, Environment Impact Statement.

We believe we have passed the peak of pollution in the Cuyahoga River. We believe the river is cleaner today. Therefore the spoil is not as deleterious to Lake Erie as it has been in the past.

In the interest of providing a favorable situation for navigation, we believe the shipping channel should be maintained for optimum use. Even if this necessitates depositing the spoil in the open lake dumping grounds until new dike sites are available. This is not an endorsement for open dumping of dredge material.

We need stronger demands, insisting that municipal waste water treatment plants do a better job consistently. We do not approve of discharging municipal waste effluent farther out into Lake Erie.

Yours very truly,

A handwritten signature in cursive script that reads "D. Angel".

Mrs. James H. Angel, Chairman
Mrs. Edmund F. Smircina, Co-Chairman

D1

Non-Profit

Mrs. James H. Angel, 2084 Elbur Ave., Cleveland Ohio 44107 216/221-1859

CPCPCPCPCPCPCPCPCPCPCPC

CLEVELAND CITY PLANNING COMMISSION

501 CITY HALL

CLEVELAND, OHIO 44114

216 / 884 - 2210

January 24, 1974

Major Charles T. Myers III
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

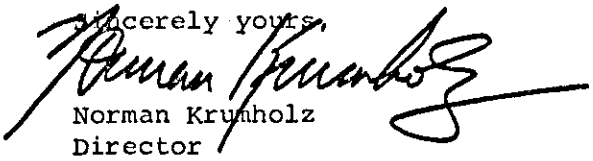
Dear Major Myers:

Thank you for the Jan. 1974 "Updated Draft Environmental Statement for Cleveland Harbor Operations & Maintenance."

After reviewing it our comments are as follows:

1. We commend you for producing one of the most complete Environmental Impact Statements it has been our task to review.
2. Under Chapter 5 "Alternatives to the Proposed Action," sub item a. "Discontinuance of Dredging," it would be much more meaningful and impressive if figures could be provided to quantify the extent of the economic burden on Cleveland industry and commerce in the event of discontinuance of harbor dredging. It is our understanding that the Cleveland-Cuyahoga County Port Authority can supply data of this nature.
3. We would like to see Chapter 3.2 "Adverse Impacts," item j. discussed at greater length in view of recent questions raised by the City Utilities Director as to Munny Light Plant cold water intake disturbance created by Dike 12.

Sincerely yours,


Norman Krumholz
Director

cc: Richard Schultz, Port Authority Director
Raymond Kudukis, Utilities Department Director

NK:rcb

D2

ALLEN FONOROFF, CHAIRMAN GERALD T. McFAUL JOHN WOOTEN BISHOP WILLIAM M. COSGROVE
ROBERT D. STOREY WALLACE G. TEARE JAMES B. DAVIS NORMAN KRUMHOLZ, PLANNING DIRECTOR

The Cleveland-Cliffs Iron Company

Offices 14th Floor Union Commerce Building

Cleveland, Ohio 44115

March 1, 1974

Major Charles T. Meyers, III
Acting District Engineer
Buffalo Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Major Meyers:

The Cleveland-Cliffs Iron Company supports your position of open lake dumping of river spoil as soon as existing space in pilot site #9 is filled, and until dike site #12 is completed and available for dredge spoil as indicated in your updated draft Environmental Statement - Cleveland Harbor Operations and Maintenance of January, 1974.

The Cleveland-Cliffs Iron Company manages a fleet of fourteen Great Lakes bulk carriers with a trip capacity of 230,925 tons. Eight of these vessels are termed Cuyahoga River vessels. The river ship dimensions vary from 600 to 620 feet in length with beams from 60' to 64' and have a carrying capacity from 13,350 to 16,400 when fully loaded. Maximum drafts vary from 22' to 25' 1-1/2". The Cleveland-Cliffs Iron Company is obligated to transport all of the Great Lakes iron ore requirements for Republic Steel, which includes 1974 delivery of 4,700,000 tons to the Republic Cuyahoga plants. This tonnage is more than the eight vessels may carry during a normal season operation, and it is therefore necessary to employ the services of other river-size vessels to complement the Cliffs fleet. The limited number of Great Lakes river-size vessels makes it most imperative that the vessels transiting the Cuyahoga River operate at maximum drafts and efficiencies.

Cleveland-Cliffs not only favors open lake dredge spoil dumping so as to meet your suggested draft of 19 feet for 1974, but encourages consideration to dredge the River to the project depth of 23 feet LWD to make possible full utilization of the Cuyahoga River as intended by the Corps of Engineers and Congress when the 23 foot draft project was approved.

Cleveland-Cliffs' reasons for urging restoration of the Cuyahoga River to its full authorized project and the completion of projects authorized but not underway are as follows:

The immediate impact of failure to keep the Cuyahoga River open to full authorized effectiveness creates an adverse affect on the economic position of the vessel companies delivering raw materials to the steel industry. 1974 vessel

D3

- Continued -

rates are not expected to reflect the loss brought about by less than full project operations. The competitiveness of the vessel fleets transiting cargo to upriver locations is a keen consideration because a river vessel does not have the economic potential of the large lakefront vessel. Economics are most important when considering new ships, future planning, and future rate setting for the steel industry.

Economic considerations have immediate impact on jobs for the City of Cleveland and wherever steel is made, sold and consumed as a result of the Cuyahoga River industrial structure. For example, 1,000,000 tons of the Republic upriver dock delivery is transshipped to the Warren and Youngstown district plants. The Cuyahoga River consequently has an affect on the final steel cost produced at Warren and Youngstown. Steel from Cuyahoga delivered raw materials is used nation wide and affects many jobs.

Immediate Impact

Reduced Vessel Drafts - Economics

About 376 trips of river-size steamers will be required to deliver 1974 commitments to Republic upriver docks. Any reduction in allowed freeboard draft will affect each ship transit about 80 tons per inch. Consequently, one inch of reduced draft for 376 trips is equal to 30,080 tons or two vessel loads a year at a cost of \$70,000.

Other tonnages delivered to Republic include 850,000 tons of stone and 200,000 tons of Canadian ore. J&L also receives 2,500,000 tons, U. S. Steel receives approximately 1,500,000 tons, and Cleveland Builders Supply about 500,000 tons in ships which are equally affected by vessel drafts.

River Transit Time - Lack of full river draft creates a longer steamer transit time, which is an extra operating expenditure of approximately \$225.00 each delay hour. A favorable Cuyahoga River passage from harbor entrance to the upriver docks is approximately three hours and fifteen minutes. Some passages require as long as five or six hours because of slow going when full project depths are not available. Vessels experience steering difficulty when moving through channel silt, and also, at the turns when the bow and stern leave the exact center of the channel and encounter shallow drafts at edge of the government project. The Cuyahoga River is perhaps the world's most difficult channel to navigate with a 600-foot vessel. The transiting of the turns is a difficult maneuver. Full authorized project depth would help the passage.

Energy - The increased time required to navigate the river because of insufficient water volume is also an increase in fuel energy required to operate the main engine. This energy consideration comes from 1) the extra revolutions required to drive the ship through the mud, and 2) the extra time required to transit the river. The energy demand between an optimum passage and one hindered by lack of draft is about 500 to 1,000 extra gallons of fuel valued at \$130.00 to \$260.00 per passage.

- Continued -

Ship Handling - Great Lakes vessel masters are experts at handling ships with small water tolerance between vessel and the bottom and river banks and docks. However, the Cuyahoga River is an exasperating experience for the most professional of vessel masters.

The economics of Great Lakes shipping require that the largest possible vessel be used. The Cuyahoga River vessel limitation is generally accepted as being a 630-foot vessel with a 68 foot beam, with a draft limitation which will permit the vessel to move through the river bottom sludge without stopping. Vessels start the season at a draft limitation of about 20' and gradually increase the draft to a maximum limitation of 23' if channel depths permit. Bernoulli's Theorem application greatly affects the vessel control when moving through the sludge and when making turns, meeting vessels, or passing a vessel at a dock.

Consequently, masters occasionally lose vessel control and vessel accidents occur. Accidents also increase operating costs. The pushing of a vessel through the mud is a known source of wear on the bottom plates as dry docking inspections demonstrate.

Full Authorized Draft

The intricacies of ship handling and the consequent delays caused by lack of a full authorized draft is a reason for recommending that the river be dredged to the full 23' authorized channel and not only the suggested 19' LWD. The expected 1974 plus four foot Lake Erie gauge and the full 23' channel authorized depth will permit faster and safer transits, and allow increased draft for the two Cliffs' Maritime Class ships, S/S CADILIAC and S/S CHAMPLAIN. These two ships normally lighter 3500 tons of cargo at the Erie Ore Dock and then make river transit at a 20' draft. Other deep draft vessels transiting to other upriver docks are known to offload 5000 tons before arrival in Cleveland in order to make the transit up the river at maximum river drafts.

Safety

The need for an adequate flow of water to vessel intakes for main engine operations is often overlooked by vessel observers. The Cliffs Fleet has experienced numerous engine problems at shallow river locations because silt and mud plug the condenser intakes needed to operate the main engine. Even though astute operation procedures are followed, ships have been known to lose not only the main engine, but the complete power plant and the vessel becomes dead in the water because intakes plug with silt.

Competitive Position

Vessel Dimension - The competitive position of the vessel companies transiting ore to upriver docks is a most serious economic matter. The average cargo on the Cuyahoga River is approximately 12,500 tons as compared with 25,000 to 58,000-ton cargoes unloaded at lakefront docks such as Burns Harbor.

A 25,000-ton vessel unloading at a lakefront dock delivers cargo at 45% the cost of a ship transiting the Cuyahoga River under best conditions.

Cuyahoga River Study

The U. S. Army Engineer studies for the Cleveland Harbor and Cuyahoga River should be expedited to assist competitive delivery of raw materials to steel mills located at upriver locations. The physical dimension of a steel plant and the divisions needed for a coordinated operation do not lend themselves to transfer to a more suitable lakefront location either environmentally or economically. It is, therefore, most urgent that the Cuyahoga River be maintained in the best possible authorized manner and that improvements be contemplated.

Immediate and Future Impact - Cleveland Jobs - The immediate impact of the complete closing of the Cuyahoga River would have a dramatic affect upon employment in the Cleveland steel mills, the Cleveland industries depending upon steel, and steel supporting industries. An estimated 100,000 Cleveland jobs are attributed to the steel industry.


There is no other economical means to transport raw material to the Cleveland plants. Even if cargoes were unloaded at the Cleveland lakefront, the nearest location, and shipped by rail to the upriver steel plants, a prohibitive extra railroad cost of \$3.73 per ton would be added to delivery of raw material. Railroad delivery charges from the Missabi Range to Cleveland of \$14.17 per ton is prohibitive.

In addition, steel mill, manufacturing, and allied support jobs would be affected in the Warren district which receives 1,000,000 tons of iron ore transported by the River Terminal Railroad from the Republic unloading dock.

Each ton of steel requires 11 man-hours of production which is multiplied many times when used to produce manufactured products throughout the nation.

We are preparing an appendix to your letter on the subject of handling of dredged material and open lake dumping which will be forwarded to you early next week.

Very truly yours,


Richard P. Eide, Manager
Marine Division

RPE/pm

The Cleveland-Cliffs Iron Company
Marine Department

THE CASE FOR OPEN LAKE DUMPING
WHEN DIKES ARE UNAVAILABLE

March 1, 1974

The National Dredging Need

The need for maintenance dredging of Authorized channels is a national concern because of the no open lake or ocean dumping. The dredging programs of the Corps are falling behind as much as four years in the maintenance of approved projects. This means that when dredging is resumed at full capacity, sufficient equipment will not be available to accomplish the tasks. Also, further delay in commencing the national and Great Lakes program creates the economic need for contract dredging companies, as well as the Government dredging capability, to find other work. It is entirely a possibility that the dredging capability may be transferred to foreign countries where work is available. Then, the equipment is not available for USA contracts.

There is a need for contract dredging to clean out non-project work at docks so vessels may close in and be reached by unloading equipment.

Great Lakes Dredging

The normal dredging program for the Great Lakes is about 12 million cubic yards each year to keep the harbors and channels open for optimum navigation. Improvement work averages about one million cubic yards a year. Concern over polluted dredging spoil on the Great Lakes has limited the annual dredging program during the last six years. Only 7 million cubic yards were dredged in 1973. This same level has been maintained during the last six years. Open lake dumping of polluted material has not been made in the States of Illinois, Michigan, Minnesota and Wisconsin for the last four years.

P.L. 91-611

The criteria for determining the acceptability of dredged spoil for disposal to the national waters was adopted by the Federal Water Quality Administration in December 1970. The criteria were subsequently implemented by the Environmental Protection Agency in January of 1971.

Public Law 91-611 authorized the Secretary of the Army, acting through the Chief of Engineers, to authorize and construct spoil containment areas. The initial plan called for 10 years of dike dumping after which it is hoped that pollution control advancements will again make open water dumping possible within the criteria of EPA.

The intent of the pollution control program is clear, but failure to dredge approved Congressional authorized programs has created a backlog of dredging. It is now apparent that the maintenance of the authorized projects requires action. The dredging capability to take corrective action to restore the channels and harbors to authorized depths may necessitate a long range dredging program.

Programs to clean up pollution contained in the drain off waters of the cultural, as well as the city waste flow, hardly seems possible in 10 years. Drains from city streets and other than sewage wastes are estimated to require sewage control effort. Further, pollution control plants of six to one capability will be required if rain wash off into sanitary drains is to meet criteria.

It is therefore important to the national interests that open lake dumping be considered when dike control is not available. Also, a review of the total control program should be considered in view of concerned authorities comments which follow:

Brig. Gen. Walter D. Bachus -- stated before the Joint Conference of the Lake Carriers' and Dominion Marine Associations that his staff now is working

on a crash program to solve problems caused by increased silting of navigation channels.

The dredging problem is starting to become acute in Cleveland and many other Great Lakes ports. Navigation channels are filling up with silt to such an extent that vessels must operate at reduced draft.

"There is a direct relationship between employment in the Great Lakes region and the profitability of the shipping industry."

"If ships must load light because of shallow waters, their profits are wiped out, and the prices of the commodities they carry will have to rise, meaning higher prices for consumer goods," he said.

The Corps of Engineers has been unable to keep up with its normal dredging program in the lakes because of environmental restraints, with the result that the backlog of work has risen by four million tons of silt each year, he explained.

The situation is rapidly becoming intolerable, Gen. Bachus said, and he has put his staff to work on a crash basis to find some answers acceptable to environmentalists and commercial interests.

The solution will probably involve increased federal spending running into the millions of dollars, he indicated. (CLEVELAND PLAIN DEALER January 20, 1974)

Charles K. Hurst, Chief Engineer, Public Works, Canada -- Also at the Joint Lake Carriers' and Dominion Marine Associations Conference February 19, 1974 questioned the time period to clean up water pollution "by treating systems instead of the disease." He pointed out the conflicting use of our waters. Water drains off the cultural waste, sanitary and waste water sewers as well as industrial wastes.

These wastes need clean up and the great recuperative powers of nature should be considered as a means to clean up what man is not ready to accomplish. The natural process of storms, the sun and the stirring up of polluted wastes by currents and natural systems is accomplishing more than human devised systems.

Also, at a greatly reduced cost as dikes and restraining systems are many times more expensive than nature's systems.

He suggested river flushing as a means to clean up sediment collections.

He advocated not sticking navigation interests for the collection of material settling out in channels account on account of the activity of others.

Ira L. Whitman, Director, Ohio Environmental Protection Agency, --
in a January news release proposed the reducing of four water quality standards for the Cuyahoga River.

The reduction is necessary because, even with the best available technology, the agency's present standards for the river cannot be met, he said.

These standards, adopted last July, apply to most of the state's surface waters.

The relaxed standards will still require that industry use the best available technology to control pollution, Whitman explained.

The Ohio EPA would prefer to maintain present standards as a goal to be met, Whitman said. However, the agency is legally bound to enforce the standards it adopts.

Under the proposed changes, the river, from near Harvard Ave. SE to Lake Erie, would not need to contain any dissolved oxygen from July 1 to October 15, although some was previously required.

Also, the temperature of the river could be three to eight degrees higher than present standards, depending upon the month. Thus, in July the maximum temperature could be 95 degrees instead of the present 90.

Also proposed is raising the acceptable concentration of ammonia and phenols - certain acid compounds - in the river.

The Ohio EPA decided several weeks ago to seek the changes after tests were conducted in the river. (CLEVELAND PLAIN DEALER)

Andrew M. White, an assistant professor of biology at John Carroll University -- said he considers the proposed changes strategic retreat.

White, who has made extensive studies of the river, said, "I don't see it as giving in to the steel mills, but as a realization of what the Cuyahoga River really is. Let's get the standards down so they can be met temporarily, then move them back up as the technology improves." (CLEVELAND PLAIN DEALER January 20, 1974)

Mrs. Charles Stebbins, chairman of Citizens for Clean Air and Water, an environmental group here -- said, "It may not now be possible to meet the standards in the Cuyahoga River, but look at how many years we have been waiting to get water cleanup, and the thing is proceeding at a snail's pace." (CLEVELAND PLAIN DEALER January 20, 1974)

The Advantages to Open Lake Dumping

Open lake dumping of dredge spoil has certain advantages over dumping into dike sites or a no dredge program if the dike sites are not available for dumping. These are:

- 1) The cessation of open lake disposal of dredging will not stop pollutants in the sediment from reaching the lake. The polluted material will enter the lake ecosystem in gradual amounts during periods of low flow and in significant slugs during periods of high flow.

The transfer of the sediments to an open lake dumping area will eliminate the normal flow patterns of river sediments moving behind the east breakwall and onto the east beaches. The area of flow is a high recreation area.

2) Open lake dumping is the most economical method of disposing of harbor sediment. The monies saved could be better applied to a cleanup of pollution sources flowing to the river.

3) Air pollution, dust and heat from dike sites will be eliminated.

4) Water pollution, spillage, erosion on water areas and construction operations in water areas of dikes will be eliminated.

5) Land dispoilment, land defacement, spillage and waste will be eliminated.

6) Noise pollution and machinery will be elminated at the dike site.

7) The need for aquatic habitat, maximum care, including seining as necessary to prevent fish entrapment and kill, will be eliminated.

8) General, sediment control, drainage ditches, borrow pits, clearing and grubbing, eroads, pesticides and herbicides will be eliminated.

9) Safety factor endangering small boats operating in the recreation area will be eliminated if dredges do not move to the dike.

10) Safety factor to aircraft arriving and departing Burke airport will be reduced if ships, booms, and equipment are not at the dike site.

Impact on Fish

Open lake dredge material dumping could have a favorable impact on improving the spawning of fish. The cleaning out of sediment and polluted materials could provide a cleaner stream to fish to swim to shallow spawning areas upstream.

The GLFC Technical Report No. 15 (p. 18) states that no known species of lake fish deposits unprotected eggs on an undisturbed mud bottom. In lakes, such bottom materials are unsuitable for egg development apparently due to low dissolved oxygen levels or high hydrogen sulfide concentrations at the mud-water interface. Therefore, the cleaning out of rivers will encourage fish to enter and spawn.

From studies completed in 1968, the Great Lakes Laboratory concluded that the concentration of fish within a proposed dike project was no greater than outside the area, except in the vicinity of the Corps of Engineers lake dumping ground at Buffalo where more fish were found above the bottom sediments with higher organic content.

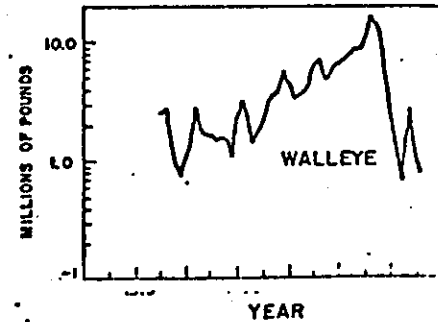
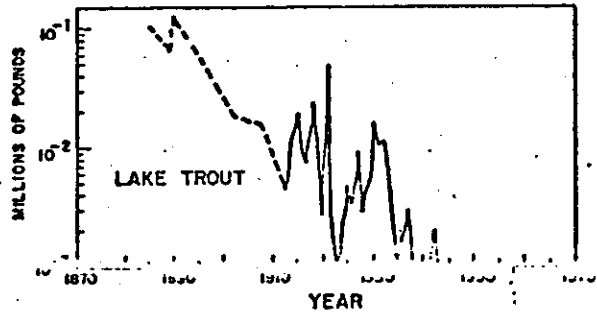
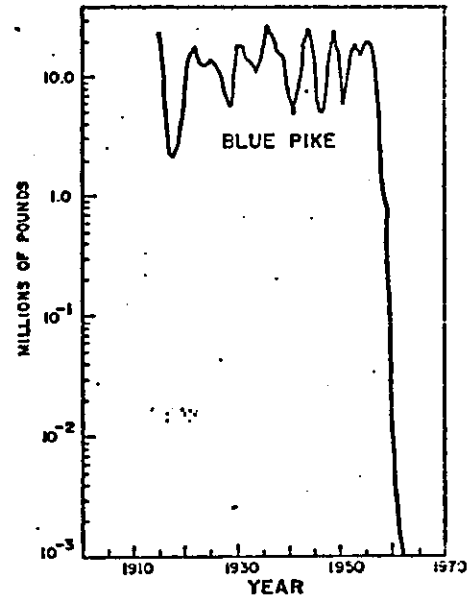
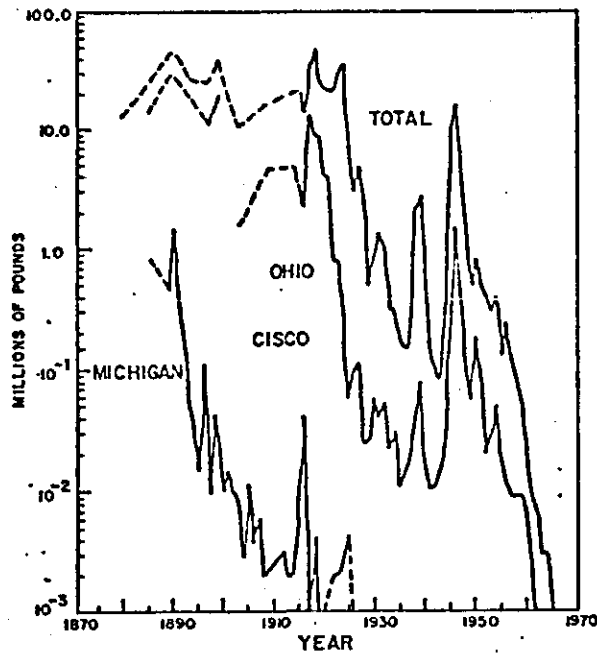
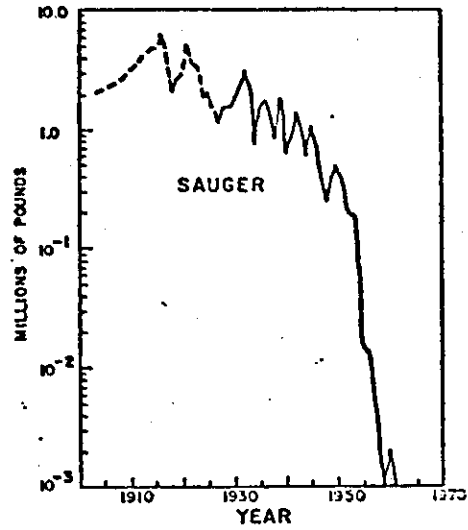
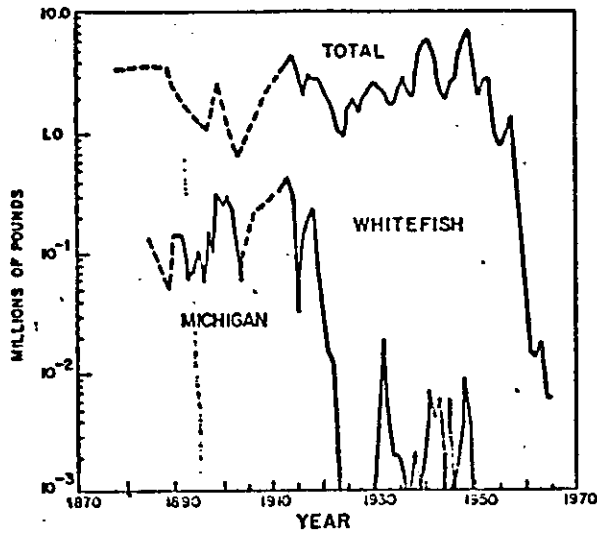
"Spoil offers distinct possibilities for enhancing substrate conditions in open water areas. Both sport and commercial fishing have been and can be improved through selective spoil disposal." (Technical Report H-72-8, p. 11)

Commercial fishermen have long recognized that fish concentrate in areas of spoil where feed is abundant as a result of the organic growth promoted by rich land run off. The western end of Lake Erie has long been the favorite fishing grounds of the commercial fishermen. Fifty million pounds of fish continue to be harvested each year.

The commercial production chart of fish by year from the Statement on Pollution and Eutrophication of the Great Lakes, A. M. Beeton, May 1970, could indicate that other than pollution reduced the harvest of fish.

The overproduction of the industry, the harvesting of small fish, the natural enemy of fish (such as lamprey) can cause great inroads in the fish population.

The recent entry of the Coho Salmon as a Great Lakes game fish is startling proof that protected fish properly cultivated can produce record crops and record size fish.



Commercial production of blue pike, cisco (lake herring), lake trout, sauger, walleye, and whitefish in Lake Erie. Broken lines represent production during periods when annual data were not available.

Source: Statement on Pollution and Eutrophication of the Great Lakes, A.M. Beston, May, 1970.

FIGURE 9

Dredge Material Contribution.

The contribution of open lake dredge material to lake pollution and deterioration still remains open to question. It has been estimated that dredge material contributes only 8% of the total sediments to the open lake. The remaining 92% is carried by the normal currents and flow of rivers and run off of the land.

Comments from various authorities are as follows:

Technical Report H-72-8 Disposal of Dredge Spoil

Most of the concern over the dredging-disposal process is directed toward the effects of open water disposal on water quality and aquatic organisms. It has long been known that, depending on individual circumstances, bottom sediments are continuously being resuspended by natural processes. Thus, under cursory examination, the open water disposal of bottom sediments may be viewed as an extension of natural processes. (Preface p. V)

Primarily because of the concern over the open water disposal of polluted sediments, a trend toward land disposal has developed. Yet, without definitive research, it is not possible to determine from an overall environment viewpoint whether land disposal is in fact a wise alternative to open water disposal. (Preface p. VI)

Studies to date in which attempts have been made to determine the effects of open water disposal have documented certain short-term effects. These include temporary increases in turbidity, temporary decreases in dissolved oxygen, and the smothering of benthic organisms. Additional research is needed to establish the significance of these effects under different environmental conditions. Careful project planning and supervision of the disposal operation can minimize these effects. (p. 11)

The possibility for detrimental long-term effects due to open water disposal exists, but attempts to document these effects have to date been largely inconclusive. Although such effects may be inconclusive, they appear to be quite subtle and therefore hard to assess. Research in the form of laboratory studies and field pilot studies in which conditions can be controlled offers the best chance for defining cause-effect relations. However, because such effects are subtle, some monitoring of disposal operations will be necessary. (p. 11)

...Along these lines an interesting paradox exists that was discussed in connection with Great Lakes studies. Basically the discussion revolves around the method of open water disposal; that is, should the disposal procedure be designed to minimize or maximize the contact between the dredged materials and the water? (p. 43)

In natural sedimentary processes, solids are eroded from the land and are transported in the water until they eventually settle to the bottom. Thus, these solids and any sorbed constituents generally have a maximum exposure to the water during the time of transport. One theory is that these constituents are only released to the water under anaerobic conditions. An accompanying view is that, when these sediments are on the bottom, significant constituent interchange with overlying waters can occur only at the sediment-water interface. Thus the interchange is minimized as long as the bottom sediments are not disturbed. (p. 43)

H. L. Windom conducted laboratory and field studies to determine the effects of disposing polluted and nonpolluted sediments on salt marshes and on water quality. Based on the first year's preliminary findings, he concluded that:

(a) In relatively unpolluted areas, dredging had no effect on water quality, whether the spoils were placed in diked or undiked areas.

(b) In polluted marine environments, water quality impairment by dredging activities showed no simple relation to the composition of the dredged sediments.

(c) The effects on water quality due to dredging depend on the characteristics of the area; therefore, no general criteria can be established for dredging in marine waters until a significant variety of dredging situations has been studied.

(d) The time in which water and dredged material stay in contact in a disposal (contained) area influences the quality of the effluent.

(e) The dredging of "polluted" sediments does not necessarily impair estuarine water quality. (p. 48)

Although most of the studies reviewed have dealt with marine or estuarine environments, there is one notable exception -- the studies to determine the effects of dredging on water quality in the Great Lakes. (p. 48)

One of the major problems identified was the lack of uniform procedures for sampling and analysis. In most cases, a single sample was collected and treated as being representative, although it was demonstrated that the sediments vary significantly in their degree of pollution both within and among harbors. (p. 48)

The data obtained indicated little influence on water quality that could be attributed to dredging, especially in areas where the water was already heavily polluted...at other harbors (Buffalo, Cleveland and Great Sodus Bay) dredging was shown to improve conditions because of the removal of the polluted sediments. (p. 48)

It is concluded that the studies made in the open lakes did not yield the needed information, and considerable doubt remains about the fate of dredged material after it has been disposed of in the lake. Subsequent effects on water quality and associated flora and fauna are equally in doubt. (p. 48)

Dredging/Water Quality Problems, Volume 1

Open lake disposal areas were sampled before, during, and after disposal in order to evaluate associated effects. The predominant finding in these studies is that water quality changes attributable solely to open lake disposal cannot be detected. In general, effects of disposal could not be differentiated from lake background conditions which reflect variations and influence of other factors not related to disposal operations. (p. 6.58)

Appendix A4 shows that dredging and the disposal of dredgings exert little if any significant lasting effect on the quality of surrounding waters. At Cleveland, tests by Lake Survey showed nothing but passing local effects, such as depression of dissolved oxygen levels and an increase in suspended solids. Changes in other chemical parameters were masked by the high levels of the parameters occurring even when dredging was not in progress. The FWPCA report on Cleveland concluded...There were no apparent lasting effects, but there were beneficial reductions in noxious materials. (p. 6.64)

In 1967, FWPCA sampled the waters while river sediments were being discharged. As shown by their report, Appendix A5, no significant immediate effects were observed on the overlying waters...At Cleveland's four water intakes, no changes in water quality could be attributed to dredging.

In 1964, a special study of benthal deposits was made by personnel from the Public Health Service's Lake Erie Field Station (presently Lake Erie Program Office FWPCA). In connection with the 1964 study, two samples were taken within the site of a spoil disposal area abandoned in 1957. Samples from this area, which lies approximately nine miles from the mouth of the Cuyahoga River, were quite like muds from the central basin of Lake Erie. (p.6.66)

Board of Consultants

One of the principle assignments to the Board of Consultants was to evaluate the effect on water quality and biota of disposal of dredgings in open water areas of the Lakes. The Board states that the ultimate fate of the dredgings deposited into the Great Lakes and their effect on water quality remains unknown despite much sampling and analytical work in 1967 and 1968. The Board concludes that they cannot yet state unequivocally just what the long-term impact will be for the present method of disposal of dredgings into the Great Lakes.....(p. 10.10)

Although the Board's conclusions relate specifically to heavily polluted dredgings, they apply also to polluted sediments reaching the Lakes by natural transport. (p. 10.10)

The most that can be said is that some small fraction of the pollutants from individual drainage basins reach the Lakes in the sediments dredged from the harbor at the mouth of the tributary and deposited in the open water of the lake. In some instances, such as for Cleveland Harbor, the fraction is as high as one-half due to inadequacies of municipal sewage treatment facilities. The remainder is carried out either in solution or suspension in river flow or in other direct discharges to the lake.

Pollutants that remain fixed in sediments do not affect water quality. The consensus is that, at a given time, phosphorus in harbor sediments is not likely to degrade the lake environment to the extent of an equivalent amount of the same element in solution in river water. (p. 10.18)

River Water Quality Improvement

A 1973 eight-month chemical analysis of the River water by Judy L. Michaels impressed the Ohio Academy of Science sufficiently to award her a place in The Ohio Science Symposium contention.

"I found the water better than I thought it would be," she said.

For eight months, beginning last March, she analyzed eight samples of water from each of seven sites on the river from its mouth south to Hiram. "I took chemical tests that the EPA (Environmental Protection Agency) might also be involved in."

One of these was the ammonia content of the water, one of the most poisonous substances. And the level was below the standard set by EPA, Miss Michaels found. "EPA says the standard should be about 1.5 milligrams per hundred and I found it to be safe at an average .25," she said.

The test for oxygen, which shows whether a river is dying, also was a surprise to her. Her tests, she said, proved water life could survive -- in all the areas, including the more polluted downtown Cleveland section.

(CLEVELAND PLAIN DEALER February, 1974)

Cuyahoga River Waste Improvement

Another tangible indicator of improvements is the Corps of Engineers report on dock owners charges for deposits of dredged material placed in spoil areas. Also, the amounts charged to steel companies for attributed deposits of solids in navigable waterways.

Major Charles T. Myers III said "Both tabulations cover only Cleveland Harbor. You will note that charges for deposits of solids have decreased with time, reflecting an improvement in waste disposal practices."

The American Way

The relation between environmental development and protection was well summed up by Major General Ernest Graves at the annual banquet of The Great Lakes Commission September 1972. His analysis of the industrialization impact, good or bad, on the environment and the wealth and good of America applies to the question at hand.

A copy of his remarks is attached.

The American Way

An Address by Major General Ernest Graves

at the Annual Banquet of

The Great Lakes Commission

Bloomington, Minnesota — 25 September 1972

General Warren, distinguished members of the Great Lakes Commission, fellow guests at this splendid annual meeting, ladies and gentlemen:

It is a great pleasure to be here this evening among so many friends in the Great Lakes family. There certainly is a warm bond among all of us who enjoy so many benefits from the lakes and who share so many concerns for their wise use and conservation.

I bring you greetings from the chief of army engineers. Lieutenant General Fred Clark, his support of water resource programs on the Great Lakes has been constant and enthusiastic. He asked me particularly to express his high esteem for the work of the Great Lakes Commission in fostering the well being of the whole Great Lakes region.

This noon at lunch we heard a compelling presentation from Governor Wendell Anderson of Minnesota on environmental problems and needs and the programs we must pursue to meet these problems and needs straight on. I am sure that I speak for everyone here when I express the strongest support for preservation and enhancement of the environment. About the importance of this matter there can be no question.

My purpose this evening is to carry our discussion of the environment one step further, to consider the relation between development and protection, and to suggest how best to approach the problems which this relationship involves. For, truly, use and conservation are two sides of the same coin. We cannot address one without the other, and a wise approach to both is the goal of us all.

One of the few things almost everybody seems to agree on these days is that modern civilization has gravely harmed the natural environment. It is taken as a matter of course that the blessings and benefits of our industry and technology have borne a hidden cost that is only now coming to light—a still not fully counted cost in impairment of the air and the water and the biosphere. By indulging himself with his potent but dangerous tools, man has destroyed species that evolved through the ages, and imperilled the very planet we live on—so we are told.

The idea that modern civilization is basically hostile to the environment is presented as something so self-evident that it doesn't need proof—like those other once self-evident ideas that the world was flat and that the sun, like the moon, revolved around the earth.

Nevertheless, I must confess more and more skepticism about some aspects of modern environmental thinking. I note that nature herself has exterminated some 100 million species without any help from man at all. The ice ages came and went—several of them—with no layering of the stratosphere by man-made ions or other human intervention. Lakes died—big ones, bigger than any of our present Great Lakes—before mankind ever came along. Just three volcanic eruptions within the past century put more ashes, dust, and gases into the atmosphere than all man's activities all through the ages, from the caveman's campfire to the Los Angeles freeway.

In other words, I am beginning to realize that some of the fears now being aroused and some of the accusations now being levelled against modern America may not be well founded—not well enough in my opinion to warrant the drastic measure of social and economic upheaval that are being demanded in some quarters. What's more, I'm coming to realize that, in contrast to causing all the environmental damage we're accused of, man and his technology have actually protected and improved the environment in countless far-reaching ways.

So, my message today is that perhaps our best course might be to seek out and learn from the many examples of the beneficial use of human skill, rather than dwelling excessively on the real or imagined mistakes of the past. I am becoming convinced that development is not all bad—far from it—and that some of the proposals advanced in the name of the en-

vironment could be ill-advised, just as some developmental proposals have been. Our best course on resource development probably is the one advised by Davy Crockett about 150 years ago: Make sure you're right, then go ahead.

Modern human skill and knowledge developed sustained-yield forestry, which gives us paper and building materials from an ever renewable, replenishable resource—forests. Modern man has made possible the fish and game management programs which give today's youngsters probably more fishing and better fishing in more streams than their fathers or grandfather ever knew. Modern science is halting the soil erosion that in former ages clogged up rivers and formed huge alluvial plains and deltas.

What about the statement that we have ruined our rivers? Were the streams that nature gave us pure, and are they defiled only by modern man? The first settlement in Georgia was decimated by drinking local water. One of the Hessian officers who fought George Washington in the Revolutionary War wrote to his professor back in Germany about the "unhealthy air and bad water" of Colonial Pennsylvania, which he said were all but unendurable. Green Bay, Wisconsin, got its name from the great masses of algae that flourished in the water. In fact, the first French fur-traders called it Stinkard Bay.

At Concord, Massachusetts, in the 1840's Thoreau's friend Nathaniel Hawthorne wrote: "It is one of the drawbacks upon our Eden that it contains no water fit to drink or to bathe in." He went

on to describe the Concord River as a "gross and impure" stream and made moralizing comparisons between that river and certain people who are fair outwardly but corrupt below the surface. A University of Kansas professor tells us that between 1880 and 1890—frontier days in that part of the world—200 to 300 people died each year in Kansas alone from water pollution. I could cite many similar examples.

So is modern human civilization to be blamed entirely for the fact that our rivers and lakes are not perfect for each of the many purposes that various segments of our population may desire? On the contrary, I think that modern man has, if anything, improved many of our major streams for most purposes. To be sure, there are some short urban rivers, like the Passaic in New Jersey or the Cuyahoga at Cleveland or the Maumee at Toledo, that are in bad shape. But our biggest river, the Mississippi, today carries only half the load of silt it used to carry. Moreover, it has been made to quit flooding, so that there is a much more attractive and healthy natural environment throughout the whole huge valley. Throughout the length of the upper Mississippi navigation project the man-made pools have provided thousands of additional acres of wetlands in which waterfowl and other wildlife have flourished as they never did before. The great Missouri was once so muddy that it held no game fish; Lewis and Clarke found no trout in that river; but today it offers prime fishing way up into Montana. The great river of the southwest, the Colorado, got its

name from its load of red sediment. Now below Hoover Dam it is clear and blue and contains game fish. The Sacramento, California's main river, has been restored from a muddy ruin to a prime trout and salmon fishery. And so on and so on.

So—if we are truly interested in cleaner and better rivers and lakes—what course should we follow? The one that has already successfully improved many major water courses? Or one based on misconception, distorted by fear and exaggeration

Are man's works really so obnoxious, so disfiguring? In the Middle East, Babylon and Nineveh flourished in what was once the garden spot of the world, thanks to man-made irrigation systems. Mongol conquerors deliberately destroyed these works, and the valleys of the Tigris and Euphrates went back to their natural state and have been deserts ever since. North Africa in the days of Carthage was the bread-basket of the Mediterranean. But the Romans wrecked the water resource projects, and North Africa for the past 2,000 years has been an impoverished desert region. Today in southern California another rich and thriving civilization exists in an arid region through very large scale water resource developments. If the people who want to stop California's water resource developments were to succeed, I don't think they would really improve the environment of California any more than the Romans improved the environment of North Africa, or the Mongols improved the environment of Mesopotamia.

The 70-odd years of this century

4

have been the years of most of our industrialization with its consequent impact, good or bad, on the environment. Have these 70 years really been altogether destructive? When Theodore Roosevelt became president in 1901, about four-fifths of America's primeval forests had been levelled. Soil fertility was becoming exhausted in some areas, and in others, prairie soil had been exposed to wind and rain erosion. An estimated one-third of the wild bird population had been destroyed. Some native wildlife species had been exterminated; others like the buffalo, beaver, and seal were endangered. Many rivers were in far worse shape than they are today. Sewage, sanitation, and disease control were major problems; the accumulations of the manure in city streets and alleys were the subject of outcry and alarm.

Theodore Roosevelt and his associates launched a conservation movement based on the principle of wise use of resources—with emphasis on both words. Within seven years more than 224 million acres had been reserved for conservation purposes. Five national parks, 51 bird refuges, and four game refuges were established. This year we are celebrating the centennial of the national park system. It had its greatest growth just after the turn of the century. I hope you will understand my pride that the Army and the Corps of Engineers played a key role in the foundation of the national park system. The bison herds were saved—the biggest ones are at an Army Engineer project up in Montana. Deserts were transformed into fertile farmland. The antiquities act authorized preservation

of cultural and historical landmarks—the army engineers have played a major role in this endeavor too. The first inventory of natural resources ever undertaken by any nation was launched—again with the army engineers playing a key part. Within a few years, 41 states had created their own conservation programs.

That is the record of just the first seven years of the conservation movement. To the best of my knowledge nobody has catalogued all the gains up until today. I wish someone would add them up for us! I wish some of the people who are so vigilant at jotting down the environmental losses of our era would turn their energies to cataloguing its environmental gains as well. They must be tremendous, for they embrace the ardent efforts of three quarters of a century of devoted conservation work at all levels of community life. Federal, state, and local communities; Boy Scouts and Campfire Girls and many other youth groups; the Sierra Club and the Isaac Walton League and many other conservation organizations; universities and their research; agencies like the Soil Conservation Service and TVA; all have made enormous aggregate contributions to wise resource management and use.

As a result, today we have more and bigger and better-managed forests than we had at the turn of the century, and in addition we have developed the whole science of forestry. We have more game preserves. Endangered species have been rescued. Soil and watershed and grassland management programs exist across the nation. Scores of valleys and hundreds of

communities have been protected from flood, drought, and the loss of sustenance. We have hundreds more lakes and have them in regions where lakes were unknown before. In this country, by contrast with others, the great majority of natural wonder spots and historic shrines are owned by and managed for the public.

We have all these things—and at the same time we have multiplied our productivity many times. Our standard of living has become the highest ever known to any nation. And we are sustaining whole populations of less fortunate people overseas.

How blind we would be to ignore enormous achievements like these! How bitter must be those who turn their backs upon such a record, and demand that the whole system that has produced these results must be scrapped and overhauled! Sure, much more remains to be done. The job never will be finished. But I for one believe that today's problems are not a reason for repudiating the splendid progress of the past. I believe rather that past progress should form the basis of our future efforts to manage wisely our natural resource heritage.

Today some preservationists are fond of quoting Darwin's phrase "Adapt or die." But mankind has survived—and man is the only mammal that has survived from the quaternary age—because he has learned to adapt nature to himself, as well as vice versa. A few years ago it became apparent that the Mississippi was about to choose a new course to the Gulf of Mexico—was in fact on the verge of taking over the valley of the Atcha-

falaya, where it had once flowed in earlier geologic times. This change would have meant havoc to both valleys. It would have been catastrophic to New Orleans and the other communities of the present Mississippi Valley; and it would be equally catastrophic to the wilderness values of the Atchafalaya. So the Corps of Engineers recommended and built a project to stop this change-over of the valleys.

Was this preservation, or was it development? What's the difference? Perhaps we would be wise to apply the word "adaptation" to environmental and developmental proposals alike, and thus avoid the derogatory connotations that are forming about both of these terms.

Today, on the basis of fears and alarms that seem to me grossly exaggerated, we are being urged by some to sacrifice many of the gains of modern civilization to achieve a "no growth" society. Such a policy in a society as dynamic as America appears to me as dangerous as it is unnecessary. It would mean deliberately inducing a permanent economic recession, with all its disruption—disruption that would be as destructive of environmental values as of all others. We would in effect be saying to the less privileged members of our society: "Since the economy will no longer grow, anything you gain from now on must be at the expense of somebody else." I find it hard to believe that our economy can be converted to one based on cottage industries and parochial communities and markets except at grave and unpredictable risk. In my opinion, any such policy would be

denying once and for all any hope for a better life to our poor, our unemployed, and our underprivileged.

So I must ask those who advocate "no growth" on environmental grounds, "Does the harm done to the environment by our modern civilization really justify such an upheaval?"

Perhaps modern civilization has not been as considerate of environmental values as we can see by hindsight it should have been. We can do much better in the future. But I believe that today we are seeing in some quarters a potentially very dangerous overreaction that conceivably could become a greater threat to all values, environmental values included, than past development has been.

I don't think we should waste too much time apologizing for past mistakes in development. I have been impressed by some thoughts that Charles L. Gould, the publisher of the *San Francisco Examiner*, has been expressing in speeches here and there. He reminds us, in effect, that no other people has ever accomplished so much and given so much and asked so little. We have upheld freedom in all parts of the world without coveting a single acre of anyone else's territory. Instead, we have used our strength and our own wealth to aid the vanquished and the poor of more than a hundred nations, regardless of race or nationality, friend and foe alike. We have struggled for progress and betterment at home. We have conquered many great plagues. We have built more schools and colleges and

hospitals and libraries than any other generation in any other land. We have trained more scientists, doctors, lawyers, teachers, engineers, and physicists than our forebears for thousands of years before. We have raised our standard of living and lowered our hours of work. We have taxed ourselves unmercifully to bring hope and health to the sick, the poor, the young, and the old. We have done more to bring dignity and equality and opportunity to minority groups than any other generation has ever done in any nation since the dawn of history.

It seems to me that the Great Lakes Commission is most representative of the people I know who believe in the success of America. Certainly you are keenly aware of environmental matters. Your concern for the environmental quality of the Great Lakes has been demonstrated again and again. But your approach to these problems and to the future economic and social welfare of the Great Lakes region is very positive.

Sure, there is still much work to be done. There always will be. There are still challenges to be met, hopes to be realized, goals to be attained—there always will be. But they will *not* be attained by fear or despair or negative thinking. They *will* be attained by continuing on the course that has given us the magnificent gains already achieved—the course of courage and responsibility and enterprise. In other words, the American way.

Thank you.

Reproduced by Lake Carriers' Association in the public interest.



PORT OF CLEVELAND

CLEVELAND - CUYAHOGA COUNTY PORT AUTHORITY
101 ERIESIDE AVENUE, CLEVELAND, OHIO 44114 (216) 241-8004

February 14, 1974

Major Charles T. Myers, III
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

In response to your request for comments on the Cleveland Harbor Maintenance Dredging Environmental Impact Statement, I prepared the letter attached. For emphasis, our position was formalized by Board Resolution 1974-14, and a copy of that is also enclosed.

Also enclosed is a copy of my letter to Dr. Whitman of Ohio EPA, encouraging concurrence in interim open lake dumping. Similar letters have also been sent to the following:

Ohio Department of Natural Resources
Great Lakes Basin Commission
Mayor, City of Cleveland
Northeast Ohio Areawide Coordinating Agency
Regional Planning Commission
Three Rivers Watershed District
Cleveland City Planning Commission
Cleveland Department of Public Utilities
Greater Cleveland Growth Association
Citizens for Clean Air and Water
Citizens for Land and Water Use

As time permits, we shall try to contact additional interested parties.

Sincerely,


Richard L. Schultz, Executive Director
Cleveland-Cuyahoga County Port Authority

RLS:drb

Enclosures



PORT OF CLEVELAND

CLEVELAND - CUYAHOGA COUNTY PORT AUTHORITY
101 ERIESIDE AVENUE, CLEVELAND, OHIO 44114 (216) 241-8004

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February 6, 1974

Robert W. Berman
Chairman

Walter S. Smith
Vice Chairman

Arthur C. C. Brown
Secretary

Joseph W. Smith
Assistant Secretary

John J. Brown
Assistant Secretary

John W. Keenan
Assistant Secretary

Frederic C. Lynch
Assistant Secretary

Anthony C. Saracino
Assistant Secretary

Major Charles T. Myers, III,
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

I am responding to your letter of January 15, 1974 wherein you invited comment on the Cleveland Harbor Maintenance Dredging Draft Environmental Impact Statement dated January, 1974.

The Cleveland-Cuyahoga County Port Authority is an economic development agency concerned with maximizing the utilization of the Cleveland waterfront. Our expertise is in the area of economics, trade and commerce, and not in biological analysis. However, we have had the opportunity to review other environmental impact statements and we have reviewed this one thoroughly. With that caveat, we believe the Maintenance Dredging Impact Statement accurately conveys the environmental and economic situation at Cleveland Harbor with and without maintenance dredging. We believe, however, additional emphasis could be given to the adverse economic consequences of the latter alternative, and will expand upon this later.

With respect to one minor technical detail, we would suggest restatement of the last paragraph on page 47 to clarify that there is one sewage treatment plant located at the western extremity of the Harbor, (the "Westerly Wastewater" plant) plus the "Southerly" plant, correctly located upstream on the Cuyahoga. Also, the Westerly plant outfall extends outside the Harbor and breakwaters, and only the Southerly plant effluent affects Harbor water quality.

With respect to alternatives to maintenance dredging as discussed on page 55, I would like to amplify and partially quantify the statement that discontinuance of dredging would, "place a severe economic burden on local and some non-local industry and commerce."

Major Charles T. Myers, III
 Buffalo District, Corps of Engineers
 February 6, 1974
 Page 2

A study published by the Port Authority in 1971 indicated a total of approximately 100,000 jobs in the Cleveland area to be directly or indirectly related to the Harbor. An excerpt from this study is as follows:

Cleveland Metropolitan Area
 Employment Estimates (March 1971)

<u>TYPE EMPLOYMENT</u>	<u>TOTAL</u>	<u>PORT RELATED</u>
Transport & Related	52,000	
Overseas cargo related		3300
Lake cargo related		6700
Heavy Industry:		
Primary Metals	37,600	21,300
Fabricated Metals	37,400	9,100
Machinery	71,800	4,300
Transp. Equip.	33,900	2,300
Misc. Manufacturing	79,000	3,000
Trade, Const., Services	<u>509,900</u>	<u>50,000</u>
TOTAL	839,100	100,000
EST. PAYROLLS	\$6.3 BILLION	\$1 BILLION

As indicated, the biggest specific category of employment is in primary metals, reflecting the fact that Cleveland has four steel mills located on the Cuyahoga and dependent upon vessel deliveries for their source of iron ore. These mills in turn are responsible in large measure for the concentration of metals fabrication, machinery and transportation equipment manufacturing in the area. While facilities for overseas cargo and some in-transit iron ore are located on the lakefront where dredging is less critical, the mills are on the Cuyahoga where dredging is approaching crisis.

In an attempt to quantify the impact of discontinuance of dredging, we have determined that there is no acceptable alternative to delivery of raw materials to the mills via vessels. The Cleveland Steel District is located at the western extremity of the area using Eastern Canada ores,— and is at the eastern extremity of the area using upper lakes ores. In short, it would be the high-cost producer if forced to rail, if in fact the railroads could cope with a sudden increment of 17 million plus tons.

Major Charles T. Myern, III
Buffalo District, Corps of Engineers
February 6, 1974
Page 3

It appears that continued shoaling of the Cuyahoga would produce the following series of events:

First, progressive reduction in the revenue producing cargos carried in the vessels going upriver, resulting in losses to the vessel operators subsequently reflected in contract carriage rates,-- or possibly contract cancellations based on "force majeure."

Second, when the vessels could not reach the mills for economic or physical reasons; unloading at the lakefront with transfer to the mills via truck or rail at steep increases in unit costs.

Third, if lakefront unloading were impractical for economic or physical reasons, the vessels would be unloaded at nearby ports such as Lorain or Ashtabula, with additional overland transfer cost and energy consumption.

Fourth, if the alternate ports were not dredged either and/or the Cleveland mills were no longer cost competitive, the local mills would begin shutting down and satellite industry would face higher costs for steel from alternate sources.

In regard to the first stage of added cost, it is estimated that the vessels presently serving the Cuyahoga carry about 80 to 100 tons per inch of draft. The published Duluth/Cleveland rate on iron ore is currently \$2.45 per G/T with contract rates somewhat lower. In effect, the typical vessel loses about \$245 per trip for each inch of draft lost to shoaling. Restating the above, based on vessel operating costs being about the same light or loaded, the additional cost per inch pro-rated against the cargo that is hauled upriver progresses from 1.5¢ per ton at 16,000 tons capacity to 2.5¢ per ton at 10,000 tons capacity.

Representative Vessels Calling the Cuyahoga

<u>Vessel</u>	<u>Max Draft</u>	<u>Max. Long Ton Capacity</u>
Roesch	25'0"	19,225
Frontenac	22'3"	13,300
Pontiac	22'2"	13,350
Cadillac	25'1 1/2"	16,600

In 1973, shoaling reduced safe drafts in the Cuyahoga to about 21' and the above vessels had to load light or unload at the lakefront from 1200 to 4800 tons each trip. Using an average 2 ft. of draft lost to

Section 2. That this Resolution shall take effect immediately upon its adoption.

Adopted:

Chairman

Attest:

Secretary

D33

February 13, 1974

Dr. Ira L. Whitman, Director
Ohio Environmental Protection Agency
Seneca Towers
361 East Broad Street
Columbus, Ohio 43215

Dear Dr. Whitman:

The Cleveland-Cuyahoga County Port Authority was one of the many agencies and organizations invited to comment on the Corps or Engineers' Environmental Impact Statement on Cleveland Harbor Maintenance Dredging.

Since your organization was among those invited to comment, I am enclosing a copy of our response, along with a copy of the related Port Authority Board resolution passed February 8, 1974.

We hope that our documentation of the economic impact of maintenance dredging will persuade you that there is merit in the Port Authority's position recommending interim open lake dumping.

Any recognition in your response of this need for keeping the Harbor navigable will be very much appreciated.

Sincerely,

Richard L. Schultz, Executive Director
Cleveland-Cuyahoga County Port Authority

RLS:drb

Enclosures

Major Charles T. Myers, III
Buffalo District, Corps of Engineers
February 6, 1974
Page 4

shoaling and an average additional cost of 2¢ per ton, the ± 10 million tons of ore moved upriver in 1973 cost somebody about \$4.8 million extra. If the draft limit in 1974 is 19', the penalty will approach \$9.6 million or about \$1.00 per ton of ore.

In regard to the second stage, published unloading rates at lakefront facilities are 69¢ per ton from vessel to cars direct, \$1.57 via stockpile. Since the local mills are not geared to rail receipts, neither they nor the railroads could cope with unit trainloads and the usual transfer would be via stockpile. The cost saved by not unloading vessels at the mill would largely be offset by rail car unloading. Accordingly, \$1.25 would be a conservative average additional handling cost. That plus the \$2.02 per ton rail switch gives \$3.27 per ton extra cost. Hence, in a 10 million ton year like 1973, stage two would cost Cleveland \$32,700,000.

Extrapolating from the published lakefront to inland point rates, the rail haul to Cleveland from Lorain or Ashtabula would be about \$3.00 vs. \$2.02. Hence stage three would cost Cleveland about \$42 million a year,— probably a combination of lost wages and industry profits.

Finally, as a matter of information, the all-rail rates to Cleveland from customary ore sources are: Marquette and Menominee ranges—\$10.55 per ton, Mesabi range—\$13.31 per ton. Rates on ores imported via Baltimore and Philadelphia are \$6.01 per ton, but that is no solution because of mine ownership.

In summary, Cleveland can ill afford the competitive disadvantage already experienced by the limitations of the Cuyahoga. The penalty of further shoaling, stages four, three, two, or even one, are prohibitive in view of the nominal impact on the environment from diked spoil disposal,— or the minimal impact from open lake dumping.

Cleveland Harbor has been described as the cornerstone of the Cleveland economy. Accordingly, we respectfully submit that there is no justifiable alternative to maintenance dredging, and until dike space is available we approve and recommend open lake dumping.

Sincerely,


Richard L. Schultz, Executive Director
Cleveland-Cuyahoga County Port Authority

RLS:drb

RESOLUTION NO. 1974- *pd*

A RESOLUTION STATING THE POSITION OF
THE PORT AUTHORITY ON THE CLEVELAND HARBOR
MAINTENANCE DREDGING DRAFT ENVIRONMENTAL
IMPACT STATEMENT DATED JANUARY, 1974.

WHEREAS, the United States Army Corps of Engineers by letter dated January 15, 1974, invited the comments of the Port Authority on the Cleveland Harbor Maintenance Dredging Draft Environmental Impact Statement dated January, 1974; and

WHEREAS, the Port Authority responded to the request for comments by letter dated February 6, 1974, under the signature of the Executive Director of the Port Authority; and

WHEREAS, Cleveland Harbor has been described as the cornerstone of the Cleveland economy;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Cleveland-Cuyahoga County Port Authority, Cleveland, Ohio:

Section 1. That this Board hereby states as its official position that there is no justifiable alternative to maintenance dredging, and that until additional dike space is available, this Board approves and recommends open lake dumping.

THE *Emerald Necklace*

CLEVELAND METROPOLITAN PARK DISTRICT
2000 Standard Building • Cleveland, Ohio 44113 • 216-621-1054

January 28, 1974

Major Charles T. Myers III
Acting District Engineer
Department of the Army
Corps of Engineers
1776 Niagara St.
Buffalo, New York 14207

Dear Major Myers:

We have reviewed your updated draft environmental impact statement on Cleveland Harbor maintenance, Cuyahoga County, Ohio, and wish to submit the following comments.

As you know, we operate a public swimming beach at Huntington Reservation in Bay Village, Ohio and we have been continually aware of the pollution of the Lake. We note that over recent years this pollution is declining slightly. We feel that the dumping of any pollutants into the open lake from the Cuyahoga River, or any other river, would materially degrade the waters of Lake Erie and to some extent, add more pollutants to our public bathing area.

We further note from your report that you believe in the foreseeable future dredgings from the Cuyahoga River will be free of pollutants and can be dumped into the Lake. We would sincerely like to see this hope become a reality.

Sincerely yours,


O. Dale Graham
Acting Director

ODG:PC

BOARD OF PARK COMMISSIONERS

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O. DALE GRAHAM, Acting Director

JOHN S. PYKE, Vice President
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Acting Assistant Director

COURTNEY BURTON
DAVID G. DINGER, Secretary

JONES & LAUGHLIN STEEL CORPORATION

3 GATEWAY CENTER

PITTSBURGH, PENNSYLVANIA 15230

R. M. WOLCOTT
VICE PRESIDENT-OPERATIONS

February 27, 1974

Major Charles T. Myers, III
Acting District Engineer
Buffalo District
Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

Re: Updated Draft - Environmental Statement
Cleveland Harbor - Operations and Maintenance
January 1974

Your Environmental Statement as it concerns the dredging of the Cuyahoga River has been reviewed by Jones & Laughlin Steel Corporation. This present unfortunate and pressing situation demands immediate action. If dredging in this River is eliminated or reduced, it will have a very significant and direct economic impact on our Cleveland Works steelmaking operations.

All of the iron ore used in our steelmaking operations is received at our Cleveland Works ore dock which is located approximately five miles from the River mouth. Using your Statement listing the total water borne commerce in 1973 as 23,865,810 tons (Table 7), tonnage to Jones & Laughlin accounts for approximately 8.5% of river traffic. In 1973 approximately 200 vessels carried more than 2 million tons of iron ore; 321,000 gross tons of stone; 30,000 gross tons of scrap; and 18,596,000 gallons of oil to be unloaded at this location.

The nine-month lake shipping season must be utilized to transport sufficient iron ore from our Minnesota and Michigan mines to supply this plant with iron ore for the entire 12-month period. A timely arrival of iron ore is absolutely dependent on the navigational conditions of the Cuyahoga River. We have no other reasonable alternative to transport and unload this amount of material. As you are aware, annual maintenance dredging is required to maintain sufficient ship draft.

Major Charles T. Myers, III
Page 2
February 27, 1974

J&L presently employs more than 6,000 people at our Cleveland Works. Annual steel shipments from this plant to our customers exceed 1,390,000 tons. This plant is the prime steel supplier for our Hennepin Works in Illinois. Moreover, it is the prime source of steel for our Cleveland Steel Service Center and our Toledo and Cleveland Container Plants. In addition, numerous customers are dependent on Cleveland Works to maintain their operations.

In this era of a short steel supply, it is unlikely that additional steel sources would be available to replace steel that we would be unable to produce at Cleveland if we could not obtain the necessary iron ore.

In addition to increased unemployment roles and reduced tax revenues, the impact could create a major decline in the Ohio economy which would be felt throughout the Nation.

Jones & Laughlin is but one of the many industries located along, and dependent on, the Cuyahoga River for shipping.

We realize that open lake dumping of some river dredged spoils during 1974 could result in some deterioration of the lake water quality for a short period of time. This should be recognized as a short range environmental setback compared to the major economic impact that would be created if dredging were eliminated or reduced.

We concur with your opinion that the most viable alternative is to dredge the River and dump material in Lake Erie as required until the new dike disposal site is completed. Urgent implementation of this dredging program, in our opinion, is an absolute necessity.

Sincerely,

R.M. Wolcott

bjc

THE KINSMAN MARINE TRANSIT COMPANY
GREAT LAKES TRANSPORTATION
ROCKEFELLER BUILDING
CLEVELAND, OHIO 44113

March 1, 1974

Col. Bernard C. Hughes
U. S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Col. Hughes:

If the navigable portion of the Cuyahoga River is not dredged to the project depth for the 1974 navigation season, it will be almost impossible for Republic, Jones & Laughlin and U.S. Steel to receive the raw materials necessary to keep their plants operating in the coming year. It is necessary that a navigable channel be maintained to the proper depth not only this year but, in coming years.

The steel industry of this country has been operating at record production capacity for the last year and indications are that they will continue to do so for the remainder of this year and probably for several years in the future.

It is important to, not only the Cleveland Area, but to the country at large that the productive capacity of these plants not be interrupted. We do not feel that the necessary raw materials can be supplied by any other method than by lake vessels that have been delivering these tonnages.

If necessary, until the new dike disposal area dispute has been resolved, it would seem that the momentary adverse effect of temporary and immediate open-lake dumping of dredge spoils would be out weighed by the beneficial effect to Cleveland and our country of continuing production at these plants. We do not recommend open-lake dredging except in dire emergency such as faces us at this time.

Very truly yours,



E. J. Andberg
Executive Vice President

kr

LAKE CARRIERS' ASSOCIATION

CLEVELAND, OHIO 44113

(216) 621-1107

March 4, 1974

Major Charles T. Meyers, III
Acting District Director
Buffalo District Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Dear Major Meyers:

The Updated Draft Environmental Statement on Cleveland Harbor Maintenance Dredging dated January 1974 has been received and the following comments on behalf of Lake Carriers' Association are submitted for your consideration.

The Lake Carriers' Association consists of some fifteen separate managements owning and/or operating a total of 168 vessels documented under the laws of the United States and engaged in trade and commerce on the Great Lakes, principally in the movement of basic bulk commodities such as iron ore, coal, grain, limestone, sand, cement and petroleum products. One of the principal ports served by vessels of Lake Carriers' Association members is Cleveland, Ohio, with about 10.3 million transported to docks on the Cuyahoga River.

The continuance of annual dredging to project depths is essential for safe navigation of commercial vessels transporting essential raw materials for basic industries into the Port of Cleveland, Ohio. If maintenance dredging were discontinued, the economic impact on Great Lakes vessel operations would be substantial. Cargo movement arrangements are generally made by multiple year contracts based on vessel transport capability at project depths. The failure to dredge would result in one of the following:

- (1) Dwindling revenues and financial hardships due to decreased available draft at receiving dock.
- (2) Discharging part of cargo at a facility where sufficient water is available and then proceeding to regular receiving dock with resulting adverse financial impact from time lost in unloading at two docks.

March 4, 1974

- (3) Possible cancellation of contract based on "force majeure."

Any unfavorable economic effect on the Great Lakes vessel industry would be reflected throughout Greater Cleveland and, in fact, Northeast Ohio with its ripple effect on basic and satellite industries.

Lake shipping is a frugal user of energy that efficiently transports raw materials. Any lessening of the use of this mode of transportation due to lack of dredging would not be in the best interest of the national economy.

The Rivers and Harbor Act of 1970, Public Law 91-611, subsection (1), provides authorization for the Corps of Engineers to undertake a comprehensive nationwide study and experimentation relating to dredge spoil including alternative methods for its disposal. If diked disposal site No. 12 is not constructed when pilot sites 9 and 13 have been filled to capacity, then in the interim dredge spoils should be deposited in the open lake. This will afford an opportunity for a comprehensive study to be made with appropriate testing, assessment, and evaluation of open-lake dumping. Even though dredge spoil from Cleveland Harbor has been disposed of in the open lake for many years, there is no body of scientific data concerning this matter.

It is recommended by Lake Carriers' Association that part of the funds for fiscal year 1975 for the Dredged Material Research Program be utilized for a field study on dredge spoil from Cleveland Harbor deposited in Lake Erie.

Sincerely yours,

Paul E. Trimble
Paul E. Trimble
Vice Admiral, USCG (Ret.)
President

PET:eh

THE LAKE ERIE WATERSHED CONSERVATION FOUNDATION

621 1317 SUPERIOR BUILDING

CLEVELAND, OHIO 44114

Telephone: 696-3340

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T. V. Vail

March 11, 1974

Major Charles T. Myers, III
Department of the Army
Corps of Engineers - Buffalo District
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

Your Updated Draft Environmental Impact Statement, Cleveland Harbor, Maintenance, Cuyahoga County, Ohio, has been reviewed, although because of the press of other matters not in the depth to which we would like.

There are a number of matters on which we might like more evidence, especially in reference to statements on pages 48-53 referring to beneficial or adverse impacts, but it seems to us these may not have as much bearing under present circumstances as the principal 1974 issue: dump in the Lake or stop dredging.

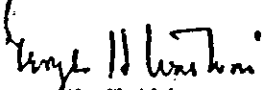
On this issue we see no choice.

We need the navigation channel at depth to support economic shipping, which supports the steel mills and others, and permits them enough income to continue their expenditures to control the wastes they generate. Break this chain and we lose the gains already made in cleaning up the river and protecting the Lake.

Less directly, but importantly in respect to sediment quality, the City needs to keep its industry running so that the Sewer District will have the funds to continue its overall program of waste control.

The lack of diked space for "contained" disposal of dredgings is unfortunate, but the presumptive undesirability of direct lake disposal is insufficient cause to inhibit the means to further progress in pollution control.

Very truly yours,


George H. Watkins
Executive Director

GHW:kep

D41

March 8, 1974

RE: Updated Draft Environmental Impact Statement
Cleveland Harbor Operations and Maintenance
U.S. Army Corps of Engineers

Major Charles T. Myers, III
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207



John J. Gilligan
Governor
Dr. Ira L. Whitman
Director

Dear Major Myers:

The Ohio Environmental Protection Agency has been charged, by the Governor, with lead agency and review coordination responsibilities for the State of Ohio on Federal Environmental Impact Statements. The above referenced Updated Draft Environmental Impact Statement has been reviewed by sections of this Agency, the Ohio Department of Natural Resources, the Ohio Department of Economic and Community Development, the Ohio Department of Health, Ohio Historical Society and the Conservation Foundation. The following comments constitute those received from the above agencies and have been coordinated under the auspices of the State Clearinghouse.

The Updated Draft Environmental Impact Statement is adequate in that it recognizes the more significant environmental impacts associated with the dredging and disposal of spoil material in Cleveland Harbor. It raises one serious issue, however. That issue centers around the likelihood that site 12 will not be completed prior to commencement of dredging activities and your suggestion that the polluted harbor spoil be disposed of by open lake dumping. Such an action would be contrary to Section 123 of P.L. 91-611, to United States Environmental Protection Agency policy on disposal of polluted sediments, and to our efforts in the area of water pollution abatement in Lake Erie.

At the December, 1973 meeting of the Dredging Work Group of the International Joint Commission, preliminary results of sediment sampling in harbor areas of the Great Lakes were presented by Dr. J. Posner of the University of Michigan. The most clearly evident aspect of the data presented was that heavy metal concentration levels from Cleveland Harbor were extremely high in comparison to other

Major Charles T. Myers, III
March 8, 1974
Page 2

sampled areas. Table 9 documents that analysis of sediments in the lower Cuyahoga River and the Cleveland Harbor area indicates high concentrations of volatile solids, chemical oxygen demand, nitrates, phosphates, and grease and oil. A proposal to open lake dump dredged spoil with such constituents appears ill-advised.

Recognizing the necessity to protect the integrity of shipping activities in the Port of Cleveland as well as our responsibilities for water quality and National and International commitments, we offer the following for your consideration:

1. Sounding in the Cuyahoga River, in addition to the proposed soundings in the outer harbor, should be made in order to determine the exact amount of dredged spoil which will be involved in this year's dredging activities.
2. The alternatives of temporary land disposal of the polluted sediments should be assessed. As a temporary measure, the possibility of piling spoil (if necessary temporarily diking using rip-rap) on unused land in the harbor area appears to exist and should be explored.
3. The possibility of adding height to the sides of the two existing disposal sites, thereby increasing their storage capacity, should be analyzed.
4. The possibility of closing off portions of the site 12 structure and depositing in that area until the entire disposal area is available merits consideration.
5. Consideration should also be given to placing the most contaminated spoil in sites 9 and 13 so that the least contaminated spoil, might, as a last resort upon exhausting every other alternative, be considered for open lake disposal.

In addition to these suggestions, it should be noted in the Final Statement that Lake Erie is still approximately 1.5 feet above normal level. The effect this higher lake level may have, if any, on the amount of maintenance dredging necessary should be discussed.

More detail should be given to the effect of open lake dumping on overall efforts and progress made in improving the water quality of Lake Erie. Although open lake dumping is proposed, no attempt to quantify the amount of disposal in this manner is evident. No detail is given as to the area in which open lake dumping would take place, or on the long range effect of open lake dumping. Can assurance be given that the selected area would not adversely affect the water intake structures in the short and long run? :

Major Charles T. Myers, III
March 8, 1974
Page 3

It is stated on page 51 of the Draft Statement that power plant intakes "...may be adversely affected by siltation and suspended solids caused by maintenance operations." What remedial actions will be taken by the Corps if this is found to be the case?

The following soils data could be included in the Final Statement in Section 2.1.1 "Geology and Topography" in order to better describe and identify the soils which developed from glacial till and sediments:

The soils occurring along the shore, immediately adjacent to the spoil disposal sites and the harbor are primarily the Painesville soil association. Painesville sandy loam soils are somewhat poorly drained and most commonly occur adjacent to beach ridges of former glacial lakes. These soils formed in 18 to 32 inches of loamy sediments overlying silt loam glacial till. Other soils which occur to a minor extent in the association are Red Hook, Tyner, Otisville, Conotton, and Conneaut.

The Ellsworth-Mahoning soil association are the soils most commonly occurring in the glacial till plain located adjacent to the Cuyahoga River Valley. The Ellsworth-Mahoning soils formed in limy silty clay loam or silty clay glacial till on nearly level to very steep topography. The moderately well drained Ellsworth soils are on gently sloping to very steep topography. Mahoning soils are somewhat poorly drained and occupy nearly level and gently sloping positions.

It should be noted that upon completion of a diked disposal area which would have a point source discharge, the site would fall under the requirements of the National Pollutant Discharge Elimination System.

In summary, our major concern is with the proposed open lake disposal of contaminated sediment material. It is recommended that the Corps of Engineers exhaust all feasible alternative actions before further consideration of this measure. Open lake disposal will be considered only after such action is completed and the results analyzed by the Ohio Environmental Protection Agency and the United States Environmental Protection Agency.

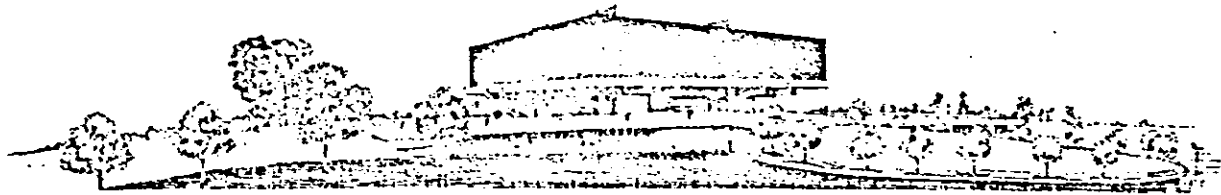
Very truly yours,



Ira L. Whitman
Director

ILW/jcw

cc: Director William B. Nye
State Clearinghouse



Interstate 71 and 17th Avenue

466-3853

the ohio historical society/ohio historical center/columbus, ohio 43211/telephone (614) 462-6362

March 6, 1974

Charles T. Myers III
Major, Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207

Re: NCBED-ER

Dear Major Myers:

To the knowledge of the undersigned and his historic preservation staff the following projects, for which EIS reviews have been made, will have no effects upon known and identified prehistoric Indian, historic, or paleontological sites, structures, buildings, districts and objects eligible for the National Register of Historic Places of the U. S. Department of the Interior:

Cleveland Harbor Operations and Maintenance
Cuyahoga County, Ohio

Small Boat Harbor or Refuge
Fairport Harbor, Lake County, Ohio

Sincerely,

Daniel R. Porter
Director

DRP/eg

c.c. Mrs. Norma J. Weisner, Ohio Environmental
Protection Agency Clearinghouse

REGIONAL PLANNING COMMISSION

County of Cuyahoga

Carl S. Bohm, Director

415 The Arcade / Cleveland, Ohio 44114 / 216-861-6805

March 4, 1974

Major Charles T. Myers, III
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

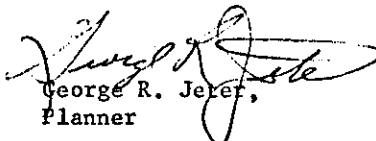
Dear Major Myers:

The Executive Committee of the Regional Planning Commission reviewed the Corps of Engineers (EIS) Environmental Impact Statement at its February 26, 1974 meeting. As determined by the criteria and guidelines of the Ohio Environmental Protection Agency, the Corps of Engineers indicates four alternative actions. Three alternatives are unacceptable and this leaves only open lake dumping which has been opposed by this agency in the past.

However, the Executive Committee approved a temporary two month plan of open lake dumping into Lake Erie on a limited basis until the completion of site #12 is constructed. After a two month plan is implemented, the Corps of Engineers will then resubmit the Environmental Impact Statement for full approval of the Executive Committee. The Regional Planning Commission urges the completion of site #12 at its earliest convenience. Included with this letter is a copy of the Port of Cleveland comments.

Please do not hesitate to contact this office if we may provide further information or assistance.

Sincerely yours,


George R. Jeter,
Planner

for

Carl S. Bohm,
Director

GRJ:pv
Enclosures

Republicsteel

Republic Steel Corporation
General Offices: Republic Building
Traffic Department
PO Box 6778
Cleveland OH 44101

March 1, 1974

JW Croswell
General Traffic Manager

Hugh Tobin
Assistant
General Traffic Manager

LJ Kuhn
Traffic Manager

WH Cramer
SR Waldron
ZA McGinnis
EM Powell
Assistant Traffic Managers

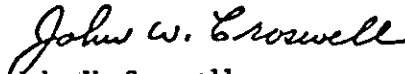
In reply refer to file
number: 100-H-3

Major Charles T. Myers III
Buffalo District
Corps of Engineers
1776 Niagara Street
Buffalo NY 14207

Dear Major Myers:

Pursuant to our discussion on February 27, 1974 enclosed is the original and two copies of Republic Steel's comments on the Updated Draft, Environmental Statement, Cleveland Harbor, issued by your office in January 1974.

Very truly yours,



John W. Croswell
General Traffic Manager

JWC/cm
Encl.

D47

COMMENTS OF
REPUBLIC STEEL CORPORATION
IN REGARD TO THE
UPDATED DRAFT, ENVIRONMENTAL STATEMENT
CLEVELAND HARBOR
OPERATIONS AND MAINTENANCE
CUYAHOGA COUNTY, OHIO
PREPARED BY
U.S. ARMY ENGINEER DISTRICT, BUFFALO, NEW YORK
JANUARY, 1974

Submitted by:

John W. Croswell
General Traffic Manager
Republic Steel Corporation
P. O. Box 6778
Cleveland, Ohio 44101

Republic Steel Corporation hereby submits its comments on the Updated Draft, Environmental Statement, Cleveland Harbor, Operations and Maintenance, Cuyahoga County, Ohio, prepared by U.S. Army Engineer District, Buffalo, New York, January, 1974.

Republic Steel Corporation, hereinafter referred to as Republic, maintains at its Cleveland operations the largest of its fully-integrated basic steel producing facilities. Approximately 25 percent of Republic's total steel output is produced in its Cleveland plants.

In 1973, Republic's Cleveland District steel plants provided employment for some 6,900 people with annual wages, salaries and related employment costs of approximately \$117.9 million.

Since 1950 Republic has spent upwards of \$688.6 million for new plants and for improvements to existing plants in its Cleveland District. For example, the year 1971 saw Republic complete its new 84 inch Hot and Cold Strip Mill complex in the Cuyahoga River Valley. The Hot Strip Mill can produce more than 3 million tons of rolled sheet steel annually. The cold reducing mill can turn out more than 2 1/2 million tons of cold rolled sheet steel each year. Construction and start-up costs of these mills amounted to more than \$250 million.

Environmental control expenditures in Republic's Cleveland District in the period since 1950 now approximate \$63.4 million. An additional expenditure of \$25 million has been approved to assure continued progress in Republic's air quality control programs.

Despite the increased industrial activity in the Cleveland community, air and water qualities are better than before. Republic believes its air and water quality control programs have contributed significantly to this result.

In its Cleveland District plant, Republic uses large quantities of iron ore and limestone in the steelmaking process. These bulk commodities are transported by lake vessels to docks at this plant located some five miles up the Cuyahoga River. During 1974, it is planned to move approximately 3,900,000 gross tons of iron ore and 855,000 gross tons of limestone to these docks for use in the Cleveland District blast furnaces. The bulk of the iron ore originates in Minnesota and Michigan and the bulk of the stone originates at Presque Isle, Michigan. This stone quarry is not served by rail facilities, leaving water transportation as the only practical mode of movement. Therefore, the continued water transportation of iron ore and limestone to its docks on the Cuyahoga River is of vital concern to Republic.

At the commencement of the 1972 navigation season, Cleveland Cliffs Iron Company, pursuant to their contract with Republic, began to transport Republic's iron ore requirements from Upper Lake Ports to Lower Lake Ports including deliveries to Republic's dock at the Cleveland District. Starting at the outset of the 1974 navigation season, Kinsman Marine Transit Company, pursuant to

their agreement with Republic, will begin to transport Republic's stone requirements from Presque Isle, Michigan to Republic's dock locations including those located at the Cleveland District plant.

At its Cleveland District steel mill, Republic produces steel sheet, strip and bars which are marketed at points throughout the United States in competition with other producers, including producers whose steelmaking facilities are located on the shores of Lake Erie and Lake Michigan at Lackawanna, New York; Burns Harbor, Gary and Indiana Harbor, Indiana and South Chicago, Illinois. At some of these lake front docks, vessels, larger than those which can navigate the Cuyahoga River, are now being unloaded. Such vessels can transport as much as 50,000 tons of iron ore as compared to Cuyahoga River vessels of much less carrying capacity. (A vessel carrying approximately 15,000 tons is the largest that can navigate the Cuyahoga if the river is dredged to 23 feet, project depth). Steel producers employing these larger vessels, therefore, enjoy a distinct advantage because of large vessel economics.

If Republic is to continue to be competitive with those producers having lake front docks, it is imperative that lake vessels available to Republic are able to deliver these vital inbound raw materials to its Cleveland District docks.

At this point in time Republic cannot speculate as to the actual adverse effect it would experience by the disruption of normal dredging in the Cuyahoga River until Dike 12 is completed as planned. However, should lake vessels be unable to navigate

the river thereby forcing Republic to devise some other means of transporting iron ore and limestone to its Cleveland furnaces from the lake front docks in Cleveland, the added transportation expense, as hereinafter set forth, would be extremely costly and would place Republic at a further economic disadvantage in competing with the aforementioned lake front steel mills.

During the navigation season Republic stores certain quantities of iron ore on the C & P lake front docks in Cleveland which are reshipped via rail to its Cleveland plant in the winter months when the lakes are closed. This tonnage is a very small percentage of the total annual iron ore requirement of the Cleveland District plant. It is not known at this time if the C & P dock and its storage area has the capacity of receiving, storing, reloading to rail cars and shipping the entire yearly requirements but, assuming this is feasible, the added costs to Republic would be approximately \$3.73 per gross ton which applied to 3,900,000 tons per year would amount to \$14,547,000.00.

If the foregoing is determined to be feasible, and this has not been ascertained, to unload stone over another lake front dock (the C & P dock cannot handle stone) and rail to the Cleveland plant, Republic estimates that such additional changes would approximate \$4.00 per gross ton of stone which applied to the 855,000 gross ton annual stone requirement of the Cleveland District would amount to \$3,420,000.00. In addition, it is more costly for the Cleveland

plant to unload iron ore and limestone from rail cars than from lake vessels at its docks. Republic's Accounting Department estimates that the extra cost of unloading the aforementioned annual tonnages of iron ore and limestone from rail cars would amount to \$3,549,000.00.

The following recap of these figures represent the added costs to Republic, assuming it would be physically possible to do so, of unloading iron ore and limestone at Cleveland lake front docks and moving via rail to the plant:

Railing iron ore -	\$14,547,000.00
Railing limestone -	3,420,000.00
Extra cost of unloading rail cars -	<u>3,549,000.00</u>
Total	\$21,516,000.00

In 1973, Republic's Cleveland District mills produced and shipped 2,030,000 net tons of steel to its customers. The added penalty of \$21.5 million, hereinabove referred to, would add an extra \$10.60 to the cost of every ton of steel produced. Certainly such an added penalty to Republic, reflected directly in the cost of producing steel, would place Republic's up river steel mill in Cleveland at a distinct disadvantage in competing with other steel producers with docks having lake front locations.

In addition to this extra expense which would be added to the cost of making steel in the Cleveland District, the expense of moving iron ore to our blast furnaces at Warren and Youngstown would also be increased should vessels be unable to navigate the Cuyahoga River.

During 1973, Cleveland Cliffs Iron Company delivered to Republic's Cleveland District docks 974,350 gross tons of iron ore which was transferred to rail cars and reshipped to Republic's plants located at Warren and Youngstown, Ohio. Republic estimates that by transferring this tonnage to rail cars over its own docks, a savings of approximately 66¢ per gross ton of iron ore was realized as compared to the cost of reshipping this tonnage over outside, railroad docks.

Therefore this savings of approximately \$643,071.00 on the Warren and Youngstown ore would also be lost should vessels be unable to navigate the Cuyahoga River and Republic be required to move this ore through railroad docks on Lake Erie.

Further, from the studies that have been made, Republic is convinced that the extra costs of moving iron ore from the mines and pellet plants in trainload movement direct to Republic's furnaces at Cleveland, Warren and Youngstown would exceed those

extra costs outlined above in raiiling ore from lake front docks. In the case of the limestone movement, the quarry at Presque Isle, Michigan is not served by a railroad and truck transportation from the quarry is out of the question because of the great distances involved.

In 1973 the steel industry of the United States operated at capacity and it is expected that capacity operations will continue in 1974. Even with this high operating rate, the demands of consumers have not been met. Certainly the inability of Republic's Cleveland District plant to produce steel at a maximum rate caused by a disruption of normal navigation on the Cuyahoga River would have an adverse effect on the national economy.

Aside from the added cost to Republic of unloading ore and stone at lake front docks in Cleveland and shipping by rail to its Cleveland plant, it is significant that this method of movement is wasteful of energy and represents an uneconomical use of vital and scarce rail equipment. There is no question that vessel transportation to Republic's docks would conserve energy in the form of fuel as compared with the fuel that would be required for rail movement from the lake front. Furthermore, large numbers of rail cars, even if available, (and their availability is quite questionable) would be needed to transport this large tonnage in what amounts to local switch movements. In this period when shippers, including

steel mills, are experiencing severe car shortages, the use of the required quantities of rail equipment in such a short switch movement could not be justified.

Thus from the standpoint of economics, including the huge added costs to Republic, the waste of energy and the waste of vital rail equipment which would be required in the movement from the lake front, it seems to Republic that normal dredging of the Cuyahoga River is fully justified even though it may be necessary to waste some of the dredged material in the open lake until Dike 12 is completed.

Republic has retained the services of Mr. John E. Kinney, a Consultant-Sanitary Engineer, to review the Updated Draft, Environmental Statement and to formulate comments thereon. Mr. Kinney's comments are presented below and are incorporated here as a part of Republic's comments.

The Corps of Engineers' updated draft of the environmental statement applicable to the operation and maintenance of the Cuyahoga harbor presents an adequate review of the physical features and a good summary of the issues involved. However, the report could be strengthened by a positive analysis of the alternatives for disposal of the dredged spoil. The present draft attempts to argue for and against lake disposal as an alternative to diked disposal and, as a result, subjects the Corps of Engineers to the criticism that the decision to use lake disposal will by the Corps' admission harm the lake and that this harm is justified only because the dike is not ready.

The fact that the dike is not ready should be the basis for the Corps to review its earlier policy on lake disposal and thus be more specific in its determination of impact. The following comments are directed towards that end.

1. The report of the board of consultants to the Corps stated that no long-term adverse impact on the lake could be shown from their studies but that such an impact should be assumed. This acted as justification for the prior decision of the Corps to keep dredged spoil described as "polluted" by the EPA out of the lake.
2. Analysis of the data in the consultant's report offers the conclusion that an impact of disposal of spoil in the lake can be proved and that the impact depends on the manner and location of the disposal site. Where disposal was near shore or in shallow water (less than 30 feet) or where the spoil was pumped out into the lake, the spoil was dispersed and did have an adverse effect in the water and on the beaches. Where the spoil was bottom dumped into deep water and where the bottom was sandy, the cohesive spoil quickly settled and with time was covered with sand. The lake disposal of Cuyahoga harbor spoil has taken place under both conditions. A site 10 miles out in the lake was used until 1956. The study showed that site became covered with sand. Seepage of nutrients provides fish food and supports a fishery in the area. Deposition adjacent to the breakwater reduced the haulage distance and thus the cost but left the spoil subjected to wave and current dispersal.
3. The analytical data in the environmental impact report (Tables 8, 9, 10, 11) represent old data (1967-1972). However, assuming that the data are representative of present conditions, some conclusions can be drawn:
 - a) The bottom sediments in the Cuyahoga other than Mile Points 4.9 and 5.7 and Old Cuyahoga River 0.9 are quite consistent--in the harbor and the river.
 - b) Decision on determining the material which should go into diked areas 9 and 13 would seem to point towards those two areas--upstream from mile point

5 and the upper end of the Old Cuyahoga. The rest of the material is sufficiently similar to that in the outer harbor so that if the outer harbor material can be disposed of in the lake, so should the lower river (below mile point 5 at least).

- c) The concentrations of substances in the flowing river are not unlike the concentrations found in other streams flowing directly into Lake Erie.
- d) The principal control limiting aquatic life in the navigation reaches of the Cuyahoga is depletion of dissolved oxygen, not concentration of pollutants.

4. The conflict between the Congressional mandate of maintaining the shipping and the Corps' policy of protecting the lake by preventing the disposal of material into the lake whenever possible requires that there be as factual a basis for keeping the material out of the lake as there is for deciding the need for dredging. This conflict will continue well beyond the ten years that the Corps is planning to use diking. The recent agreement by the Federal EPA that the standards for the lower Cuyahoga are unenforceable and the past assertions of the technical personnel of the Ohio EPA that the combination of land drainage and stilling basin effect of the navigation channel in the Cleveland portion of the river will cause the bottom deposits to be "polluted" by EPA standards for many years to come should force attention now to the review of the "no lake dumping" policy.

The Corps has not followed the recommendation of its board of consultants that continuing studies be used to determine more information on what the constraints on lake dumping should be.

The expected necessity of having to resort to lake dumping this year could provide an opportunity for such a study.

Meanwhile, the report should be edited to remove statements which exhibit a less than factual and positive concern about the lake. For example:

- a) Page 51. "The polluted nature of the deposited sediments will alter Lake Erie at an unnatural rate and may contribute to significant changes or degradations in chemical and biological

characteristics within the lake." This sentence has a positive assertion that cannot be proved ("will alter Lake Erie at an unnatural rate") and an opinion that is also offered without proof ("may contribute to significant changes or degradations"). Two sentences prior to this, there is the flat assertion that lake dumping in 1974 will "result in biological and chemical degradation of Lake Erie" but no evidence is offered as to how much or in what manner.

If the Corps sincerely believes these statements are true, then the disposal in the lake should not be permitted.

- b) Page 54. "The most significant adverse environmental effect which probably cannot be avoided is the practice of open lake dumping of dredged sediments in 1974." This action is not an environment effect but an activity which may or may not have an adverse effect depending on the quality of the spoil, the manner of handling and the location of the disposal site. Part of this is noted in the first sentence of the next paragraph. The rest of the next paragraph offers a number of possibilities but without any supporting evidence that the possibilities will become realities, and, if so, to what extent. In fact, none of them were in evidence in the Corps' study of effect in the outer lake disposal area study.
- c) Page 55. "It is the position of the Corps of Engineers that any addition of pollutants to the Great Lakes is ecologically detrimental and should be avoided if at all possible." The Corps would be on much sounder footing if the policy were to control the placing of any materials in or along the shores of the Great Lakes in such a manner as to minimize possible ecological detriment.

The diked areas are not impervious and during the filling as well as afterwards there is a discharge of these same "pollutants" to the lake so diked storage does not eliminate discharge to the lake.

And since the drainage is into the shore waters where the lake problems, particularly algal growth, are most acute, the diked storage is of ecological detrimental effect. Data from the Corps' lake studies proved this to be so.

- d) Page 57. "The long-term physical effect of spoil disposal in Lake Erie is creation of areas shallower than their surroundings but still deep enough for any purpose but commercial navigation." This is not true if the disposal site is in 60 feet of water.

"The long-term ecological effect must be considered in the context of adding pollutants to Lake Erie at an unnatural rate. On this basis, any additional pollution, however slight, is considered undesirable." The long-term ecological effect can only be considered in terms of effect, not in terms of addition. If not, the Corps is in the position of agreeing that the drainage from the diked area is undesirable and should be eliminated.

- e) Page 58. "Continuance of open lake disposal practices will degrade Lake Erie's water and sediment quality and may change its biota and uses. It has not been determined whether these alterations will be irreversible." Previous comments apply to this kind of statement.

The suggested rewrite would emphasize the necessity for continuing data on lake disposal impact as pollution abatement progress continues and as the consequences-- economic and physical--of diked disposal are appraised. It would emphasize the desirability of containing those spoils which are particularly high in undesirable constituents. It would eliminate the assertions of damage that cannot be proved.

5. The Glossary in the Appendix could be modified to advantage. For example, how many of these terms are used in the report? Also,

BOD -- A water quality parameter which measures the rate of oxygen consumption during biological oxidation of organic matter under specified conditions.

COD -- A water quality parameter which measures the quantity of material oxidizable by a strong chemical reagent in hot solution.

DO -- The weight of oxygen dissolved in a given volume of water. (The second sentence is misleading and not relevant to a definition.)

Effluent -- The discharge from a pipe or drain or from a subterranean storage.

pH (note that the p is always lower case, even when starting a sentence) -- the log of the reciprocal of the hydrogen ion concentration.

We thank you for the opportunity to present these comments upon the Updated Draft, Environmental Statement and it is hoped that these comments will receive your full consideration.

John W. Croswell

John W. Croswell
General Traffic Manager

SIERRA



CLUB

NORTHEAST OHIO GROUP • CLEVELAND, OHIO

2070 Coventry Road
Cleveland, Ohio 44118
March 2, 1974

Major Charles T. Myers, III
CORPS OF ENGINEERS
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

This letter is in response to your request for comments on the Environmental Statement for Cleveland Harbor Operations and Maintenance, dated January 1974.

In order to gain additional perspective on the dredging disposal problem we read the Summary (Volume I) of the Corps' 1969 study entitled Dredging and Water Quality Problems in the Great Lakes. Our understanding of the economic impact of dredging, or lack thereof, was gained from the Cleveland-Cuyahoga County Port Authority letter of February 6 commenting on the Environmental Statement.

Diked disposal of dredgings was originally planned for 10 years, after which there would be a reversion to open-lake dumping. This 10 year period, starting about 1967, was supposed to allow time for various water pollution control projects to become operational and to sufficiently reduce the pollution load of the dredged sediments so as to preclude the need for further diked disposal.

Water pollution control in the Cuyahoga Basin has not proceeded as rapidly as the planners had hoped, and River dredgings are still heavily polluted. There are a number of reasons for this unhappy state of affairs, not the least of which is the high density of people and industry in the Basin. Ohio EPA recently revised the water quality standards for the lower Cuyahoga to reflect the realities of cleaning up the Navigation Channel. It is indicative of the fragmented state of water management in this area that OEPA made no mention of the dredging problem in relation to water quality standards.

The 1969 dredging report stated (page 9.13) that "a major portion of the Corps dredging activity is in fact performing the function of regional waste management and disposal rather than its assigned function of improving and maintaining navigation channels." The same report also recognized (page 9.76) that "Reclamation of the Cuyahoga River through abatement of industrial and municipal pollution in the Cuyahoga Valley appears to be the key to the Cleveland situation."

D62

...TO EXPLORE, ENJOY, AND PROTECT THE NATION'S SCENIC RESOURCES...

The navigation channel and outer harbor is a settling basin which traps an estimated 95% of the suspended solids entering from the River or discharged directly into the channel. These solids include the residual wasteload from municipal and industrial treatment plants as well as a variety of untreated and partially treated wastes from the same sources. There is also a large component from surface runoff, which at the present time largely defies measurement, control, or treatment. It is difficult to define what the background or "natural" level of dredged solids would be since surface runoff is largely determined by human land-use. For purposes of water quality planning it may be wise to assume that present surface runoff is the background level that will be approached as municipal and industrial point sources are cleaned up.

Disposal of dredgings are of concern because of their actual or potential effect on Lake Erie water quality. In its present state Lake Erie is still a good water supply. Other beneficial uses of the Lake, such as commercial and sport fishing, and littoral swimming, have deteriorated rapidly in the last several decades. These changes have been accompanied, but not necessarily caused, by accelerated eutrophication. There is no evidence that this process has been arrested or slowed to a natural rate of Lake ageing. On the contrary, there have been a number of dire warnings about Lake Erie approaching a condition of continual self-fertilization, leading to oxygen-depleted conditions over expanded portions of the Lake for lengthening periods of the year. (e.g. see Project Hypo report, 1972.) Such conditions, if they do occur, would have drastic effects on water supply and on the health and welfare of Lake Erie basin residents.

The experts do not agree on the validity of such predictions, or on the effect of dredgings on the Lake. The Board of Consultants to the Corps' 1969 study found that the "effect of lake dumping on eutrophication and water quality cannot yet be stated unequivocally, ... even though it must be acknowledged that in-lake disposal of heavily polluted dredgings must be considered presumptively undesirable because of its long-term adverse effects ..."

Taken by itself, this analysis leads to the conclusion that open lake dumping should not be resumed until the sediments have been cleaned up, or until more is known about the interaction of sediments and water quality. However we must also consider the following factors:

- 1) Diked disposal sites will not be available for the bulk of 1974 dredgings.
- 2) Future diked sites will be increasingly difficult to plan and build at any cost.
- 3) Failure to dredge will apparently place a severe economic penalty on Cleveland industry.
- 4) This penalty may work against continued cleanup of the industrial portion of the pollution load to the River, and would defer the time when dredged sediments are no longer a hazard to Lake Erie.

The Sierra Club agrees with the Corps' 1969 report that pollution control in the Cuyahoga Basin is the key to the Cleveland situation. An inclusive basin-wide effort which resulted in 80 to 90 per cent control of suspended solids, heavy metals, BOD, oil, and phosphate, from all industrial and municipal sources, would go a long ways towards eliminating the "presumptively undesirable" effects of open-lake dumping.

The Sierra Club sees no way around dredging Cleveland Harbor to authorized project depths for the 1974 shipping season. Open-lake dumping seems similarly unavoidable. This should be accompanied by on-going and intensive monitoring and study of the quality and sources of dredged sediments by Federal EPA, Corps of Engineers, and other cooperating agencies. A serious effort should be mounted to determine the quantities of the above-mentioned pollutants which originate from municipal, industrial, and non-point sources. This information should be presented to the public along with an analysis of what must be done to control each of the source categories. This will help determine whether pollution control priorities are in order and whether resources (such as Federal funding of municipal treatment facilities) are adequate.

Disposal of dredgings represents one of the most complex environmental issues on which we have been asked to comment. Thankyou for the opportunity.

Sincerely yours,



Edward J. Fritz
Conservation Chairman
Northeast Ohio Group
Sierra Club



**DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD**

Address reply to:
COMMANDER (mep)
Ninth Coast Guard District
1240 East 9th St.
Cleveland, Ohio 44199
Phone: 216-522-3919

• 5922
18 March 1974

• Department of the Army
Buffalo District, Corps of Engineers
1776 Niagara St.
Buffalo, N.Y. 14207

RE: Updated Draft Environmental
Impact Statement for Cleveland
Harbor Maintenance

Gentlemen:

This office has received and reviewed the above referenced Draft Environmental Impact Statement, and at this time we have no comments or objections to offer.

Sincerely,

W.J. TILLO
Commander, U.S. Coast Guard
Chief, Marine Port Safety Branch
By direction of Commander,
Ninth Coast Guard District



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Region
Federal Building - 14 Elm Street
Gloucester, Massachusetts 01930

March 11, 1974

Maj. Charles T. Myers III
Acting District Engineer
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Ref: NCBED-ER

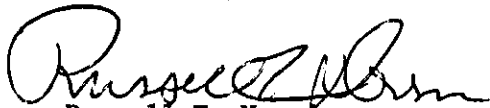
Dear Major Myers:

In the course of effecting normal coordinating procedures relative to projects that may impact upon fishery resources of concern to this agency, we note that the dumping of polluted spoil from maintenance dredging of Cleveland Harbor into the open waters of Lake Erie is proposed.

We understand that this spoiling into the open waters is being proposed because of a delay in completion of disposal site No. 12; originally scheduled for December, but now projected for June 1974. In view of the relatively short time until Site No. 12 will be usable, and the undesirability of spoiling polluted material in the open waters of Lake Erie, we invite your further evaluation of the Cleveland Harbor project. Specifically, we believe it would be desirable if initial dredging could be limited to the amount containable in Sites 9 and 13 or, possibly, held in abeyance until Site No. 12 is completed. Another alternative that we hope can be considered, and its feasibility determined, is that of utilizing a temporary confinement site within the proposed boundaries of Site 12.

We are concerned that continued spoiling in Lake Erie will tend to negate efforts of municipalities, and of local, state, and federal agencies directed toward waste control and other actions that seek to promote environmental improvement. We realize that continued degradation of Lake Erie is of equal concern to the Corps of Engineers and it is in this light that we solicit your consideration of the above alternatives.

Sincerely yours,


Russell T. Norris
Regional Director



REGION V
300 South Wacker Drive
Chicago, Illinois 60606

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
COLUMBUS AREA OFFICE
60 EAST MAIN STREET
COLUMBUS, OHIO 43215

IN REPLY REFER TO:

PR:CR/mc

Charles T. Myers, III
Major, Corps of Engineers
Acting District Engineer, Buffalo District
NCBED-ER
1776 Niagara Street
Buffalo, New York 14207

Re: Draft Environmental Impact
Statement, Cleveland Harbor
Maintenance

Dear Sir:

Annual dredging is performed in Cleveland Harbor to maintain navigation. The DEIS proposes continuance of dredging accumulated sediments. The project would dispose harbor spoil in sites 9 and 13 until these have reached holding capacity, but the unfinished construction of diked disposal site 12, in the Corps of Engineer's judgment, may require open lake dumping of dredged spoil during 1974, resulting in biological and chemical degradation of Lake Erie.

Addition of pollutants to Lake Erie is contrary to the pollution abatement efforts of the United States and Canadian governments. Any open lake dumping of dredged polluted spoil must be avoided if it all possible, so as not to negate efforts to improve the quality of the Great Lakes. The DEIS appears deficient in making no attempt to quantitatively evaluate the amount of open lake dumping contemplated, if site 12 remains incomplected, or to assess the deleterious consequences to the quality of the lake from open dumping.

The DEIS gives little detail to the overall progress in reducing pollutants entering the Cleveland harbor or the time frame for achieving reduction of toxic and nutrient components of sediments to levels allowing safe open lake disposal of non-polluted sediments.

The DEIS does not analyze conditions of harbor sediment in such a way to indicate that the least polluted deposits might be "reserved" for open lake dumping, if no temporary holding system or other alternative is possible.

The DEIS does not treat the failure to complete containment site 12 in depth. No penalties enforced on the contractor are mentioned.

We trust that the Corps of Engineers will cooperate closely with State and Federal Environmental Protection Agencies and will act in the fullest extent to avoid degradation of Lake Erie.

Sincerely,

Charles E. Roe

Charles Roe
Acting Environmental
Clearance Officer



(ER-74/83)

United States Department of the Interior

OFFICE OF THE SECRETARY

NORTH CENTRAL REGION

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

March 4, 1974

Col. Robert L. Moore
District Engineer
U. S. Army Engineer District
Buffalo
1776 Niagara Street
Buffalo, New York 14207

Dear Col. Moore:

This is in response to your request of January 15, 1974, for a Department of the Interior review of the updated draft environmental statement for Cleveland Harbor, Operations and Maintenance, Cuyahoga County, Ohio.

On the basis of our review of the statement in areas of our jurisdiction and expertise we believe that the following comments should be addressed in the final statement:

General Comments

Throughout the statement it is stated that, during part of 1974, open lake dumping of sediments from the Cuyahoga River and the outer harbor may become necessary. The actual discontinuance of dredging does not appear to have been given serious consideration, since this would presumably place undue economic burden on local industry and commerce. The statement should point out that discontinuance of dredging may not eliminate waterborne commerce, but would reduce the amount of cargo that could be carried by the deeper draft vessels. It also should attempt to qualify just how severe the economic burden would be if dredging was curtailed until the containment facility, Site No. 12, was completed.

Specific Comments

I. PROJECT DESCRIPTION

This section should contain additional information regarding the construction status of Site No. 12. The reader cannot tell from the environmental statement whether construction is in the beginning stages or if the structure is nearing completion.

Since open lake dumping will probably occur in 1974 due to the Site 12 facility not being completed on schedule, an estimate should be made of the amount of spoil to be dumped.

2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT

2.2 Lake Erie Setting

2.2.4 Fishery Resources--Table 4 on page 22 lists fish taken by trawling in 1971, but quantitative fish data are lacking. The statement would be strengthened if the 12 sampling stations were identified and if relative abundance data were provided.

2.3 Cleveland Harbor Setting

2.3.6 Harbor Recreation--Although pier fishing is identified as a recreational activity within the harbor, an estimate of the amount of fisherman use, both from boats and piers, should be included.

2.3.8 Fishery Resources--This section states that the gold fish (Carassius auratus) and the emerald shiner (Notropis atherionoides) are known to be permanent residents of the Cuyahoga River. Water quality data (Table 10, page 41) show very low dissolved oxygen levels, i.e., 0.1 mg/l, coupled with relatively high water temperature during much of the year. If these data are representative of water quality in the inner portion of the Cleveland Harbor Facility, it is highly doubtful that either of these species could survive permanently under such conditions.

3. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

3.1 Beneficial Impacts

c. This item states that because lake shipping is inexpensive, the labor, material and fuel expended for harbor maintenance is environmentally beneficial. Claiming such a benefit is questionable; and are the costs of annual dredging and the construction and operation of dredge spoil containment facilities considered when referring to inexpensive shipping costs?

3.2 Adverse Impacts

e. The releasing of nutrients and heavy metals into solution is definitely an adverse impact and should receive further elaboration. Paragraph d on page 48 states that bottom habitats of dredged areas will improve due to the removal of polluted sediments. However, once these sediments are buried, pollutants are essentially sealed off from the aquatic environment. Since the annual dredging operations continually disrupt these sediments, the type, amount, and areal extent of pollutants being reintroduced to the environment should be identified. The time of year and total days of annual dredging also should be mentioned in this section.

Page 49, paragraph h states that the diked disposal area will provide a permanent piece of alongshore property. Filling these alongshore areas also should be considered as an adverse impact since it represents an irretrievable loss of shoal waters.

Secondary adverse impacts resulting from the encouragement of shipping to the Cleveland area should be discussed. These would include increased potential for oil spills and effects of prop wash on benthos and water quality.

3.3 General Impacts

b. The areal extent of the accretion of light silt material carried by currents and littoral drift should be provided. The possibility that this fine silt material also may carry other contaminants such as heavy metals should be mentioned.

4. ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED PROJECT BE IMPLEMENTED

f. The practice of open lake dumping could be avoided by curtailment of dredging until adequate containment facilities can be constructed.

Since the Corps of Engineers has been directed to contain polluted dredge spoils, the conversion of shoal water areas to diked containment facilities should be included in this section.

5. ALTERNATIVES TO THE PROPOSED ACTION

e. Chemical Treatment of Sediments--Chemical treatment for sediments has been determined to be infeasible due to the costs, but no comparative cost figures are given to support this decision. We suggest that the final statement include such figures.

Since open lake dumping is highly undesirable environmentally, the possibility of utilizing Site No. 12 before completion should be considered. It may be feasible to temporarily seal off a portion of Site No. 12 to handle the spoil while continuing construction of the structure itself. Even if a complete seal could not be realized, an attempt at containment or at least depositing spoil within the containment site would seem to be preferable to open lake disposal.

The restriction of the harbor to shallower draft vessels is an alternative that has not been considered. Utilization of smaller ships would decrease the amount of dredging needed to provide adequate draft.

Upland disposal should be considered as an alternative.

The above alternatives would reduce pollution of the waters of Lake Erie with its attendant adverse effects on recreation and the aquatic environment. Once the amount of spoil to be removed has been estimated, it may be determined that, although the cost is high, the volume of spoil is within limits which would allow for a more satisfactory method of disposal and would help prevent the further degradation of Lake Erie.

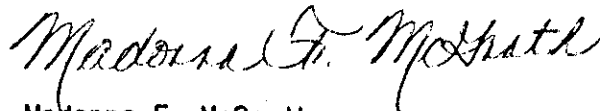
6. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This section should mention that if aquatic sites are used, acres of littoral habitat will be replaced with a terrestrial environment upon completion of the spoil containment facilities.

7. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The commitment of aquatic resources for use as spoil disposal sites, and the construction of breakwaters and piers represents an irretrievable commitment of resources and should be mentioned in this section.

Sincerely,



Madonna F. McGrath
Staff Assistant
to the Secretary



United States Department of the Interior

OFFICE OF THE SECRETARY

NORTH CENTRAL REGION

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

(ER 74/83)

March 25, 1974

Col. Robert L. Moore
District Engineer
U. S. Army Engineer District
Buffalo
1776 Niagara Street
Buffalo, New York 14207

Dear Col. Moore:

By letter of March 4 we provided Department of the Interior comments on the updated draft environmental statement for Cleveland Harbor, Operations and Maintenance, Cuyahoga County, Ohio. As was discussed with Mr. Paul Lang today, an additional concern has surfaced within this Department since that time.

The planned disposal area in Lake Erie appears well situated with respect to the Cleveland Water Works intake during normal conditions, since longshore drift of lake water is predominantly toward the northeast. However, the draft environmental statement fails to mention exceptional conditions in which littoral current may move in a different direction. Information should be provided on the probability of suspended sediment derived from the polluted dredge spoils being transported toward Cleveland's water intake, and resulting environmental impact. Strong easterly or northeasterly winds seem likely to be associated with a reversal of the normal current, and this possibility should not be completely overlooked because of the high degree of pollution in the sediments to be dumped in Lake Erie. If evidence is not available from other sources, we suggest that ERTS imagery may reveal abnormal movement of suspended sediment plumes under the influence of winds having a strong easterly component. Consideration should be given to suspension of the open-lake dumping at any times when currents at the dump site are observed or are predicted to have a significant component of movement toward the west.

Should this comment reach you too late for consideration in the final environmental impact statement, you may wish to simply consider it in other aspects of project planning.

Sincerely,

for *David F. Jervis*
Madonna F. McGrath
Staff Assistant to the Secretary



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

MAR 8 1974

Major Charles T. Myers III
Acting District Engineer
U.S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, New York 14207

Dear Major Myers:

We have completed our review of the updated Draft Environmental Impact Statement (EIS) for Cleveland Harbor Maintenance in Cuyahoga County, Ohio, as requested in your letter dated January 15, 1974. In light of our review and in accordance with agency policy, we have classified our comments as Category EU-1. Specifically, this means that we believe the project is Environmentally Unsatisfactory and there is sufficient information in the EIS to make this determination. We object to the proposal to dispose of polluted dredged spoil in the open waters of Lake Erie. The classification and the date of our comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. A copy of our classification system is attached for your immediate reference.

As stated in Mr. Mayo's letter to you on February 8, 1974 (copy attached), it is impossible for us to condone the disposal of grossly polluted dredged spoil into open waters since it would unquestionably be a violation of the Federal Government's environmental responsibility for Lake Erie. This responsibility includes the assurance that no polluted materials are discharged into Lake Erie that would violate water quality standards (WQS). Sediment data presented in Table 9 of the EIS for volatile solids, COD, grease-oil, total kjeldahl nitrogen, lead and zinc exceed our criteria for determining the acceptability of spoil disposal to the nation's waters. Also, as noted in the EIS, the disposal of grossly polluted dredged spoil into Lake Erie is "ecologically detrimental" (page 55) and ". . . will degrade Lake Erie's water and sediment quality . . ." (page 58). Open-lake disposal practices will result in several violations of existing State of Ohio WQS for Lake Erie-Section EP-1-05 and also our proposed recommended WQS for Lake Erie-Section EP-1-05, which includes appropriate standards from existing Sections EP-1-02 and EP-1-07 (copy attached). General WQS will be violated for resulting sludge deposits, color, turbidity, toxic substances, and possibly for specific WQS parameters for dissolved solids, iron and lead.

The long-term effects of channel maintenance on Cuyahoga River's water quality should be examined with respect to attaining satisfactory compliance with WQS. Although channel maintenance of the Cuyahoga River removes polluted bottom sediments that might be discharged into the harbor and Lake Erie during periods of increased flow, the short-term effects have a severe adverse impact on the water quality of the reach being dredged. Since the maintenance and enlargement of the Cuyahoga River channels for navigation substantially reduce stream flow velocities, existing flows in the lower 5 miles of Cuyahoga River are sluggish and allow only limited amounts of sediments to be carried naturally into Lake Erie. Upstream water supply reservoirs also tend to inhibit stream flows particularly during periods of droughts. For these reasons, most sediments are deposited in the river. Such sedimentation results in the reoccurrence of shoals and the necessity for repeated maintenance dredging. Unless sediment deposition in the Cuyahoga River is reduced, frequent maintenance dredging of the shipping channels will continue to be required for navigation interests.

Pollution and sediment loads to the Cuyahoga are significant due to inadequate industrial and municipal wastewater treatment in the basin, numerous sand and gravel pits along the banks of the Cuyahoga River upstream, urban and rural surface water runoff, and stream bank and valley wall erosion. As a result of the continuing need for maintenance dredging in combination with the present pollutant loadings in the river, the Ohio EPA is proposing a temporary revision of WQS in the lower Cuyahoga River. The public hearing for the WQS revision is scheduled for today, March 8, 1974. Less stringent limits in the revised WQS are being proposed for dissolved oxygen, ammonia, and temperature . . . to be effective until late in the 1970's. At that time, water quality conditions resulting from channel maintenance dredging will be the major factor prohibiting present WQS from being attained (Dalton, Dalton, & Little, 1971 Report entitled "Industrial Waste Survey, Program for the Lower Cuyahoga River"). The long-term water quality effects of channel maintenance and the proposed remedial measures for satisfactorily attaining existing WQS should be addressed.

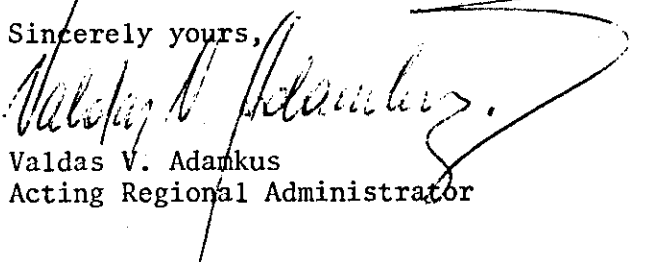
Of the alternatives and the proposal presented in the EIS, we find only the Discontinuance of Dredging and Chemical Treatment of Sediments are acceptable and that both should be examined in greater detail. In addition, we believe that other alternatives, temporary or permanent, exist that would allow 1974 maintenance dredging, if needed, for commercial navigation without the adverse environmental impacts of open-lake disposal. Some alternatives that might be considered are the interim utilization of private containment facilities with or without the option of removing and transferring dredged spoil

MAR 8 1974

to Site 12 upon its completion; acceptable inland disposal sites having the capability of containing dredge spoil until Site 12 is completed; and/or temporary holding areas such as slips that may be designed to contain dredged spoil until the spoil can be transferred to Site 12.

We are interested in arriving at a mutual solution for dredged spoil disposal in the Cleveland area. Toward this end, we would be happy to meet with you and explore alternative plans of action after you have completed your soundings to delineate those areas of heaviest shoaling. These soundings will enable a better determination of whether dredging can be cancelled or postponed this year or if full required channel depths could be reduced until adequate containment capacities for dredge spoil is available. We appreciate the opportunity to review this Draft EIS. Should you have any questions regarding our comments, please contact Gary A. Williams, Chief, Environmental Impact Statement Review Section, or me at your convenience.

Sincerely yours,


Valdas V. Adamkus
Acting Regional Administrator

Attachments
As Stated



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

Major Charles T. Myers III
Acting District Engineer
Department of the Army
Buffalo District
Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

FEB 8 1974

Dear Major Myers:

Reference is made to your letter of January 11, 1974 requesting our comments on the open-lake disposal of polluted dredge spoil from the Cuyahoga River, Ohio.

As stated in your letter, your present intentions are to initiate dredging this Spring at the most critical areas in the up-river portions of Cleveland Harbor. We have no objections to the disposal of this polluted material in the existing contained disposal areas which still have approximately 150,000 cubic yards of capacity remaining. It is impossible, however, for us to condone the disposal of the remaining grossly polluted dredge spoil into the open-lake since it would unquestionably be a violation of the Federal Government's environmental responsibility for Lake Erie.

The U. S. Environmental Protection Agency has the strongest possible interest in arriving at a solution for dredge spoil disposal in Cleveland, Ohio. Toward this end we would be happy to meet with you and explore further alternatives after you have completed your soundings to delineate those areas of heaviest shoaling, and after you have more accurately determined the remaining capacities of the existing containment facilities.

We appreciate the opportunity of commenting on your proposed action. For further assistance, please feel free to contact Dr. R. W. Zeller, Director, Surveillance & Analysis Division, (312) 353-4459.

Sincerely yours,

Francis T. Mayo
Francis T. Mayo
Regional Administrator

EPA's Classification System for Comments on Draft Environmental Impact Statements.

CHAPTER 3
PREPARATION, APPROVAL, AND
DISTRIBUTION OF COMMENTS ON
ENVIRONMENTAL IMPACT STATEMENTS

REVIEW OF FEDERAL ACTIONS
IMPACTING THE ENVIRONMENT

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objections to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

DEC 18 1973

Honorable John J. Gilligan
Governor of Ohio
Columbus, Ohio 43215

Dear Governor Gilligan:

It is my pleasure to inform you that except as noted below, I am approving the water quality standards of the State of Ohio in their entirety. The approved standards consist of regulations EP-1-01, EP-1-02 in part, EP-1-03, EP-1-04, EP-1-06, and EP-1-07, and as approved are those applicable under the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500). The approved standards are generally fine regulations that will protect the waters of Ohio.

In reviewing the new standards, I am pleased to note that mixing zones are comprehensively defined with the stringency needed to make the water quality standards meaningful. In addition, toxicity regulation is required inside the mixing zone, preventing the gross discharge of contaminants that would adversely affect the non-motile planktonic and benthic organisms in the area of the discharge. Furthermore, low flow streams are definitively described, and discharges to these streams will be required to undergo the best available control technology economically achievable as a minimum. However, in these streams water quality standards will ultimately determine treatment requirements according to the federal law.

Unfortunately, the Ohio standards include several unapprovable items which I will now fully discuss.

The standards for copper and zinc (EP-1-02 J) are excessively lenient as they are not protective of an indigenous or desirable fishery. In addition, the standard for phenol will not prevent fish tainting. We have been made aware most recently of the Ohio Environmental Protection Agency reasoning behind the excessive copper standard which is to allow room for the use of copper sulfate in controlling algae. This could have been better accomplished with a water resource management exemption for copper and other chemicals used for this purpose. As adopted, the State standard would allow wholesale copper degradation of waters not needing the resource management exemption.

DEC 13 1973

Honorable John J. Gilligan
Page Two

In addition the standard for zinc allows gross contamination from this pollutant as related to its effects on indigenous aquatic life. Since the toxicity of zinc and copper are water hardness dependent, it would be appropriate to delete both zinc and copper from EP-1-02 (J) and to determine safe concentration levels on a case by case basis and as defined under EP-1-02 (K), the general toxicity standard.

Although the phenol standard is protective against acute and chronic toxicity, it is not adequate to prevent fish tainting. If not already so, all State of Ohio waters will become supportive of a desirable warm water fishery as a minimum. For full use these streams must be free of materials that impart odor and taste to fish flesh and other freshwater edible products such as crayfish, clams, and prawns. The success or failure of a profitable sports fishery may very well depend upon the adoption of an adequate phenol standard.

The general toxicity standard (EP-1-02 K) is not completely adequate based upon the recommendations of the National Technical Advisory Committee (NTAC). As adopted the minimum application factor of one-tenth, for many toxicants not listed in EP-1-02 (J), is not protective of the entire life cycle of the indigenous aquatic life found in State of Ohio waters.

Ohio has never had completely federally approved standards for Lake Erie. The standards adopted in 1957 for Lake Erie were unapprovable because the Ohio pre-1972 Aquatic Life A Criteria for dissolved oxygen and temperature were not consistent with the minimum recommendations of the NTAC. The standards adopted for Lake Erie in 1957, without any revisions to correct for basic deficiencies, were made part of the present Ohio standards (EP-1-05). Furthermore, the Lake Erie criteria do not reflect the necessary objectives of the Agreement between the United States and Canada on Great Lakes Water Quality.

The deficiencies described above, and other minor modifications as shown in the attached federal promulgation packet, will be published immediately in the Federal Register. The published proposals will be promulgated as federal standards no later than 180 days after publication unless prior to that date Ohio adopts revisions to the above deficiencies which are determined by me to be in accordance with the requirements of the Act as in effect immediately prior to the enactment of the Amendments of 1972. I strongly urge the State to begin the hearing process for the EP-1 exceptions immediately to preclude the establishment of federal standards for these deficiencies.

Honorable John J. Gilligan
Page Three

DEC 18 1973

I note that Ohio has adopted recreation and aquatic life standards for all its waters. Because the Canadian American Agreement on Great Lakes Water Quality provides for the identification of certain localized Lake Erie areas, such as harbors, where the Lake Erie standards may not be met at least by 1977, and because federal Guidelines for Developing or Revising Water Quality Standards provide for parametric exceptions based upon natural conditions or technological limitations, we are including a mechanism in the federal proposal which will permit the State of Ohio to identify any such areas, and to assign to them criteria less stringent than necessary to protect recreation and desirable or indigenous aquatic life.

Anti-degradation is an integral part of the Ohio Water Quality Standards. In order to be enforceable, and for anti-degradation to serve its intended purpose, the baseline quality of the applicable waters must be determined in a comprehensive fashion. This can be accomplished while satisfying the requirements of the continuous planning process. An adequate water quality baseline can then be used to protect the appropriate waters (e.g. Lake Erie) from degradation to that quality defining the most stringent Ohio use designation.

It is evident that waste treatment and water pollution control technology will advance, knowledge and comprehension of water quality requirements for specific uses will improve, and the collection of water quality data will make more information available to assure more accurate assignment of water quality criteria. As this new knowledge becomes available, we will further expect to cooperate with the State of Ohio in making necessary amendments to the standards that have heretofore been approved. It will be our pleasure to continue to work together to protect, upgrade, and enhance the quality of the waters of our State.

Sincerely yours,

Francis T. Mayo
Regional Administrator

THE U.S. EPA PROPOSES WATER QUALITY STANDARDS FOR OHIO

The Environmental Protection Agency today proposed revised standards for Lake Erie and certain general standard toxicants. This action is required by the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) as the State did not adopt the appropriate revisions within the allowable time limit after being notified by the U.S. EPA according to the directives of the above Act.

Water Quality Standards for Ohio were partially approved on November, 1973.

The proposed Federal standards are scheduled for publication in the Federal Register on

State action is not foreclosed by this publication. If Ohio adopts the appropriate revisions for Lake Erie and the pertinent general standard toxicants and submits them to the Regional Administrator in Region V, it would eliminate the need to impose Federal Standards.

Public comment on the proposed standards is invited. Interested persons may submit written data, views, or arguments in regard to the proposed regulations to the Regional Administrator, Region V, U.S. Environmental Protection Agency, 1 North Wacker Drive, Chicago, Illinois 60606. All relevant material received not later than forty five days after the date of this publication in the Federal Register will be considered.

ENVIRONMENTAL PROTECTION AGENCY

(40 CFR Part 120)

Navigable Waters of

State of Ohio

Proposed Water Quality Standards

Notice is hereby given that pursuant to the authority of Section 303(b) of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251, 1313(b); 86 Stat. 816 et seq.; P.L. 92-500), ("the Act"), regulations setting forth standards of water quality to be applicable to the navigable waters of the State of Ohio are proposed.

Under Section 303(a) of the Act, the Administrator of the U.S. Environmental Protection Agency is required to review water quality standards for interstate and intrastate waters adopted and submitted by the States. When he determines that changes in such standards are necessary to meet the requirements of the Act as in effect prior to October 18, 1972, (the date of enactment of the 1972 Amendments to the Act, P.L. 92-500), he must notify the State. If the State does not adopt the required revisions, or if the revisions submitted by the State do not meet the requirements of the Act, the Administrator is to publish proposed revised water quality standards in accordance with such requirements.

The State of Ohio, prior to October 18, 1972, adopted water quality standards for both interstate and intrastate waters. After the enactment of the 1972 Amendments, U.S. EPA reviewed both the interstate and intrastate standards pursuant to Section 303(a) of the Act. (A notice concerning U.S. EPA review of all interstate and intrastate water quality standards was

published in the Federal Register on December 29, 1972, 37 F.R. 28775-28780). The State of Ohio adopted revised interstate and intrastate water quality standards, in response to U.S. EPA's request, on July 27, 1973. The revised water quality standards, contained in the document entitled "EP-1, Water Quality Standards, Ohio Environmental Protection Agency, July 27, 1973," have been found by the U.S. EPA to be consistent with the requirements of the law, except as otherwise noted below, and are the water quality standards applicable to the navigable waters of Ohio. The standards document is available for inspection and copying at the Ohio Environmental Protection Agency, Seneca Towers, Columbus, Ohio 43216, and the U.S. EPA Regional Office, One North Wacker Drive, Chicago, Illinois 60606. U.S. EPA's information regulations, 40 CFR Part 2, provide that a fee may be charged for making copies.

On January 16, 1972, the Regional Administrator notified Ohio that certain revisions to its interstate water quality standards were necessary to make the standards consistent with the applicable requirements of the Act. On March 14, 1973, a similar notification was made for intrastate water quality standards. The revisions submitted by the State were not completely consistent with the applicable requirements of Section 303(a)(1), and (2) of the Act. Accordingly, pursuant to Section 303(b)(1), U.S. EPA is now proposing regulations setting forth standards required to comply with the Act as in effect prior to October 18, 1972.

Section 303(b)(2) of the Act, requires the Administrator to promulgate standards no later than 190 days after the date of publication of this notice, unless by such time the State shall have adopted a water quality standard which the Administrator determines to be in accordance with the requirements of Section 303(a) of the Act. However, the Administrator is not required to await State action for the entire 190 day period prior to promulgation. Thus, these

standards may be promulgated by the Administrator at any time following the expiration of time for public comment.

Except as provided in the attached proposed regulations, the interstate and intrastate standards previously adopted by the State of Ohio, as referenced above, are the effective water quality standards under Section 303 of the Act for interstate and intrastate navigable waters within that State. Where the proposed regulations set forth below are inconsistent with the referenced standards, these regulations, if promulgated, will supersede such standards to the extent of the inconsistency.

Interested persons may submit written data, views, or arguments, in triplicate, in regard to the proposed regulations to the Regional Administrator, One North Wacker Drive, Chicago, Illinois 60606. All relevant material received not later than sixty (60) days after the date of this publication in the Federal Register will be considered.

Date

Administrator

The regulations in Chapter I of Title 40, Code of Federal Regulations, are amended as follows:

1. Part 120 is amended to add a new subsection 120.20 as follows:

§ Ohio water quality standards

Water Quality Standards established by Ohio on July 27, 1973 and approved by U.S. EPA on _____ contained in the document entitled "Regulation EP-1, Ohio Water Quality Standards, Ohio Environmental Protection Agency, July 27, 1973," hereinafter will be the water quality standards for the State of Ohio except for the following:

EP 1-01 Classification of Waters of the State

(a) The following shall be added to Regulation EP-1-01

(3) In certain specific waters to be identified by the State of Ohio excepted classification may be granted by the Administrator upon submission of proposed water quality standards for such specified waters and upon submission of an analysis based upon presently available information and sufficient data to support the identification, that because of naturally occurring water quality conditions or technological limitations, improvement of water quality in such specific areas to the degree necessary to protect recreational use and the preservation and propagation of desirable or indigenous species of aquatic biota by the

terminal date as set forth in P.L. 92-500 for the purpose of meeting water quality standards (1977) and as required by the general standards is impossible.

- (b) The specified criteria in Section EP-1-02(J) shall be revised as follows:

<u>STORET NO.</u>	<u>CONSTITUENT</u>	<u>CONCENTRATION</u>
01042	Copper	delete
32730	Phenols	10 ug/l
01092	Zinc	delete

- (c) Section EP-1-02(K) shall be revised as follows:

Pollutants or combinations of any pollutants shall not exceed at any time one-tenth of the 96 hour median tolerance limit for any indigenous aquatic species, except that other more stringent application factors shall be imposed where necessary to meet the minimum requirements of the National Technical Advisory Committee, "Water Quality Criteria," 1968. The median tolerance limit shall be determined by static or dynamic bioassays in accordance with standard methods described in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971, published by the American Public Health Association, and Water Pollution Control Federation.

(d) The following shall be added to regulation EP-1-02

(M) *Total Phosphorus as P (storet number 00665):*

Phosphorus shall be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes. In areas where nuisance growths exist, phosphorus discharges from point sources determined significant by the Agency shall not exceed a daily average of one milligram per liter as total P, or such stricter requirements as may be imposed by agency permits.

Section EP-1-05 Lake Erie - the Water Quality Standards for Lake Erie shall be revised as follows:

In addition to the appropriate standards contained in EP-1, namely EP-1-01, EP-1-02, EP-1-07, EP-1-08, EP-1-09, the following criteria shall be applicable to Lake Erie:

- (1) Total Dissolved Solids - not to exceed 200 mg/l.*
- (2) Taste and Odor - objectionable taste and odor producing substances shall be virtually absent. Phenolic compounds shall not exceed 0.001 mg/l.*
- (3) Filterable Iron - not to exceed 0.3 mg/l.*
- (4) Phosphorus - municipal waste treatment plants discharging in excess of one million gallons per day into Lake Erie or the Lake Erie basin shall be limited to no more than a*

daily average effluent concentration of 1.0 mg/l as total phosphorus (P).

(5) Dissolved Oxygen - not less than 6 mg/l at any time nor less than 7 mg/l in the spawning areas of cold water fish.

(6) Hydrogen Ion Concentration (pH) - shall not be outside the range 6.7 - 8.5

(7) Temperature - the maximum temperature rise at any time outside the mixing zone shall not exceed 3°F above natural temperature. In addition, the water temperature shall not exceed the maximum limits indicated in the following table:

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
45	45	45	60	70	75	80	85	80	70	60	50

(8) Mixing Zones - In applying water quality standards, areas may be allowed for the admixture of waste effluents with the receiving waters. Water quality standards must be met at every point outside of these areas. Characteristics inside the mixing zone shall not be deleterious to populations of important aquatic species. Pollutants or combinations of pollutants should not exceed the 96 hour median tolerance limit for indigenous aquatic species. Water temperature should be limited so as to assure that lethal conditions for important fish species are not created as determined by a time-exposure relationship.

Location and size of mixing zones shall be determined on a case by case basis in accordance with the following conditions:

- (1) Mixing zones shall not include important spawning or nursery areas.*
- (2) Mixing zones shall not block fish migratory routes.*
- (3) Mixing zones shall not include any drinking water supply intake.*
- (4) Mixing zones shall not include any shoreline bathing area.*
- (5) Mixing zones shall not include the hypolimnion.*
- (6) Mixing zones shall be designed and located in such a manner that the protection and propagation of fish, shellfish and wildlife in the body of water as a whole shall not be adversely affected.*

The following sections shall be added to Regulation EP-1:

EP-1-08 Chemical Applications - The application of chemicals for water resource management projects in accordance with and subject to state statutory provisions is not subject to the standards prescribed by these rules, however, all projects shall be reviewed and approved by the Agency prior to application of chemicals.

EP-1-09 Analytical Testing - All methods of sample collection, preservation, and analysis used in applying any of the rules and regulations in this chapter shall be in accord with those prescribed in the Federal Register, Title 40, Chapter I, Sub-Chapter D, Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants."

August 9, 1973

Francis T. Mayo
Regional Administrator
U.S. Environmental Protection Agency
Region V
One North Wacker Drive
Chicago, Illinois 60606



J. Gilligan
rnr
a L. Whitman
r

Dear Mr. Mayo:

In accordance with the provisions of Section 303(a) of the Federal Water Pollution Control Act Amendments of 1972, I hereby request formal approval of the revised water quality standards for the State of Ohio, five copies of which are enclosed. I adopted these as regulations of the Ohio Environmental Protection Agency on July 27, 1973.

These standards were arrived at after a great deal of intensive effort by personnel in the Agency in close cooperation with Mr. Chris Potos of U.S. EPA, Region V. They generated a great deal of public comment because of the stringency of many of the toxic material concentrations recommended by U.S. EPA. There can be no question that the attainment of these standards will have a substantial impact in improving the quality of the waters of the State of Ohio.

An opinion is enclosed from our Attorney General certifying that these standards were duly adopted following public hearings and that, if approved, they will be effective and enforceable by this state.

I look forward to learning of your approval of these water quality standards in the near future so that we may proceed

Mr. Francis T. Mayo
Page 2
August 9, 1973

with the water quality evaluation required under Section 303(e) of the Federal Water Pollution Control Act Amendments of 1972 and the issuance of NPDES permits based upon them.

Very truly yours,

Ira L. Whitman
Director

ILW/nm

Copies to:

Tom Schuessler
Samuel A. Bleicher
John Marco
William Paynter
Grant Merritt
Ralph Purdy
L. P. Boigt

Blind Copy

Chris Potos ✓

OFFICE OF THE ATTORNEY GENERAL

STATE OF OHIO

COLUMBUS 43215

Environmental Law Section
361 East Broad Street
Columbus, Ohio 43215
(614) 469-2766
(614) 469-2767

JAM J. BROWN
ATTORNEY GENERAL
RCE L. JENKINS
FIRST ASSISTANT ATTORNEY GENERAL



July 27, 1973

Ira L. Whitman, Director
Ohio Environmental Protection Agency
361 East Broad Street
Columbus, Ohio 43216

Dear Dr. Whitman:

This constitutes the official response of this office to your request for an opinion whether the revisions to the water quality standards for the State of Ohio are effective and enforceable under state law. For the following reasons, it is the opinion of this office that they are.

Section 6111.041 of the Ohio Revised Code specifies the procedures to be followed by the Director of Environmental Protection in adopting, amending, or repealing water quality standards. That section provides that prior to the adoption or amendment of water quality standards, the Agency must give "due notice," which specifies the waters to which the standards relate and contains the time, date, and place at which public hearings are to be held on proposed standards. The Director is then required to conduct public hearings. Upon completion of these procedures, the Director may adopt the standards. Water quality standards become effective upon adoption by the Director.

Public notice on these water quality standards was given in the following manner. Thirty days in advance of the public hearings, notice was published in newspapers in the following cities which include the most populous areas of the State: Youngstown, Athens, Cincinnati,

Ira L. Whitman, Director
Ohio Environmental Protection Agency
July 27, 1973
Page Two

Dayton, Cleveland, Portsmouth, Marietta, Akron, Steubenville, Columbus, Canton and Toledo. The notice specified the time, date and location of the public hearing to be held on the proposed water quality standards. In addition, the same notice was published in the newspaper of general circulation in every county of the state and sent to 215 persons who requested copies, including permit holders, citizens groups and the U. S. Environmental Protection Agency.

The public notice, which was a synopsis, was also sent to each health commissioner in the state and to the clerk of the court of common pleas in each county of the state.

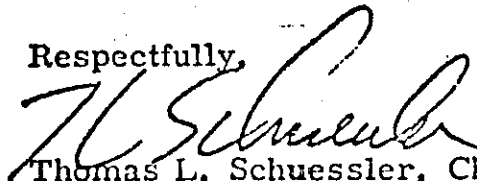
On March 26, 1973, a public hearing was held by the Director. All persons indicating a desire to do so were given an opportunity to testify and be heard. The record was held open for an additional 30 days to receive additional comments.

The Director of the Ohio Environmental Protection Agency adopted these water quality standards by an order dated July 27, 1973. On that date, the standards became effective.

The water quality standards are enforceable by orders of the Director of the Ohio Environmental Protection Agency. Persons to whom these orders are issued have rights to adjudication hearings, and to appeal through the Environmental Board of Review and Ohio Courts. When these rights are waived or exhausted, the orders may be enforced directly through civil or criminal actions brought by this Office upon request of the Director.

If you have further questions about this matter, please do not hesitate to direct them to me.

Respectfully,



Thomas L. Schuessler, Chief
Environmental Law Section

TLS:lr

cc: John E. Daniel

• Before
THE ENVIRONMENTAL PROTECTION AGENCY
of
THE STATE OF OHIO

In the matter of)
The adoption of regulations)
EP-1-01 through EP-1-07,)
inclusive, in final form, and the)
rescission of the existing Water)
Quality Standards except to the)
extent preserved by EP-1-05 and)
EP-1-06)

FINDING AND ORDER

The Director of Environmental Protection, having considered the adoption of proposed regulations EP-1-01 through EP-1-07, inclusive, in final form, and the rescission of existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06, finds:

1. That due notice of public hearing, pursuant to the Administrative Procedure Act, was given, that a public hearing was held on March 26, 1973, and that all persons were afforded an opportunity to be heard; and
2. That upon due consideration, and upon the basis of statements made at the public hearing, the adoption of regulations EP 1 01 through EP-1-07, inclusive, in final form, and the rescission of existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06, are reasonable, within the purview of authority provided by law, and are consistent with public notice.

It is therefore

ORDERED, That said proposed regulations EP-1-01 through EP-1-07, inclusive, in final form, be adopted and that said existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06, be rescinded.

It is further

ORDERED, That the effective date of the new regulations and the rescission of the existing regulations contained in the proposal shall be July 27, 1973.

Issued at Columbus, Ohio

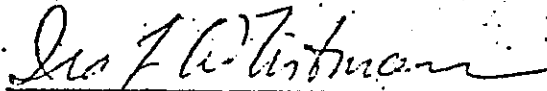
this 27th day of July, 1973


Ira L. Whitman
Director of Environmental Protection

STATE OF OHIO
THE ENVIRONMENTAL PROTECTION AGENCY


CERTIFICATION

I, Ira L. Whitman, Director of Environmental Protection, State of Ohio, do hereby certify that the attached is an exact copy of regulations EP-1-01 through EP-1-07, inclusive, in final form, as adopted by Order of *July 27, 1973* to become effective *July 27th* 1973.



Ira L. Whitman
Director of Environmental Protection

Sworn to and subscribed in my presence by Ira L. Whitman, this 27th day of July 1973.


Notary Public

PETER A. PRECERIO, Attorney-At-Law
NOTARY PUBLIC — STATE OF OHIO
My commission has no expiration date.

EP-1. WATER QUALITY STANDARDS

EP-1-01 Classification of Waters of the State.

- (A) Except as specified in subsection (B) below, all surface waters of the state are hereby classified as appropriate for warm water fisheries, for primary contact recreation, for processing by conventional treatment into public, industrial, and agricultural water supplies, and for such other uses as are identified for specific uses in subsequent sections of this Chapter, EP-1, of the Regulations of the Ohio EPA.
- (B) The water quality standards set forth in this Chapter, EP-1, of the Regulations of the Ohio EPA, shall not apply.
- (1) Whenever the flow falls below the annual minimum 7 day average flow that has a recurrence period of once in ten years taking into account hydraulically altered flow regimes, calculated by the methods described in H. C. Riggs, Techniques of Water-Resources Investigation of the United States Geological Survey, Chapter B 1, Low-Flow Investigations (Washington, D. C., 1972); or
- (2) Where a portion of a watercourse is determined to be a low-flow stream. The term "low-flow stream" means that portion of a watercourse where:
- (a) the total upstream drainage area is less than five square miles, and
- (b) less than 50% of the flow would be present if there were no point source wastewater discharges for 15% of any two consecutive year period during the ten years preceding July 1, 1974.

Discharges to low-flow streams as described by this subsection, EP-1-01 (B)(2), commenced on or before July 1, 1974, will be required to either meet water quality standards or be treated by "the best available control technology economically achievable" as defined by the Administrator of the United States Environmental

Protection Agency under the Federal Water Pollution Control Act Amendments of 1972, whichever is less stringent; and water discharge permits for such discharges will contain effluent levels that would be reached by such treatment. The standards set forth in this Chapter, EP-1, of the Regulations of the Ohio EPA, shall apply to low-flow streams for discharges commenced after July 1, 1974. Such discharges shall not interfere with the attainment or maintenance of the water quality standards set forth in this Chapter.

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted
Effective

July 27, 1973;
July 27, 1973)

EP-1-02 General Standard. Except as sections EP-1-01 (A) through (B) and sections EP-1-03 through EP-1-07 of these regulations establish different standards, the water quality standards of the state shall be as follows:

(A) Within 500 yards of any public water supply intake,

(1) dissolved solids may exceed one, but not both, of the following:

(a) 500 mg/l as a monthly average nor exceed 750 mg/l at any time, or

(b) 150 mg/l of dissolved solids attributable to human activities; and

(2) phenols (storet number 32730) shall not exceed 1.0 ug/l; and

(3) nitrate (N) (storet number 00520) shall not exceed 8 mg/l; and

(4) dissolved iron (storet number 01046) shall not exceed 300 ug/l; and

(5) chromium (hexavalent) (storet number 01032) shall not exceed 10 ug/l; and

(6) cyanide (storet number 00720) shall not exceed .001 mg/l.

(B) Within 500 yards of any water supply intake, dissolved solids may exceed one, but not both, of the following:

(1) 500 mg/l as a monthly average nor exceed 750 mg/l at any time, or

(2) 150 mg/l of dissolved solids attributable to human activities; and

(C) Dissolved oxygen shall not be less than a daily average of 5.0 mg/l nor less than 4.0 mg/l at any time.

- (D) pH shall not be less than 6.0 and shall not be more than 9.0 at any time except that it may be less than 6.0 or more than 9.0 if there is no contribution of acidic or alkaline pollution attribution to human activities.
- (E) Fecal coliform content (either MPN or MF count) shall not exceed 200 per 100 ml as a 30 day geometric mean based on not less than five samples during any 30 day period nor exceed 400 per 100 ml in more than ten percent of all samples during a 30 day period.
- (F) Dissolved solids may exceed one, but not both of the following:
- (1) 1500 mg/l
 - (2) 150 mg/l attributable to human activities.
- (G) Lake water temperature shall not exceed by more than three degrees fahrenheit (1.7 degrees centigrade) the water temperature which would occur if there were no temperature change of such waters attributable to human activities, and stream water temperature shall not exceed by more than five degrees fahrenheit (2.8 degrees centigrade) the water temperature which would occur if there were no temperature change of such waters attributable to human activities. Notwithstanding the foregoing standard, at no time shall water temperature exceed the maximum temperatures indicated in the following table:

MAXIMUM TEMPERATURE IN DEGREES CENTIGRADE & FAHRENHEIT DURING MONTH

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Maximum Temperature in Centigrade (C°)	10.0	10.0	15.6	21.1	26.7	32.2	32.2	32.2	32.2	25.6	21.1	13.9
Maximum Temperature in Fahrenheit (F°)	50	50	60	70	80	90	90	90	90	78	70	57
Average Maximum Temperature in Centigrade (C°)	10.0	10.0	15.6	21.1	26.7	30.6	31.7	31.7	30.6	25.6	21.1	13.9
Average Maximum Temperature in Fahrenheit (F°)	50	50	60	70	80	87	89	89	87	78	70	57

(H) The threshold-odor number attributable to human activities shall not exceed 24 at 40 degrees centigrade tested as described in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971, published by the American Public Health Association, the American Water Works Association, and Water Pollution Control Federation.

(I) Gross beta activity shall not exceed 100 picocuries per liter, nor shall activity from strontium 90 exceed 10 picocuries per liter, nor shall activity from alpha emitters exceed 3 picocuries per liter.

(J) The following chemical pollutants shall not exceed the following specified concentrations at any time:

Storet Number	Constituent*	Concentration	
		mg/l	ug/l
00610	Ammonia	1.5	-
01002	Arsenic	-	50.
01007	Barium	-	800.
01027	Cadmium	-	5.
00940	Chloride	250.	-
01034	Chromium	-	300.
01032	Chromium (hexavalent)	-	50.
01042	Copper	-	500.
00722	Cyanide (free)	0.005	-
00720	Cyanide	0.2	-
00951	Fluoride	1.3	-
38260	Foaming Agents (MBAS)	0.5	-
01046	Iron (dissolved)	-	1000.
01051	Lead	-	40.
01054	Manganese (dissolved)	-	1000.
71900	Mercury	-	.5
00550	Oil & Grease (hexane soluble)	5.	-
32730	Phenols	-	100.
01147	Selenium	-	5.
01077	Silver	-	1.
01092	Zinc	-	1000.

* Total unless otherwise indicated.

- (K) Pollutants or combinations of pollutants shall not exceed at any time one-tenth of the 96 hour median tolerance limit for any indigenous aquatic species as determined by static or dynamic bioassays in accordance with standard methods described in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971, published by the American Public Health Association, the American Water Works Association, and Water Pollution Control Federation.
- (L) All waters of the state shall be free from substances attributable to human activities which result in sludge deposits, floating materials, color, turbidity, or other conditions in such degree as to create a nuisance.

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted *July 27, 1973*;
Effective *July 27, 1975*)

- (A) The waters adjacent to a point of discharge of wastewater within the area described in subsection (B) shall be recognized as a "mixing zone." The water quality standards set forth in subsection (C) shall apply to all waters within mixing zones and such waters shall be exempt from all other water quality standards.
- (B) The area within a mixing zone shall be as follows:
- (1) Except as paragraphs (B) (2) or (B) (3) provide different limits, no mixing zone shall:
 - (a) constitute more than one half of the width of the receiving watercourse nor constitute more than one-third of the area of any cross-section of the receiving watercourse,
 - (b) extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge,
 - (c) exceed twenty-three acres of horizontal area of the Ohio River or twelve acres of horizontal area of any other receiving watercourse,
 - (d) include spawning or nursery areas of any indigenous aquatic species,
 - (e) interdict the migratory routes of any indigenous aquatic species.
 - (f) include a drinking water supply intake, or
 - (2) For watercourses classified as cold water fisheries streams in Section EP-1-04, no mixing zone shall:
 - (a) constitute more than one-third of the width of the receiving watercourse nor constitute more than one fifth of the area of any cross-section of the receiving watercourse,

- (b) extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge,
- (c) exceed three acres of horizontal area of the receiving watercourse,
- (d) include spawning or nursery areas of any indigenous aquatic species,
- (e) interdict the migratory routes of any aquatic species,
- (f) include a drinking water supply intake.

(3) No mixing zone in an inland lake shall:

- (a) extend in any direction more than 300 feet from the point of discharge,
- (b) include hypolimnetic waters,
- (c) include spawning or nursery areas of any indigenous aquatic species,
- (d) include a drinking water supply intake.

(C) The following water quality standards shall apply in mixing zones:

- (1) Except as paragraphs (C) (2) or (C) (3) of this section establish different water quality standards within a mixing zone, the water quality standards shall be as follows:
 - (a) pollutants or combinations of pollutants shall not exceed at any time the 96 hour median tolerance limit for any indigenous aquatic species as determined by static or dynamic bioassays in accordance with standard methods described in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971, published by the American Public Health Association, the American Water Works Association, and Water Pollution Control Federation.

- (b) water temperature shall not exceed the temperature of the receiving watercourse upstream of the mixing zone by more than 15 degrees fahrenheit (8.3 degrees centigrade) during the months of May, June, July, August, September, and October or by more than 23 degrees fahrenheit (12.3 degrees centigrade) during the months of November, December, January, February, March, and April.
- (2) For all waters within mixing zones in watercourses classified as cold water fisheries streams in EP-1-04, the water quality standards shall be as follows:
- (a) pollutants or combinations of pollutants shall not exceed one-tenth of the 96 hour median tolerance limit for any indigenous aquatic species as determined by static or dynamic bioassays in accordance with standard methods described in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971, published by the American Public Health Association, the American Water Works Association, and Water Pollution Control Federation.
 - (b) water temperatures shall not exceed the temperature of the receiving watercourse upstream of the mixing zone by more than 5 degrees fahrenheit (2.8 degrees centigrade) during the months of May, June, July, August, September, and October or by more than 23 degrees fahrenheit (12.3 degrees centigrade) during the months of November, December, January, February, March and April.
- (3) For all waters within mixing zones in inland lakes, the water quality standards shall be as follows:
- (a) pollutants or combinations of pollutants shall not exceed the 96 hour median tolerance limit for any indigenous aquatic species as determined by static or dynamic bioassays in accordance with standard methods described in "Standard Methods for the Examination of Water and Wastewater," 13th Edition, 1971,

published by the American Public Health Association, the American Water Works Association, and Water Pollution Control Federation.

- (b) water temperature at any depth shall not exceed natural water temperatures outside the mixing zone by more than 15 degrees fahrenheit (8.3 degrees centigrade) during the months of May, June, July, August, September, and October or by more than 23 degrees fahrenheit (12.3 degrees centigrade) during the months of November, December, January, February, March and April.

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted *July 27, 1973*;
Effective *July 27, 1973*)

Cold Water Fisheries

(A) The water quality standards in watercourses classified as cold water fisheries streams in subsection (3) shall be the water quality standards in Section EP-1-02 except that, to the extent that the following paragraphs establish different standards, the latter standards shall apply.

- (1) Dissolved oxygen shall not be less than six milligrams per liter. In spawning areas dissolved oxygen shall not be less than seven milligrams per liter.
- (2) pH shall not be less than 6.5 and shall not be more than 9.0.
- (3) There shall be no variation of water temperature attributable to human activities.

(B) The following watercourses are hereby classified as cold water fisheries streams (the county designations are for the purpose of identifying the general location of the stream only, and do not limit the classification to a portion of the stream):

- (1) Mad River and its tributaries upstream of Urbana.
- (2) Beaver Creek upstream of the confluence with Green Creek (Seneca County).
- (3) Cold Creek upstream of the confluence with Sandusky Bay (Erie County).
- (4) Pine Run upstream of the confluence with Mohican River (Ashland County).
- (5) Turkey Creek upstream of the confluence with Lake Erie (Ashtabula County).
- (6) Conneaut Creek upstream of the confluence with Lake Erie (Ashtabula County).
- (7) East Branch of Chagrin River upstream of the confluence with Chagrin River (Geauga County).
- (8) Apple Creek upstream of the confluence with Spring Run (Wayne County).

- (9) North Fork upstream of the confluence with Little Beaver Creek (Columbiana County).
- (10) Little Pickeral Creek upstream of the confluence with Sandusky Bay (Sandusky County).
- (11) Cross Creek upstream of the confluence with Ohio River (Jefferson County).

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted
Effective

July 27, 1973;
July 27, 1973)

EP-1-05 Lake Erie. The water quality criteria adopted by the Water Pollution Control Board on April 11, 1967, for Lake Erie and the interstate waters thereof shall be the water quality standards for the waters to which they apply.

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted *July 27, 1973*;
Effective *July 27, 1973*)

WATER POLLUTION CONTROL BOARD
DEPARTMENT OF HEALTH
COLUMBUS, OHIO

WATER QUALITY CRITERIA ADOPTED BY THE BOARD APRIL 11, 1967,
FOR LAKE ERIE AND THE INTERSTATE WATERS THEREOF

The Ohio Water Pollution Control Board hereby adopts the following water quality criteria for Lake Erie and the interstate waters thereof which may affect the State of Michigan, the Commonwealth of Pennsylvania, the State of New York, and the Province of Ontario of the Dominion of Canada.

Water Quality - Conditions and Criteria

All Waters. All the waters considered herein shall meet the following conditions at all times:

- (1) They shall be free from substances attributable to municipal, industrial, or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits;
- (2) They shall be free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, or other discharges in amounts sufficient to be unsightly or deleterious;
- (3) They shall be free from materials attributable to municipal, industrial, or other discharges producing color, odor, or other conditions in such degree as to create a nuisance; and,
- (4) They shall be free from substances attributable to municipal, industrial, or other discharges in concentrations or combinations which are toxic or harmful to human, animal, plant, or aquatic life.

Lake Erie Water Quality Criteria for Various Uses are: (1) the Stream-Water Quality Criteria for Various Uses adopted by the Ohio Water Pollution Control Board on June 14, 1966, copy attached, which shall apply as a minimum to all Lake Erie waters in Ohio, and (2) the existing lake water quality which shall apply where better than the criteria for streams adopted by the Board. The existing lake water quality shall be as reported by the Federal Water Pollution Control Administration in the chapter on Water Quality in report "Program for Water Pollution Control - Lake Erie - 1967."

Lake Erie outside the established harbors at Lorain, Cleveland, and Ashtabula shall meet the Lake Erie water quality criteria for all uses.

The Lorain, Cleveland, and Ashtabula harbor waters in Lake Erie shall meet the Lake Erie water quality criteria for industrial water supply and aquatic life (A).

WATER POLLUTION CONTROL BOARD
OHIO DEPARTMENT OF HEALTH
COLUMBUS, OHIO

RESOLUTION ADOPTED BY BOARD JUNE 14, 1966
REGARDING CRITERIA OF STREAM-WATER
QUALITY FOR VARIOUS USES

WHEREAS, The Ohio Water Pollution Control Board, on December 14, 1965, did submit a resolution of intent, in accordance with the Federal Water Quality Act of 1955, that the State of Ohio will, after public hearings, prior to June 30, 1967, adopt such criteria and plans for implementation for interstate waters or portions thereof within the State; and

WHEREAS, Section 6111.03, of the Ohio Revised Code, provides, in part, as follows:

"The water pollution control board shall have power:

(A) To develop programs for the prevention, control and abatement of new or existing pollution of the waters of the state; . . . " and

WHEREAS, Primary indicators of stream-water quality are needed as guides for appraising the suitability of interstate surface waters in Ohio for various uses;

THEREFORE BE IT RESOLVED, That the following stream-water quality criteria and minimum requirements adopted by the Ohio River Valley Water Sanitation Commission, on May 12, 1966, be hereby adopted by the Ohio Water Pollution Control Board, with the understanding that the criteria may be supplemented or adjusted as circumstances dictate:

MINIMUM CONDITIONS APPLICABLE TO
ALL WATERS AT ALL PLACES AND AT ALL TIMES

1. Free from substances attributable to municipal, industrial or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits;
2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges in amounts sufficient to be unsightly or deleterious;
3. Free from materials attributable to municipal, industrial, or other discharges producing color, odor or other conditions in such degree as to create a nuisance;
4. Free from substances attributable to municipal, industrial or other discharges in concentrations or combinations which are toxic or harmful to human, animal or aquatic life.

STREAM-WATER QUALITY CRITERIA

For Public Water Supply

The following criteria are for evaluation of stream-water quality at the point at which water is withdrawn for treatment and distribution as a potable supply:

1. Bacteria: Coliform group not to exceed 5,000 per 100 ml as a monthly average value (either MPN or 12^h count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml in more than five percent of such samples.
2. Threshold-odor Number: Not to exceed 24 (at 60° C.) as a daily average.
3. Dissolved solids: Not to exceed 500 mg/l as a monthly average value, nor exceed 750 mg/l at any time. (For Ohio River water, values of specific conductance of 800 and 1,200 micromhos/cm (at 25°C.) may be considered equivalent to dissolved-solids concentrations of 500 and 750 mg/l.)
4. Chemical Constituents: Not to exceed the following specified concentrations at any time:

<u>Constituent</u>	<u>Concentration (mg/l)</u>
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium (hexavalent)	0.05
Cyanide	0.2
Fluoride	2.0
Lead	0.05
Selenium	0.01
Silver	0.05

5. Radioactive substances: Gross beta activity (in the known absence of Strontium-90 and alpha emitters) not to exceed 1,000 micro-microcuries per liter at any time.

For Industrial Water Supply

The following criteria are applicable to stream water at the point at which the water is withdrawn for use (either with or without treatment) for industrial cooling and processing:

1. Dissolved oxygen: Not less than 2.0 mg/l as a daily-average value, nor less than 1.0 mg/l at any time.
2. pH: Not less than 5.0 nor greater than 9.0 at any time.

3. Temperature: Not to exceed 95°F. at any time.
4. Dissolved solids: Not to exceed 750 mg/l as a monthly average value, nor exceed 1,000 mg/l at any time. (For the Ohio River water, values of specific conductance of 1,200 and 1,600 micromhos/cm (at 25°C.) may be considered equivalent to dissolved-solids concentrations of 750 and 1,000 mg/l.)

For Aquatic Life

(A)* The following criteria are for evaluation of conditions for the maintenance of a well balanced warm-water fish population at any point in the stream except for areas immediately adjacent to outfalls. In such areas cognizance will be given to opportunities for the admixture of effluents with stream water:

1. Dissolved oxygen: Not less than 5.0 mg/l during at least 16 hours of any 24-hour period, nor less than 3.0 mg/l at any time.
2. pH: No values below 5.0 nor above 9.0, and daily average (or median) values preferably between 6.5 and 8.5.
3. Temperature: Not to exceed 93°F. at any time during the months of May through November, and not to exceed 73°F. at any time during the months of December through April.
4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

For Recreation

The following criterion is for evaluation of conditions at any point in waters designed to be used for recreational purposes, including such water-contact activities as swimming and water skiing:

- Bacteria: Coliform group not to exceed 1,000 per 100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 2,400 per 100 ml (MPN or MF count) on any day.

BE IT FURTHER RESOLVED, That the stream-water quality criteria for aquatic life be supplemented with the following and with the understanding that the criteria may be supplemented or adjusted as circumstances dictate:

(B) The following criteria are for evaluation of conditions for the maintenance of biological growth and for permitting the passage of fish through the water, at any point in the stream, except for areas immediately adjacent to outfalls. In such areas cognizance will be given to opportunities for the admixture of effluents with stream water:

1. Dissolved oxygen: Not less than 2.0 mg/l as a daily-average value, nor less than 1.0 mg/l at any time.
2. pH: Not less than 5.0 nor greater than 9.0 at any time.
3. Temperature: Not to exceed 95°F. at any time.
4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

EP-1-06 Mahoning River Basin. The Water Quality Standards for the Mahoning River and its tributaries in Ohio adopted by the Ohio Water Pollution Control Board on July 11, 1972, shall be the water quality standards for those watercourses and inland lakes to which they apply.

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted
Effective

*July 27, 1973;
July 27, 1973)*

WATER POLLUTION CONTROL BOARD
DEPARTMENT OF HEALTH
COLUMBUS, OHIO

WATER QUALITY STANDARDS ADOPTED BY THE BOARD JULY 11, 1972,
FOR THE MAHONING RIVER AND ITS TRIBUTARIES IN OHIO.

The Ohio Water Pollution Control Board hereby adopts water quality standards for the interstate waters of the Mahoning River and its tributaries in Ohio.

MINIMUM CONDITIONS APPLICABLE TO
ALL WATERS AT ALL PLACES AND AT ALL TIMES

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.
2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.
3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.
4. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

PROTECTION OF HIGH QUALITY WATERS

Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality, pursuant to the Ohio water pollution control statutes, so as not to interfere with or become injurious to any assigned uses made of, or presently possible, in such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the most effective waste treatment available under existing technology. The Ohio Water Pollution Control Board will cooperate with other agencies of the state, agencies of other states, interstate agencies and the Federal Government in the enforcement of this policy.

MIXING ZONES

Mixing zones shall be determined on a case by case basis with the requirement that each mixing zone shall be limited to the greatest practical extent and where possible not to overlap another one. In addition a reasonable zone of passage will be preserved for the movement of fish and other aquatic biota.

WATER QUALITY DESIGN FLOW

Where applicable for the determination of treatment requirements the water quality design flow shall be the minimum seven consecutive day average that is exceeded in 90 percent of the years. On the lower main stem of the Mahoning River the regulated flow shown below shall be used for the determination of treatment requirements.

REGULATED STREAM FLOWS IN THE MAIN STEM OF THE MAHONING RIVER

<u>River Reach</u>	<u>Winter cfs</u>	<u>Summer cfs</u>
1. Eagle Creek to Mosquito Creek	145	315
2. Mosquito Creek to Meander Creek	200	415
3. Meander Creek to Youngstown wastewater treatment plant	225	480
4. Youngstown wastewater treatment plant to Ohio-Pennsylvania stateline	290	515

STREAM-QUALITY CRITERIA

FOR PUBLIC WATER SUPPLY

Waters designated as a source of public water supply will be of such quality that Federal-Drinking Water Standards for finished water can be met by conventional treatment which includes coagulation, filtration and disinfection.

The following criteria are applicable to stream waters used as a potable supply:

1. Bacteria: Coliform group not to exceed 5,000 per 100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml in more than five percent of such samples.
2. Threshold-odor number: Not to exceed 24 (at 60 deg. C.) as a daily average.
3. Dissolved solids: Not to exceed 500 mg/l as a monthly average value, nor exceed 750 mg/l at any time.
4. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/l), nor shall activity from dissolved strontium 90 exceed 10 pCi/l, nor shall activity from dissolved alpha emitters exceed 3 pCi/l.
5. Chemical constituents: Not to exceed the following specified concentrations at any time.

<u>Constituent</u>	<u>Concentration (mg/l)</u>
Arsenic	0.05
Barium	1.0
Cadmium	0.005
Chromium (hexavalent)	0.05
Cyanide	0.025
Fluoride	1.0
Lead	0.05
Selenium	0.005
Silver	0.05
Mercury	0.005

FOR INDUSTRIAL WATER SUPPLY

The following criteria are applicable to stream waters for use (either with or without treatment) for industrial cooling and processing:

Dissolved solids: Not to exceed 500 mg/l as a monthly average value nor exceed 750 mg/l at any time.

FOR AQUATIC LIFE (WARM WATER FISHERY)

The following criteria are for evaluation of conditions for the maintenance of a well-balanced, warm-water fish population. They are applicable at any point in the stream except for the minimum area necessary for the admixture of waste effluents with stream water:

1. Dissolved oxygen: Not less than an average of 5.0 mg/l per calendar day and not less than 4.0 mg/l at any time.
2. pH:
 - A. No values below 6.0 nor above 8.5.
 - B. Daily fluctuations which exceed the range of pH 6.0 to pH 8.5 and are correlated with photosynthetic activity may be tolerated.
3. Temperature:
 - A. No abnormal temperature changes that may affect aquatic life unless caused by natural conditions.
 - B. For the main stem of the Mahoning River (Warren to Lowellville Dam) water temperatures shall not exceed natural levels (as measured by the water quality monitor station at Leavittsburg) by 5° F. during April through November and 10° December through March.
 - C. For all waters except the main stem of the Mahoning River (Warren to Lowellville Dam) the maximum temperature shall not exceed natural temperatures by more than 5° F. provided that at no time shall they exceed those indicated in the following table.

Maximum Temperature in Deg. F. During Month											
Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
50	50	60	70	80	90	90	90	90	78	70	57

4. Toxic substances. Not to exceed one-tenth of the 96-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

FOR RECREATION

The following criterion is for evaluation of conditions for waters designated to be used for recreational purposes:

PRIMARY CONTACT - (SWIMMING AND WATER-SKIING)

Bacteria: The fecal coliform content (either MPN or MF count) not to exceed 200 per 100 ML as a monthly geometric mean based on not less than five samples per month; nor exceed 400 per 100 ML in more than ten percent of all samples taken during a month.

SECONDARY CONTACT - (BOATING, FISHING AND WADING)

Bacteria: The fecal coliform content (either MPN or MF count) not to exceed 1,000 per 100 ML as a monthly geometric mean based on not less than five samples per month; nor exceed 2,000 per 100 ML in more than ten percent of all samples taken during a month.

FOR AGRICULTURAL USE AND STOCK WATERING

The following criteria are applicable for the evaluation of stream quality at places where water is withdrawn for agricultural use or stock water purposes:

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices, that will settle to form putrescent or otherwise objectionable sludge deposits.
2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.
3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.
4. Free from substances attributable to municipal, industrial or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

STREAM WATER USES

The stream water uses for the waters of the Mahoning River basin are to be as follows:

1. Mahoning River upstream of Warren and all tributaries
 - a. Primary contact recreation
 - b. Public water supply
 - c. Well-balanced warm water fishery
 - d. Industrial water supply
 - e. Agriculture use and stock watering
2. Mahoning River main stem Warren to Lowellville Dam
 - a. Secondary contact recreation
 - b. Well-balanced warm water fishery
 - c. Industrial water supply
 - d. Agriculture use and stock watering
3. Mahoning River (main stem) Lowellville Dam to Ohio-Pennsylvania stateline
 - a. Primary contact recreation
 - b. Public water supply
 - c. Well-balanced warm water fishery
 - d. Industrial water supply
 - e. Agriculture use and stock watering

EP-1-07

Non-Degradation of High Quality Waters. It is the policy of the Ohio EPA that waters whose existing quality is better than these standards as of July 1, 1973, will be maintained at their existing high quality, pursuant to the Ohio water pollution control statutes, so as not to interfere with or become injurious to any assigned uses made of, or presently possible, in such waters. This will require that any industrial, public or private project or development that would constitute a new source of wastewater discharge or an increased wastewater discharge to high quality waters as part of the initial project design, to provide the most effective waste treatment available under existing technology, as provided in the Regulations of the Ohio EPA governing installation of new sources of wastewater discharge.

Existing Water Quality Standards except to the extent preserved by EP-1-05 and EP-1-06 are rescinded.

(Adopted *July 27, 1973*;
Effective *July 27, 1973*)