CELRC-PD 8 October 1998

MEMORANDUM FOR District Engineer

SUBJECT: Chicago Area CDF; final supplemental EIS; record of decision

1. The final supplemental environmental impact statement (SEIS) for the Chicago Area CDF was released just over 30 days ago; no comments or objections have been received from reviewing agencies or the public.

2. To complete the NEPA process, I request that the District Engineer sign and date the attached record of decision (ROD).

3. POC is Keith Ryder, CELRC-PD-S, extension 2020. The signed ROD should be returned to Mr. Ryder, and will be kept in the project file as evidence of compliance with the National Environmental Policy Act.

Paul D. Mohrhardt
Acting Chief of Planning Division

Attachment

CF: CELRC-CO-O/Hungness
CELRC-CO-O/Eliashevsky

CHICAGO AREA CONFINED DISPOSAL FACILITY
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

RECORD OF DECISION

1. The Supplemental Environmental Impact Statement (SEIS) for the Chicago Area Confined Disposal Facility (CDF) documents the environmental impacts of proposed changes in the operation and maintenance of the CDF. The SEIS documents

a) existing conditions at the CDF;
b) discrepancies between the project as presented in the 1982 FEIS and the project as operated during 1984-1997;
c) the absence of adverse environmental impacts associated with project operation; and
d) proposed improvements to water quality monitoring plan, vegetation management plan, sediment management plan, and operating plan.

2. The Chicago area CDF was built in 1983-1984 to contain contaminated sediments (material unsuitable for open-lake disposal) dredged from Federal deep-draft navigation channels in the Chicago River, Chicago Harbor, and the Calumet River and Harbor in Cook County, Illinois. Forty-five acres of the nearshore bottom of Lake Michigan are contained within a rubble-mound dike. The CDF was discussed in a draft environmental impact statement (DEIS) released in December 1981, and in a final EIS (FEIS) released in May 1982. The CDF's impermeable synthetic liner (discussed on pages 18 and 49 of both the 1981 DEIS and the 1982 FEIS) was damaged during construction; a "sand blanket" was installed in its place, and has prevented migration of sediments through the dike wall.

3. Described below are

a) the project as presented in the 1982 FEIS;
b) the project as operated during 1984-1997;
c) the general absence of adverse impacts associated with operation of the CDF; and
d) proposed changes in operation, maintenance, and monitoring, as discussed in the 1998 draft SEIS and final SEIS.

3.1 Project as Described in 1982 FEIS

3.1.1 Selected Plan - the selected plan involved using mechanical dredges to remove contaminated sediment from the Chicago River, Chicago Harbor, and Calumet River and Harbor; building and operating a 45-acre CDF (limestone core/rubble mound dike with impermeable synthetic liner) to contain dredged material; placing dredged material in CDF hydraulically or by crane; and monitoring water quality before, during, and after disposal.

3.1.2 Plastic Liner - the 1982 FEIS describes the "plastic liner" as a "...synthetic liner ... placed on the prepared limestone on the disposal side to protect the limestone and to provide a positive cutoff preventing pollutants from escaping through the rubble mound." The liner was damaged during construction and could no longer function as an impermeable barrier; its filtering function was taken over by a "sand blanket" during the final phases of construction.

3.1.3 Water Quality Monitoring Plan - the 1982 FEIS stated that "... a water quality monitoring plan ... would be put into effect to ensure that the effluent is not in violation of (the Illinois Pollution Control Board's Effluent) standards. If the effluent standards are violated, the operation of the CDF and the effluent from the CDF would be shut down until the effluent quality can be brought into compliance with the effluent standards." The water quality monitoring plan specified locations of 16 monitoring wells, sampling schedules, parameters to be analyzed, quality control procedures, and reporting requirements.

3.1.4 Water Quality Monitoring Wells, 1983 - of the ten wells installed in the CDF dike during its initial construction in 1983-1984, five were installed in 1983. All five were placed in the dike of the small "special excavation disposal area", built on the south end of the CDF to hold polluted material dredged from the dike alignment at the north end of the CDF. These wells were built to monitor fly ash and other unsuitable foundation material being placed in the "special excavation disposal area".

3.1.5 Water quality monitoring wells, 1984 - of the ten wells installed in the CDF dike during its initial construction in 1983-1984, five were installed in 1984. All five were installed in the dike wall to monitor dredged material from the Calumet River and Chicago River.

3.1.6 Dredging/Disposal Methods - the selected plan discussed in the 1982 FEIS involved mechanical dredging with clamshell/dipper or hopper dredges, and disposal by hydraulic equipment or crane. During disposal "...dredged material would be hydraulically pumped from hopper dredges or scows into the disposal area. The effluent ... will be ... pumped to filter cells ... with a dual media (medium grained sand and ... crushed anthracite coal or granular activated carbon) placed over a pebble stone underdrain system...".

3.1.7 Permits in 1982 - the Illinois Environmental Protection Agency (IEPA)issued water pollution control permits to the Chicago District for the operation of the CDF in June 1982 and August 1982. The permits grant certification under Section 401 of the Clean Water Act of 1970.

3.2 Project as Operated During 1984-1997

3.2.1 Plastic Liner vs. Sand Blanket - The plastic liner was damaged during construction, and could no longer function as an impermeable barrier; its filtering function was taken over by a "sand blanket", which was placed on the disposal side of the rubble mound dike during the final phases of construction. The large number of "non-detect" results collected during monitoring indicate that the sand blanket has prevented the release of pollutants into the harbor. Chicago District staff discussed this issue with the IEPA in February 1994 and were told that the operating permit for the CDF was still valid.

3.2.2 Water Quality Monitoring Wells - wells located in the CDF dike proved ineffective in measuring migration of effluent or sediment through the dike. The wells failed periodically and were also vandalized. Data from the deep and shallow wells were not representative of Lake Michigan or the CDF, but of the "groundwater" within the limestone dike of the CDF.

3.2.3 Dredging/Disposal Methods - mechanical dredging was done in the Calumet River, Chicago River, and Chicago Harbor on six occasions between October 1984 and July 1995; disposal involved using a crane to move dredged sediment from barges into a hopper and sluice.

3.2.4 Permits, 1984-1993 - the Illinois Environmental Protection Agency issued water pollution control permits to the Chicago District for CDF operation in June 1982, August 1982, and March 1993. The permits grant certification under Section 401 of the Clean Water Act of 1970. In February 1994 IEPA and Chicago District staff discussed the "plastic liner vs. sand blanket" issue; IEPA staff confirmed the fact that the Chicago District had a valid permit for CDF operation.

3.2.5 Permit, 1997 - The 1993 operating permit expired in May 1997, but was renewed in April 1997. The new permit (no. 1997-EA-3213) provides for mechanical dredging, hydraulic dredging, pumping during disposal operations, and monitoring; it expires on 1 April 2002.

3.3 Proposed Changes in Operation

3.3.1 Filtration System - The CDF's pumps and filters will be activated whenever disposal is done. The current operating permit stipulates that a "pump with a capacity of 2250 gallons per minute shall be used during dredging operations to carry wastewater to the filter cells in order to reduce the volume within the CDF in direct proportion to the incoming sediment and wastewater volume during dredging and disposal events".

3.3.2 Location of Monitoring Wells – proposed sampling locations are shown in Plate 3 of the Supplemental EIS.

3.3.3 Water Quality Monitoring Plan – The revised monitoring plan will involve taking samples in spring, summer and fall, as well as sampling in the Calumet River during dredging/disposal operations. The new plan will be better able to detect leaks, more thoroughly address "failure" scenarios, furnish a standardized long-term data set performing statistical analysis, and provide a better understanding of the CDF's long-term impact on water quality. The revised monitoring plan was the basis for the current operating permit.

3.3.4 Dredging Methods – Dredging in the future will be done

a) mechanically, with an annual report on water quality impacts submitted to the Illinois EPA by the Chicago District; or
b) hydraulically, with a monthly report on water quality impacts submitted to the Illinois EPA by the Chicago District.

3.3.5 Disposal Methods – Disposal in the future will be done

a) mechanically, using the barge, crane, and "hopper with sluice"operation done during 1984-1995; or
b) by a combined "mechanical and hydraulic" method, using water from within the CDF or water from Lake Michigan to create a slurry more readily moved from barges into the CDF

3.3.6 Sediment Management – the project's operating manual will prohibit disturbance of the "sand blanket" on the interior dike wall. To prevent wildlife from ingesting contaminated sediment in the CDF, the operating manual will incorporate recommendations made by Chicago District staff, USFWS, and IDNR.

3.3.7 Vegetation Control – to prevent shorebirds, waterfowl, and wading birds from nesting in

the CDF, the project's operating manual will incorporate recommendations made by Chicago District staff, U.S. Fish and Wildlife Service, and Illinois DNR. Dredged material will be managed to avoid creation of mudflats.

3.3.8 Dredged Debris – timbers, automobiles, cables, and other debris encountered during dredging and disposal will be moved only as required in the course of "sediment management".

3.3.9 Security and Signs – "pictorial" or "international" signs prohibiting fishing will be posted for the benefit of those who do not speak English. No guard will be posted, due to the cost.

3.3.10 Spillage During Disposal – spillage of dredged material during disposal will be minimized by enforcement of provisions contained in the deredging contract and specifications. The contractor is required to submit a spill prevention and spill control plan to the Corps for approval prior to dredging. The specifications (part of the dredging contract) also include an environmental protection plan prohibiting spillage of dredge material outside of the CDF.

4. I have reviewed the Chicago CDF Supplemental Environmental Impact Statement, and have considered the comments received from government agencies and private interests. The SEIS indicates that the proposed changes in maintenance, operation, and monitoring of the CDF will have no significant, long-term, or cumulative adverse environmental impacts. The proposed changes will ensure that continued operation of the CDF will not adversely affect wildlife or water quality in the project area and vicinity.

5. The changes proposed in the SEIS are in full compliance with all applicable Federal statutes. State of Illinois Section 401 water quality certification was granted by the Illinois Environmental Protection Agency in April 1997 (permit no. 1997-EA-3213) expires on 1 April 2002, and provides for mechanical dredging, hydraulic dredging, pumping during disposal operations, and monitoring.

_____
Date

_____
Peter J. Rowan, P.E
Lieutenant Colonel, U.S. Army
District Engineer

FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR CHICAGO AREA CONFINED DISPOSAL FACILITY

AT CALUMET HARBOR, CHICAGO,
COOK COUNTY, ILLINOIS

26 August 1998

U.S. Army Corps of Engineers
Chicago District, CELRC-PD-S
111 North Canal Street Suite 600
Chicago, Illinois 60606-7206

FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT:
CHICAGO AREA CONFINED DISPOSAL FACILITY
AT CALUMET HARBOR, CHICAGO, COOK COUNTY, ILLINOIS

ABSTRACT

The responsible lead agency for the project is the Chicago District, U.S. Army Corps of Engineers.

ABSTRACT: The Chicago area confined disposal facility (CDF) was built in 1983-1984 to contain contaminated sediments (material unsuitable for open-lake disposal) dredged from Federal deep-draft navigation channels in the Chicago River, Chicago Harbor, and the Calumet River and Harbor in Cook County, Illinois. Forty-five acres of the nearshore bottom of Lake Michigan are contained within a rubble-mound dike.

The CDF has a capacity of about 1.3 million cubic yards; it now holds about 400,000 cubic yards of sediment. Dredged material (from Calumet River, Chicago Harbor, and Chicago River) was placed in the CDF on six occasions between October 1984 and December 1994. When filled to capacity the CDF will be capped, seeded, and turned over to local sponsors (Chicago Park District and Illinois International Port District).

The CDF was discussed in a draft environmental impact statement (DEIS) released in December 1981, and in a final EIS (FEIS) released in May 1982. The CDF's impermeable synthetic liner (discussed on pages 18 and 49 of both the 1981 DEIS and the 1982 FEIS) was damaged during construction; a "sand blanket" was installed in its place, and has prevented migration of sediments through the dike wall.

This supplemental EIS (SEIS) documents

a) existing conditions at the CDF;
b) discrepancies between the project as presented in the 1982 FEIS and the project as operated during 1984-1997;
c) the absence of adverse environmental impacts associated with project operation;
d) proposed improvements to water quality monitoring plan;
e) proposed plan for managing vegetation at the CDF (to prevent adverse impacts to wildlife habitat and endangered species);
f) proposed plan for managing sediment in the CDF (to prevent adverse impacts to wildlife, air quality, and public health); and
g) proposed improvements to the operating plan.

As no objections or significant comments were received during the public review (22 June-12 August 1998) of the draft SEIS, only a few revisions were needed to convert the draft document into a final SEIS. Pages 1-21 of the draft document were not revised; only revised portions of the document have been sent to the recipients listed in section 6.4.

SEND YOUR COMMENTS TO THE DISTRICT ENGINEER WITHIN 30 DAYS OF THE DATE GIVEN IN THE FEDERAL REGISTER OF AVAILABILITY OF THIS DOCUMENT

For further information contact:
Keith Ryder, SEIS coordinator
CELRC-PD-S Chicago District
111 North Canal Street, Suite 600
Chicago, Illinois 60606-7206
phone: 312/353-6400 ext. 2020

FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT:
CHICAGO AREA CONFINED DISPOSAL FACILITY
AT CALUMET HARBOR, CHICAGO,
COOK COUNTY, ILLINOIS

TABLE OF CONTENTS

SUMMARY

SECTION 1 - PURPOSE AND NEED FOR ACTION
1.1 Purpose
1.2 Discrepancies: EIS vs. Operation
1.2.1 Project Described in 1982 EIS
1.2.2 Project as Operated, 1984-1997
1.3 Summary

SECTION 2 - ALTERNATIVES, INCLUDING PROPOSED ACTION
2.1 Proposed Changes in Operation
2.1.1 Filtration System
2.1.2 Location of Monitoring Wells
2.1.3 Water Quality Monitoring Plan
2.1.4 Dredging Methods
2.1.5 Disposal Methods
2.1.6 Sediment Management
2.1.7 Vegetation Control
2.1.8 Dredged Debris
2.1.9 Security and Signs
2.1.10 Spillage During Disposal

SECTION 3 - AFFECTED ENVIRONMENT
3.1. General Project Area Description
3.2 Water Quality
3.3 Air Quality
3.3.9 Hazardous Air Pollutants
3.3.10 Air Toxics Emission Inventory
3.4 Sediment Quality
3.5 Aquatic Communities
3.6 Terrestrial Communities
3.7 Threatened and Endangered Species
3.8 Social Setting and Land Use
3.9 Archaeological and Historical Properties
3.10 HTRW Issues
3.11 Permits

SECTION 4 - ENVIRONMENTAL CONSEQUENCES
4.1 General Impacts
4.2 Wetland Impacts
4.3 Terrestrial Communities Impacts
4.4 Threatened and Endangered Species Impacts
4.5 HTRW Impacts
4.6 Long-Term and Cumulative Impacts

SECTION 5 - LIST OF PREPARERS

SECTION 6 - COORDINATION
6.1 Required Coordination
6.2 Public Involvement
6.3 Supplemental EIS Review Process
6.4 List of Recipients

LITERATURE CITED

CORRESPONDENCE

PLATES
1. Project Area and Chicago Lakefront
2. Chicago Area Confined Disposal Facility
3. Monitoring Wells
4. Terrestrial Habitat at Confined Disposal Facility
5. Water Quality Sample Locations

TABLES
1. Air Quality Standards
2. Fish Species in Calumet River
3. Fish Species in Calumet Harbor
4. Fish Species in CDF
5. Fish Species at Burns, Chicago, Buffington, and Indiana harbors
6. Water Quality Data and Standards: CDF, Calumet River, Calumet Harbor, and Lake Michigan
7. Sediment Characteristics for Dredging Events

APPENDIX A - IEPA 401 water quality permit and water quality monitoring plan

APPENDIX B - IEPA 401 water quality permits, 1982-1993

SUMMARY

MAJOR CONCLUSIONS AND FINDINGS

Differences between the project as described in the 1982 FEIS and the project as operated during 1984-1997 pertain to

a) permeability of the CDF (plastic liner vs. sand blanket);
b) location of water quality monitoring wells;
c) water quality monitoring plan;
d) dredging and disposal methods;
e) vegetation control to prevent impacts on wildlife; and
f) permit status (water pollution control permits issued by Illinois EPA for Section 401 certification).

The proposed changes in project operation would cause no significant adverse environmental impacts.

RELATIONSHIP TO ENVIRONMENTAL STATUTES

The Chicago Area CDF project is in full compliance with the National Historic Preservation Act of 1966; the Clean Water Act of 1970; the Fish and Wildlife Coordination Act; the Endangered Species Act of 1973; the Clean Air Act; and the National Environmental Policy Act of 1969.

SECTION 1 - PURPOSE AND NEED FOR ACTION

1.1 PURPOSE

1.1.1 1981 Draft EIS - the draft environmental impact statement was released for public review in December 1981; the DEIS and appendices were sent to 44 parties (Federal, State, and local elected officials; Federal, state, and local agencies, and local organizations and interest groups). Attached to the DEIS were eight appendices (appendices A-H, dealing with waterborne commerce, sediment quality, groundwater, water quality/aqautics, dredging methods, section 404 evaluation, water quality monitoring plan, and correspondence, respectively). A copy of the December 1981 DEIS is available for review at the Chicago District office.

1.1.2 1982 Final EIS - the final environmental impact statement was released for public review in May 1982; the FEIS and revised appendices were sent to 45 parties (almost the same mailing list as that of the earlier DEIS). Attached to the FEIS were revised versions of three of the appendices (appendices C, F, and H, dealing with geology, soils, and groundwater; section 404 evaluation; and correspondence, respectively). A copy of the May 1982 FEIS is available for review at the Chicago District office.

1.1.3 1998 Supplement - because construction and operation of the Chicago Area CDF has varied from the project described in the 1981 and 1982 impact statements, a supplemental environmental impact statement (SEIS) has been prepared to document

a) existing conditions at the CDF;
b) differences between the project as presented in the 1982 FEIS and the project as operated during 1984-1997;
c) the absence of adverse environmental impacts associated with project operation;
d) proposed improvements to water quality monitoring plan;
e) improved plan for managing vegetation at CDF (to prevent adverse impacts to habitat and endangered species); and
f) improved plan for managing sediment in CDF (to prevent adverse impacts to wildlife, endangered species, and air quality)

1.2 DISCREPANCIES: EIS (1982) vs. OPERATION (1984-1997)

1.2.1 Project Described in 1982 FEIS

1.2.1.1 Selected Plan - the selected plan involved using mechanical (hopper or clamshell) dredges to remove contaminated sediment from the Chicago River mainstem, Chicago Harbor, and Calumet River and Harbor in Cook County, Illinois; building and operating a 45-acre CDF (limestone core/rubble mound dikes with impermeable synthetic liner) to contain the dredged material; placing dredged material in the CDF hydraulically or by crane; and monitoring water quality before, during, and after disposal.

1.2.1.2 Plastic Liner - the 1982 FEIS (para. 2.4.3, page 18) describes the "plastic liner" as a

> "...synthetic liner (of 1 X 10-17 cm/sec permeability) ... placed on the prepared limestone on the disposal side to protect the limestone and to provide a positive cutoff preventing pollutants from escaping through the rubble mound."

"As built" drawings show that 10' to 15' of the plastic liner rest on the bottom of the CDF; the liner, however, is shown as being covered by a layer of "B" and "C" stone; it does not extend beyond the toe of the interior dike wall. (The liner was damaged during construction of the CDF, and could no longer function as an impermeable barrier; its filtering function was taken over by a "sand blanket" during the final phases of construction; see section 1.2.2.1).

1.2.1.3 Water Quality Monitoring Plan - the 1982 FEIS (para. 4.4.13, page 50) stated that

> "... a water quality monitoring plan ... would be put into effect to ensure that the effluent is not in violation of (the Illinois Pollution Control Board's Effluent) standards. If the effluent standards are violated, the operation of the CDF and the effluent from the CDF would be shut down until the effluent quality can be brought into compliance with the effluent standards."

The water quality monitoring plan was discussed in detail in Appendix G of the 1982 FEIS; the 11-page appendix specified locations of 16 monitoring wells, sampling schedules (the wells would be sampled, before, during, and after disposal operations), parameters to be analyzed, quality control procedures, and reporting requirements.

1.2.1.4 Water Quality Monitoring Wells, 1983 - of the ten wells installed in the CDF dike during its initial construction in 1983-1984, five (CH0183, CH0283, CH0383, CH0483, CH0583, CH0683) were installed in 1983. All five were placed in the dike of the small "special excavation disposal area", built on the south end of the CDF to hold polluted material dredged from the dike alignment at the north end of the CDF. These wells were built to monitor fly ash and other unsuitable foundation material being placed in the "special excavation disposal area".

1.2.1.5 Water quality monitoring wells, 1984 - of the ten wells installed in the CDF dike during its initial construction in 1983-1984, five (CH0784, CH0884, CH0984, CH01084) were installed in 1984. All five were installed in the dike wall to monitor dredged material from the Calumet River and Chicago River.

1.2.1.6 Dredging/Disposal Methods - the selected plan discussed in the 1982 FEIS involved mechanical dredging with clamshell/dipper or hopper dredges (para. 2.4.7.a, page 23a), and disposal by hydraulic equipment or crane (para. 2.4.7.a, page 23a). Disposal (para. 2.4.4, page 18) was further discussed as follows:

> "...dredged material would be hydraulically pumped from hopper dredges or scows into the disposal area. The effluent ... will be ... pumped to filter cells ... with a dual media (medium grained sand and ... crushed anthracite coal or granular activated carbon) placed over a pebble stone underdrain system..."

1.2.1.6 Permits, 1982 - the Illinois Environmental Protection Agency (IEPA) issued water pollution control permits (see Appendix B) to the Chicago District for the operation of the CDF in June 1982 (log numbers 0352-82) and August 1982 (log numbers 0878-82). The permits grant certification under Section 401 of the Clean Water Act of 1970 (letter dated 14 May 1992).

1.2.2 Project as Operated, 1984-1997

1.2.2.1 Plastic Liner vs. Sand Blanket - The plastic liner was damaged during construction of the CDF, and could no longer function as an impermeable barrier; its filtering function was taken over by a "sand blanket", which was placed on the disposal side of the rubble mound dike during the final phases of construction. The sand blanket has clogged, effectively preventing migration of pollutants through the dike (the large number of "non-detect" results collected during monitoring indicate that the CDF has prevented the release of sediment into the harbor). Chicago District staff discussed this issue with the IEPA in February 1994 (IEPA staff had apparently known of the damage to the plastic liner and its replacement by the sand blanket for some time), and were told that the operating permit for the CDF was still valid.

1.2.2.2 Water Quality Monitoring Wells - wells located in the CDF dike proved ineffective in measuring migration of effluent or sediment through the dike (in August 1997, only wells CHO483, CH0583, CHO784, CH0884, CH0984, and CH1084 were being monitored; monitoring of dike wells ceased in September 1997 with commencement of a program of monitoring Calumet harbor and the CDF pond itself). The wells failed periodically and were also vandalized. Data from the deep and shallow wells were not representative of Lake Michigan or the CDF, but of the "groundwater" within the limestone dike of the CDF. Several deficiencies in the monitoring program were identified:

a) water quality in the shallow wells may have been affected by harbor water quality, CDF water quality, and the limestone of the dike; differences in sampling environments made it difficult to determine the cause of differences in contaminant concentrations at the various sampling locations, and difficult to compare those differences;
b) sampling locations during dredging were different from those used during routine monitoring; this prevented detection of long-term changes in water quality in Calumet Harbor;
c) monitoring wells placed within the dike could miss any dicreet sediment plumes (releases) that might occur;
d) wells in the dike were susceptible to damage and vandalism;
e) no background samples were collected during routine monitoring for comparison with other smapling locations; there was no analysis of water quality variations in Calumet Harbor.

1.2.2.3 Dredging/Disposal Methods - mechanical dredging was done in the Calumet River, Chicago River, and Chicago Harbor on six occasions during 1984-1994:

Calumet River (99,304 yds.): 12 October-27 November 1984
Calumet River (108,100 yds.): 29 July-24 September 1985)
Chicago River and Harbor (31,159 yds.): 10 April-9 July 1986
Calumet River (82,960 yds.): 4 April-17 June 1989
Calumet River (3,000 yds.): 13-17 May 1991
Calumet River (68,195 yds.): 2 November 1994-7 July 1995

Disposal during 1984-1994 involved using a crane to move dredged sediment from barges into a "hopper and sluice".

1.2.2.4 Permits, 1984-1993 - the Illinois Environmental Protection Agency issued water pollution control permits (se Appendix B) to the Chicago District for the operation of the CDF in June 1982 (log numbers 0352-82), August 1982 (log numbers 0878-82), and March 1993 (permit no. 1992-EA-0476-1). The permits grant certification under Section 401 of the Clean Water Act of 1970 (letter dated 14 May 1992). In February 1994

IEPA and Chicago District staff discussed the "plastic liner vs. sand blanket" issue; IEPA staff confirmed the fact that the Chicago District had a valid permit for operation of the CDF (phone conversation with IEPA staff, 7 February 1994).

1.2.2.5 Permit, 1997 - The 1993 operating permit expired in May 1997, but was renewed in April 1997. The new permit (no. 1997-EA-3213) is included in Appendix A; it provides for mechanical dredging, hydraulic dredging, pumping during disposal operations, and monitoring; it expires on 1 April 2002.

1.3 SUMMARY

1.3.1 The Chicago Area Confined Disposal Facility was documented in an EIS in 1981-1982; built during 1983-1984; and used on six occasions (1984-1994). Since the release of the Final Environmental Impact Statement in 1982, several changes in CDF operation have deveoped:

a) the plastic liner was damaged during construction; the sand blanket which replaced it has prevented migration of pollutants to Lake Michigan;
b) water quality monitoring wells installed during initial construction have proven ineffective;
c) the CDF requires management of dredged material and vegetation to prevent adverse impacts to wildlife.

1.3.2 To document the changes in CDF operation that have developed since 1984, a supplemental EIS and revised water quality monitoring plan have been assembled.

SECTION 2 - PROPOSED ACTION

2.1 PROPOSED CHANGES IN OPERATION

2.1.1 Filtration System - The CDF's pumps and filters will be activated whenever disposal is done (as specified in the 1982 EIS). The current operating permit (Illinois EPA permit no. 1997-EA-3213) stipulates that a "pump with a capacity of 2250 gallons per minute shall be used during dredging operations to carry wastewater to the filter cells inorder to reduce the volume within the CDF in direct proportion to the incoming sediment and wastewater volume during dredging and disposal events".

2.1.2 Location of Monitoring Wells - proposed sampling locations are shown in Plate 3.

2.1.3 Water Quality Monitoring Plan - The revised monitoring plan (developed with the approval of Illinois EPA) will involve taking samples in spring, summer and fall, as well as sampling in the Calumet River during dredging/disposal operations. The new plan will be better able to detect leaks, will more thoroughly address "failure" scenarios, will furnish a standardized long-term data set for performing statistical analyisis, and will provide a better understanding of the CDF's long-term impact on water quality in Calumet Harbor. The revised monitoring plan was the basis for the current operating permit, and is included in Appendix A.

2.1.4 Dredging Methods - Dredging in the future will be done

a) mechanically, with an annual report on water quality impacts submitted to the Illinois EPA by the Chicago District; or

b) hydraulically, with a monthly report on water quality impacts submitted to the Illinois EPA by the Chicago District.

2.1.5 Disposal Methods - Disposal in the future will be done

a) mechanically, using the barge, crane, and "hopper with sluice" operation done during 1984-1994; or
b) by a combined "mechanical and hydraulic" method, using water from within the CDF or water from Lake Michigan to create a slurry more readily moved from barges into the CDF

2.1.6 Sediment Management - the project's operating manual will prohibit disturbance of the "sand blanket" on the interior dike wall. To prevent shorebirds, waterfowl, and wading birds (black-crowned night heron in particular) from ingesting contaminated sediment in the CDF, the operating manual will also incorporate recommendations made by Chicago District staff (memo dated 15 August 1996), USFWS (letters dated 14 October 1994 and 6 February 1998), and IDNR (letter dated 14 October 1994 and 26 January 1998). The success of the sediment management measures recommended by the reviewing agencies may be limited by the unstable nature of the dredged material; nevertheless, the revised operating manual (to be completed during fiscal year 98 if funding permits) will require:

a) that the Chicago District make a reasonable attempt (within limitations imposed by the nature of the dredged material itself) to move dredged material (not after each disposal operation, but whenever the "delta" of dredged material becomes large enough to make mechanical disposal difficult) to create land well above normal water level, or to cover dredged material with more than 3' of water;
b) that the Chicago District make a reasonable attempt to maintain a linear shoreline in the CDF, without bays or peninsulas (to avoid creating mudflats, wetland, or shallow water habitat preferred by shorebirds);
c) that the Chicago District "sediment management" contractor be prohibited from moving dredged material within 15 feet of a vertical line intersecting the interior toe of the dike, to avoid disturbing dike, plastic liner, or "sand blanket";
d) that the "sand blanket" (on the interior dike wall) be maintained intact at a thickness of 2 to 3 feet (at and below the water surface in the CDF), to act as filtering medium (and to ensure that the plastic liner is not damaged further);
d) that the Chicago District make a reasonable attempt to maintain a layer of dredged material at least three feet thick (at the same slope as the interior dike wall, extending from the bottom of the CDF to above the water surface) over the sand blanket as additional filtering medium (to ensure integrity of the "sand blanket"); and
e) that no "sediment management" be done during disposal (to avoid degrading water quality in the CDF during the pumping and discharge associated with disposal).

2.1.7 Vegetation Control - to prevent shorebirds, waterfowl, and wading birds (black-crowned night heron in particular) from nesting in the CDF, the project's operating manual will incorporate recommendations made by Chicago District staff (memo dated 15 August 1996), U.S. Fish and Wildlife Service (letters dated 14 October 1994 and 6 February 1998), and Illinois Department of Natural Resources (phone conversation of 15 June 1992; letters dated 14 October 1994 and 26 January 1998). Dredged material will be managed to avoid creation of mudflats (see paragraph

2.1.6 above). The revised operating manual (to be completed during fiscal year 98 if funding permits) will require

a) that growth of woody vegetation (cottonwoods and willows around the facility) be prevented by cutting (preferably in winter, to avoid impacting migratory birds arriving in spring), and by herbiciding cut stumps with an herbicide approved for use in or near aquatic areas;
b) that herbaceous vegetation (such as the common reed growing in the northern part of the CDF) be allowed to grow (it provides minimal habitat and its removal would expose mudflats attractive to shorebirds, waterfowl, and wading birds); and
c) that qualified Chicago District staff (from PD-S or CO-R) inspect the CDF property one to two days before tree cutting is initiated (whenever cutting has been suspended for more than two consecutive days) to ensure that no nesting birds will be affected, and inform USFWS, IDNR endangered species coordinator and appropriate Chicago District staff (particularly CO-O) of results of the inspection (especially important during April-May).

2.1.8 Dredged Debris - timbers, automobiles, cables, and other debris are encountered during dredging and disposal. Such material will be moved only as required in the course of "sediment management" (see paragraph 2.1.6.

2.1.9 Security and Signs - "pictorial" or "international" signs prohibiting fishing will be posted for the benefit of those who do not speak English. No guard will be posted, due to the cost.

2.1.10 Spillage During Disposal - spillage of dredged material during disposal will be minimized by enforcement of provisions contained in the deredging contract and specifications. Dredging/disposal contracts stipulate that the contractor's dredging method shall prevent dredged material from entering the Calumet River, Calumet Harbor, or Lake Michigan; the contractor is also required to prevent spillage of dredged material onto Iroquois Landing or the crest of the CDF's dike. The contractor is required to submit a spill prevention and spill control plan to the Corps for approval prior to dredging. The specifications (part of the dredging contract) also include an environmental protection plan which prohibits spillage of dredge material outside of the CDF.

SECTION 3 - AFFECTED ENVIRONMENT

3.1 GENERAL PROJECT AREA DESCRIPTION

3.1.1 The Chicago area CDF lies on the Lake Michigan shoreline within Cook County, Illinois, within Calumet Harbor (at the "mouth" of the Calumet River) on the Illinois-Indiana state line. The CDF occupies the former bed of Lake Michigan, on the east edge of the South Chicago and East Side neighborhoods of the City of Chicago. Residential areas here are just over one-half mile from the western perimeter of the CDF. The land forming the western side of the CDF is now the Illinois International Port District's Iroquois Landing ("made land" on former site of steel mill, primarily slag). Immediately northwest of the CDF (on the opposite bank of the Calumet River) is the former site of the U.S. Steel South Works ("made land", primarily slag, now vacant). Immediately south of the CDF are Calumet Park and a U.S. Coast Guard station (Plate 2).

3.1.2 The CDF itself consists of two quadrangular ponds, separated by a low (or submerged) cross-dike, both contained in a taller dike. The two ponds form a rough triangle, with a small area of upland outside of the dikes at the extreme south end of the Corps of Engineers property (Plate 4).

3.2 WATER QUALITY

3.2.1 Introduction

3.2.1.1 This section is based on data obtained before, during, and after the December 1994 dredging event in the Calumet River. Water samples were collected within the CDF, in the Calumet River and harbor, and from the CDF monitoring wells. Plate 5 shows sampling locations for the 1994 dredging.

3.2.1.2 Table 6 summarizes data from samples taken in the CDF, river, and harbor; values in the table are average values of all detectable concentrations for a given parameter (if 14 samples were collected in the CDF and only three yielded detectable concentrations of zinc, the value shown would be the average of the three detectable concentrations for that parameter; thus the concentrations listed in the table may be considered conservative).

3.2.1.3 Average values in Table 6 are based on samples collected before, during, and after the 1994 dredging. In general, four samples were collected in November 1994 (prior to dredging), six were collected in December 1994 (during dredging), and four collected in January 1995 (after dredging).

3.2.1.4 The last two columns in Table 6 list the Illinois Water Quality Standards to which the 1994 data were compared; standards for both General Use and Lake Michigan are shown. Lake Michigan standards are generally more stringent than the General Use standards.

3.2.2 Lake Michigan

3.2.2.1 Water quality in Lake Michigan is assumed to be similar to of the Calumet Harbor samples, which are considered to be background samples (see section 3.2.3 below).

3.2.3 Calumet River

3.2.3.1 When dredged material is placed in the CDF, water is pumped from the CDF through two sand filter cells; the treated effluent is then discharged into the Calumet River at a point about 3000 feet downstream (west)of the river's "mouth" (the Calumet originally flowed *toward* Lake Michigan; it now flows *from* Lake Michigan). During 1994 dredging,, the Calumet River water was sampled at locations both upstream and downstream of the filter cell effluent discharge point (Plate 5). Sampling point 4A is located about 200 feet downstream of the filter cell discharge point; sampling point B is located about 1600 feet upstream of the discharge point. As with the CDF water samples, the 4A samples exceeded the Lake Michigan water quality standards for ammonia-nitrogen, phosphorus, and total dissolved solids. The upstream samples at point 4B, however, also exceeded the Lake Michigan standards for the same parameters, as well as for copper. Therefore the discharge from the CDF does not appear to adversely affect the Calumet River water.

3.2.4 Calumet Harbor

3.2.4.1 Table 6 also shows water quality data from two sampling points in Calumet Harbor. Point 8A is about 500 feet east of the CDF; point 8B is about 500 feet north of the CDF, near the mouth of the Calumet River (Plate 5). The 8A samples exceeded Lake Michigan standards for ammonia-nitrogen, phosphorus, and copper. The average pH of 6.7 was slightly below the standard range of 7.0-9.0. 8B samples were also above the Lake Michigan samples for ammonia-nitrogen and phosphorus, with an average pH of 6.8, which was also slightly below the standard range.

3.2.5 Within CDF

3.2.5.1 Fourteen samples of the CDF water were collected as part of the 1994 dredging event; sampling results (Table 6) show that most of the analytes are below the water quality standards. General Use water quality standards are exceeded for phosphorus, while Lake Michigan standards are exceeded for ammonia-nitrogen, phosphorus, and total dissolved solids. As stipulated in the IEPA operating permit (see Appendix C), the Corps of Engineers shall operate a "pump with a capacity of 2250 gallons per minute ... during dredging operations to carry wastewater to the filter cells ... to reduce the volume within the CDF in direct proportion to the incoming sediment and wastewater...". The Corps shall also conduct monitoring "in accordance with the Corps of Engineers report 'Water Quality Monitoring at the Chicago Area Confined Disposal Facility, Calumet harbor, IL', submitted as part of the Februrary 6, 1997 application. In addition to these monitoring parameters, the permittee shall monitor for:

i) temperature, in routine monitoring as specified in Section 5.2.1 of the above cited report; and

ii) polychlorinated biphenyls (PCBs), if dredged material from the Chicago River is disposed at the Chicago Area CDF, in accordance with the list of established "Target Parameters During Dredgin Events" as specified under Section 5.2.2 of the above cited report.

3.2.6 Monitoring 1984-1997

3.2.6.1 Routine water quality monitoring involved obtaining samples throughout the year from nine monitoring wells and one surface water station; routine water quality samples were collected from six wells in the CDF dike wall, three landing wells, and one near-dike surface water station (see Section 3 of Appendix A).

3.2.6.2 Water quality monitoring during dredging/disposal events was conducted (see Section 3 in Appendix A) as follows:

a) twice weekly for two weeks before and two weeks after the dredging event;
b) once weekly during dredging, except for one week of twice-weekly sampling;
c) samples were collected from three in harbor near-dike locations; from two river locations; from three wells in the CDF dike wall; from two "background" locations; and from a "composite" location within the CDF.

3.2.6.3 The Corps submitted yearly reports to the IEPA detailing results of sampling; to date there has been no indication that CDF operation has had an adverse impact on water quality in Calumet Harbor.

3.3 AIR QUALITY

3.3.1 The State of Illinois has adopted the federal air quality standards for six criteria pollutants: particulate matter, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide and lead. The ambient air quality standards specify maximum permissible short-term and long-term concentrations of various contaminants in the atmosphere. The Illinois and National Ambient Air Quality Standards consist of a primary and secondary standard for each pollutant as presented in Table 1.

3.3.2 The primary standard represents the level of air quality which is necessary to protect the public health. The secondary standard defines the level of air quality which is necessary to protect the public welfare. This includes effects on crops, vegetation, wildlife, visibility and climate, as well as effects on materials, economic values and on personal comfort and well-being. Table 1 contains a summary of the standards. The state conducts monitoring for these and other compounds indicative of air quality. Monitoring is conducted at over 100 locations state-wide, including 21 locations in the City of Chicago.

Table 1 National and Illinois Air Quality Standards

		Standard	
Pollutant	Averaging Time	Primary	Secondary
Particulate Matter 10 micrometers	Annual Arithmetic Mean	50 ug/m^3	Same as Primary
	24-hour	150 ug/m^3	Same as Primary
Sulfur Dioxide	Annual Arithmetic Mean	0.03 ppm (80 ug/m^3)	None
	24-hour	0.14 ppm (365 ug/m^3)	None
	3-hour	None	0.5 ppm (1300 ug/m^3)
Carbon Monoxide	8-hour	9 ppm (10 mg/m^3)	Same as Primary
	1-hour	35 ppm (40 mg/m^3)	Same as Primary
Ozone	1-hour/day	0.12 ppm (235 ug/m^3)	Same as Primary
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm (100 ug/m^3)	Same as Primary
Lead	Quarterly Arithmetic Mean	1.5 ug/m^3	Same as Primary

3.3.3 Particulate Matter - Particulate matter (PM_{10}) is defined as airborne particles smaller than 10 micrometers (one-hundredth of a millimeter) in diameter. Particulate matter includes solid particles and liquid droplets. The statewide average PM_{10} concentration in 1996 was 27 $\mu g/m^3$ compared with 29 $\mu g/m^3$ in 1995 and 30 $\mu g/m^3$ in 1994. None of the sites statewide exceeded the primary annual standard of 50 $\mu g/m^3$. The statewide average of the maximum 24-hour average in 1996 was 75 $\mu g/m^3$ compared with 78 $\mu g/m^3$ in 1995 and 98 $\mu g/m^3$ in 1994. Only one site statewide (in Randolph County) recorded exceedances of the 24-hour standard of 150 $\mu g/m^3$.

3.3.4 Ozone - The 1990 Clean Air Act Amendments (CAAA) designated Cook County as a severe non-attainment area for ozone. In the Chicago area, there were three exceedance days recorded in 1996 and four exceedance days in 1995. Statewide, there were five exceedance days in 1996 and six in 1995. The statewide average for ozone in 1996 was 0.107 ppm compared to 0.119 ppm in 1995 and 0.109 ppm in 1994.

3.3.5 Carbon Monoxide - There were no exceedances of either the 1-hour primary standard of 35 ppm or the 8-hour primary standard of 9 ppm in 1996. The statewide average of the 1-hour high was 5.3 ppm in 1996 compared with 6.3 ppm in 1995. The statewide average for the 8-hour high was 3.3 ppm in 1996 compared with 3.9 ppm in 1995.

3.3.6 Sulfur Dioxide - There were no exceedances of the 3-hour secondary standard of 0.5 ppm, the annual primary standard of 0.03 ppm or the 24-hour primary standard recorded in 1996. The statewide annual average for 1996 was 0.006 ppm, unchanged from 1995 and 1994.

3.3.7 Nitrogen Dioxide - There were no violations of the annual primary standard of 0.053 ppm recorded in Illinois during 1996. The statewide average for 1996 was 0.024 ppm compared with 0.027 ppm in 1995 and 0.027 ppm in 1994.

3.3.8 Lead - The statewide maximum quarterly average for lead in 1996 was 0.05 $\mu g/m^3$, and 0.06 $\mu g/m^3$ in 1995. This figure does not include monitors at industrial sites. Since the use of unleaded gas began in 1975, lead levels have decreased by more than 90 percent statewide.

3.3.9 Hazardous Air Pollutants - There are 189 pollutants listed under the 1990 Clean Air Act Amendments as hazardous air pollutants (HAPs); the majority are volatile organic compounds (VOCs). In general, there has been a trend toward decreasing emissions over the period from 1981 through 1995, based on estimated emissions for the years prior to 1995 (IEPA, 1996). The monitoring station for VOCs closest to the CDF is at the Jardine water filtration plant at 1000 E. Ohio. The highest compounds at this site in terms of 1-hour and 24-hour averages were isopentane, propane, ethane, 2,2,4 trimethylpentane, M/P-Xylene, ethylene, toluene, and formaldehyde. The lowest compounds were butane, methylheptanes, and pentane. The June - August 1996 average for these compounds ranged from 0.1 to 8.4 ppb.

3.3.10 Air Toxics Emission Inventory - In 1989, USEPA released an update to an Air Toxics Emission Inventory for the Southeast Chicago Area performed in 1987. These reports described an inventory of emissions in the Southeast Chicago area. Specifically, the 8-square mile receptor area was bound on the north by 87th Street, on the south by Sibley Blvd, on the west by Western Avenue, and the east by the Indiana/Illinois border. In order to include all significant sources, a larger source area of 29 square miles was inventoried. The CDF is within the source area, and just east of the receptor area. Fifty-one pollutants were examined, including 22 non-chlorinated VOCs, 17 chlorinated VOCs, 8 inorganics, and 4 non-carcinogens. Various sources, including point sources, area sources and mobile sources were described. In 1989, 32 of the 51 pollutants were considered quantifiably carcinogenic. The largest sources of carcinogenic emissions were mobile sources (i.e. cars and trucks), consumer sources, and industrial sources. Steel mills were the largest source of emissions in the industrial source category.

3.4 SEDIMENT QUALITY

3.4.1 Calumet River and Harbor

3.4.1.1 In general, the quality of sediment taken during disposal operations is similar to that described in the 1982 EIS (pre-1983). There are contaminated levels of metals, nutrients, and PCBs. In some cases there appears to be elevated concentrations of some parameters including ammonia-nitrogen, TKN, total phosphorus, zinc, and PCBs; and declining concentrations of the parameters barium and mercury. However, significant scatter can be seen throughout the dredging disposal years (1984-1994) and the levels are consistent with those levels discussed id the EIS (pre-1983).

3.4.1.2 Typically, sediment was collected within the areas designated for dredging prior to the dredging operation. In addition, sediment samples were collected during the actual dredging operation. Therefore, the data provided in the table is representative of the river sediment quality and what is in the CDF.

3.4.2 Within CDF

3.4.2.1 Sediment quality data from the five most recent dredging operations (1984, 1985, 1986, 1989, and 1994) is summarized in Table 7. Samples were typically obtained from grab or core sampling of sediments representative of the material to be dredged. Maximum, minimum, and mean concentrations are shown for each parameter; the last column summarized data for all five dredging events combined. The number of samples collected for each dredging operation varied from four to eleven.

3.4.2.2 Although sediment samples were not collected from the CDF itself, data in Table 7 should be characteristic of the sediment in the CDF (it represents the quality of dredged material placed in the CDF). The primary contaminants of concern are metals, PCBs, and nutrients; PCBs have been encountered in sediment samples at levels of up to 19mg/kg.

3.5 AQUATIC COMMUNITIES

3.5.1 Lake Michigan

3.5.1.1 The Lake Michigan aquatic community has changed significantly in the last decade due to the introduction and establishment of several invasive aquatic species including the spiny water flea, the zebra mussel, round gobies and three-spine stickelbacks to name a few. These species have altered the native community through competition for forage and habitat.

3.5.1.2 A second significant alteration in the Lake Michigan fish community is the recent decline of the yellow perch population. The decrese in abundance ofthis commercialy important fish has forced the establishment of highly restrictive bag limits on sport and commercial fishermen as an attempt to protect the remaining stock.

3.5.1.3 Since 1994, the Chicago District has sampled the near shore fish community at the harbors in southern Lake Michigan for which that office has maintenance responsibility. These include Chicago Harbor in Illinois and Indiana, Burns, and Buffington harbors in Indiana. Table 5 lists the taxa captured at each of the harbors since routine monitoring began about 1994.

3.5.2 Calumet River

3.5.2.1 Calumet River fish species are shown in Table 2. The Calumet River, between the harbor and Lake Calumet, supports a somewhat more diverse fish community than was found in the harbor itself. This may be due in part, to the greater habitat diversity in the river as well as the greater extent of shallower areas (<8 ft) which are more efficiently sampled than deeper lake sites. Thirty-one species of fish have been caught in the Calumet River.

TABLE 2
Fish Species in Calumet River:
Taxa Frequency

COMMON NAME	SCIENTIFIC NAME	1994	1995	1996	1997
Alewife	*Alosa pseudoharengus*	X	X	X	X
Gizzard Shad	*Dorosoma cepedianum*	X	X	X	X
Coho Salmon	*Oncorhynchus kisutch*		X	X	
Chinook Salmon	*Oncorhynchus tshawytscha*	X			X
Brown Trout	*Salmo trutta*	X	X		
Common Carp	*Cyprinus carpio*	X	X	X	X
Golden Shiner	*Notemigonus crysoleucas*	X			
Emerald Shiner	*Notropis atherinoides*	X	X	X	X
Blacknose Shiner	*Notropis heterolepis*			X	
Spottail Shiner	*Notropis hudsonius*			X	X
Bluntnose Minnow	*Pimephales notatus*		X	X	
Fathead Minnow	*Pimephales promelas*				X
River Carpsucker	*Carpiodes carpio*	X			
White Sucker	*Catostomus commersoni*		X		X
Golden Redhorse	*Moxostoma erythrurum*		X	X	X
Bigmouth Buffalo	*Ictiobus cyprinellus*		X		X
Channel Catfish	*Ictalurus punctatus*	X			
Threespine Stickleback	*Gasterosteus aculeatus*		X	X	
White Perch	*Morone americana*	X	X	X	X
Rock Bass	*Ambloplites rupestris*				X
White Bass	*Morone chrysops*	X			X
Green Sunfish	*Lepomis cyanellus*			X	
Pumpkinseed	*Lepomis gibbosus*	X	X		
Bluegill	*Lepomis macrochirus*	X	X	X	
Smallmouth Bass	*Micropterus dolomieu*	X	X	X	X
Largemouth Bass	*Micropterus salmoides*	X	X	X	X
White Crappie	*Pomoxis annularis*	X			X
Walleye	*Stizostedion vitreum*	X			
Freshwater Drum	*Aplodinotus grunniens*	X	X	X	X
Round Goby	*Neogobius melanostomus*	X	X	X	X
Total Species Number		19	18	17	18

3.5.3 Calumet Harbor

3.5.3.1 The fish community in Calumet Harbor compares favorably with that of other harbors sampled. Table 3 lists the fish species captured at each harbor during this three-year period. Twenty six species have been captured at Calumet River since the District began monitoring the harbor structures in 1994.

Table 3
Fish Species in Calumet Harbor:
Taxa Frequency

COMMON NAME	SCIENTIFIC NAME	1994	1995	1996	1997
Alewife	*Alosa pseudoharengus*	X	X	X	
Gizzard Shad	*Dorosoma cepedianum*	X		X	X
Coho Salmon	*Oncorhynchus kisutch*	X	X	X	X
Rainbow Trout	*Oncorhynchus mykiss*	X			X
Chinook Salmon	*Oncorhynchus tshawytscha*	X	X	X	X
Lake Trout	*Salvelinus namaycush*	X			X
Brown Trout	*Salmo trutta*	X	X	X	X
Grass Pickerel	*Esox americanus*	X			
Common Carp	*Cyprinus carpio*	X	X	X	X
Emerald Shiner	*Notropis atherinoides*		X	X	
Longnose Sucker	*Catostomus catostomus*		X	X	
White Sucker	*Catostomus commersoni*	X			
Golden Redhorse	*Moxostoma erythrurum*	X	X	X	
Black Bullhead	*Ameiurus melas*	X	X	X	
Ninespine Stickleback	*Pungitius pungitius*			X	
Threespine Stickleback	*Gasterosteus aculeatus*	X		X	X
White Perch	*Morone americana*	X			
Rock Bass	*Ambloplites rupestris*	X	X	X	X
Pumpkinseed	*Lepomis gibbosus*	X	X	X	
Warmouth Bass	*Lepomis gulosus*			X	
Smallmouth Bass	*Micropterus dolomieu*	X	X	X	X
Largemouth Bass	*Micropterus salmoides*	X	X	X	
Yellow Perch	*Perca flavescens*	X	X		
Mottled Sculpin	*Cottus bairdi*	X			
Round Goby	*Neogobius melanostomus*		X	X	X
Total Species Number		20	15	18	11

3.5.4 Within CDF

3.5.4.1 In 1993 Chicago District Environmental and Social Analysis Branch staff sampled the fish in the Chicago CDF using an electrofishing boat. The total sampling time was 49.5 minutes. Table 4 provides a list of the species captured.

Table 4
Fish Collected within CDF

Fish collected by Chicago District Corps of Engineers using electrofishing in the Chicago CDF in 1993. Total sampling time 49.5 minutes. tstw - too small to weigh.

Common Name	Species	Number	length (mm)	Weight (lbs, oz)
Carp	*Cyprinus carpio*	14	357-740	1,7-13,10
Spottail shiner	*Notropis hudsonius*	1	80	tstw
Golden redhorse	*Moxostoma erythrurum*	11	320-373	0,10-1,2
Pumpkinseed	*Lepomis gibbosus*	35	53-140	tstw-0,2
Green sunfish	*Lepomis cyanellus*	13	51-142	tstw-0,3
Bluegill	*Lepomis macrochirus*	2	46-103	tstw-0,1
Black crappie	*Pomoxis nigromaculatus*	2	176-178	0,3-0,3
Yellow perch	*Perca flavescens*	18	63-175	tstw-0,2
Black bullhead	*Ameiurus melas*	2	175-183	0,3-0,4

TABLE 5
Fish Collected since 1994 at
Burns, Chicago, Buffington, and Indiana harbors

Common Name	Scientific Name	Chicago				Buffington				Burns						Indiana			
		94	95	96	96	94	95	96	96	92	93	94	95	96	97	94	95	96	97
Alewife	Alosa pseudoharengus	X		X	X		X	X	X		X	X	X	X	X	X		X	X
Gizzard Shad	Dorosoma cepedianum	X		X	X	X		X	X		X		X	X		X	X	X	X
Coho	Oncorhynchus kisutch		X	X	X		X	X			X	X		X	X				
Rainbow Trout	Oncorhynchus mykiss		X	X	X				X			X		X	X		X		
Chinook	Oncorhynchus tshawytscha			X	X	X		X						X	X	X		X	
Lake Trout	Salvelinus alpinus					X		X	X	X	X	X	X	X	X				
Brown Trout	Salmo trutta	X	X	X	X			X	X		X		X	X	X		X		
Nothern Pike	Esox lucius						X												
Longnose Dace	Rhinichthys cataractae																		
Goldfish	Carassius auratus																	X	X
Common Carp	Cyprinus carpio	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Golden Shiner	Notemigonus crysoleucas																		
Emerald Shiner	Notropis atherinoides			X											X	X	X	X	

Spottail shiner	Notropis hudsonius			X				X							X	X	X	X			
Bluntnose minnow	Pimephales notatus																	X			
Fathead Minnow	Pimephales promelas																X	X			
Longnose Sucker	Catostomus catostomus						X	X						X	X						
White Sucker	Catostomus commersoni							X						X				X			
Silver Redhorse	Moxostoma anisurum			X		X	X		X	X		X	X	X		X	X	X			
Golden Redhorse	Moxostoma erythrurum	X	X		X	X	X	X	X		X	X	X	X	X		X				
Shorthead Redhorse	Moxostoma macrolepidotum										X										
Trout Perch	Percopsis omiscomaycus			X																	
Ninespine Stickleback	Pungitius pungitius			X				X													
Threespine Stickleback	Gasterosteus aculeatus			X	X			X						X				X			
Whiper	Morone chrysops/sextalis																				X
Warmouth Bass	Ambloplites rupestris	X	X	X	X	X	X	X			X					X	X	X	X		
Green sunfish	Lepomis cyanellus	X			X																
Pumpkinseed	Lepomis gibbosus															X	X	X	X		
Bluegill	Lepomis macrochirus			X				X													
Smallmouth Bass	Micropterus dolomieu	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Largemouth Bass	Micropterus salmoides	X	X	X	X																
Black Crappie	Pomoxis nigromaculatus											X						X			
Yellow Perch	Perca flavescens	X	X	X		X	X	X	X		X										
Walleye	Stizostedion vitreum								X	X	X	X	X		X						X
Freshwater Drum	Aplodinotus grunniens									X	X			X		X	X	X	X		
Mottled Sculpin	Cottus Bairdi			X	X			X										X			
Round Goby	Neogobius melanostomus																	X			

3.6 TERRESTRIAL COMMUNITIES

3.6.1 Within CDF - There are no exposed mudflats within the CDF dike; dredged material within the dike is completely covered by common reed, mixed with scattered stands of small (under 6' high) willows. In 1996 there was a small stand of purple loosestrife near the northeast corner (this was not observed in late April 1998), and a stand of sumac (or tree-of-heaven) near the east end of the cross-dike. Along the west bank of the CDF are larger (8' to 15' high) cottonwoods (growing atop old "made land" and through piles of concrete rubble); on the upland strip of Corps property between the CDF and Port District property are many still larger (12' to 20' high) cottonwoods; more tall (12' to 20' high) cottonwoods stand on the small upland area at the extreme southern end of the Corps property (Plate 4). The trees on Corps property are scheduled to be cut down, beginning in late April 1998, to prevent their possible use by nesting herons. The CDF property provides only low-quality wildlife habitat.

3.6.2 Adjacent to CDF - The Illinois Regional Port District property adjacent to the northern half of the CDF is paved, and provides no valuable wildlife habitat. Port District property adjacent to the southern half of the CDF is "made land" (primarily slag and crushed stone) which supports sweet clover and sumac (probably garden sunflower and Queen Anne's lace as well), but is dominated by tall (12' to 20' high) cottonwoods (Plate 4); the cottonwoods are likely to provide nesting for endangered herons is left in place. The adjacent uplands (Calumet Park Illinois International Port District, railyards, and vacant land) provide only low-quality habitat, and supports such urban species as cottontail rabbit, raccoon, opossum, striped skunk, fox squirrel, Norway rat, thirteen-lined ground squirrel, starling, and English sparrow.

3.6.3 Wildlife Observed - Species periodically observed at the CDF site include black-crowned night heron and peregrine falcon. Western fox snake or eastern milk snake were seen in autumn 1997. Species seen within the dike in August 1996 included double-crested cormorant, diving ducks, immature black-crowned night heron, plovers or sandpipers, terns, green-backed heron, and great blue heron; atop the dike were many crawfish remains (presumably left by herring gulls). Species seen within the dike on 23 April 1998 included mallard, redwing blackbird, Canada goose (2 nests with eggs and parents), 6 mature black-crowned night heron (no nests), coots, greater scaup, common merganser (female or immature), and red-breasted merganser (male); species seen on the periphery of the Corps property included cottontail rabbit, brown thrasher, and American kestrel.

3.7 THREATENED AND ENDANGERED SPECIES

3.7.1 Terrestrial

3.7.2.1 There are presently no state or federally listed threatened or endangered aquatic species in the CDF, Calumet Harbor or Calumet River.

3.7.3 Birds

3.7.3.1 Species seen periodically at the CDF site by Corps of Engineers and U.S. Fish and Wildlife Service staff include the state-listed black-crowned night heron (Nycticorx nycticorax) and the Federal-listed peregrine falcon (Falco peregrinus). Neither species is nesting at the site; the black-crowned night herons have been seen resting in stands of common reed within the dikes, but are not nesting in the CDF or in the cottonwoods surrounding the CDF (phone conversation with Deanna Glosser/IDOC on 15 June 1992; IDNR letter dated 26 January 1998).

3.7.3.2 The Corps parcel was walked on 23 April 1998 (temperature 70, no breeze, clear sky); cottonwood and willow had just begun to leaf; common reed had not begun new growth; visibility was excellent. There were no heron nests in trees or reeds on the Corps parcel (the only nests seen were two of Canada geese, on little mounds in reeds in the northeast corner of the CDF). Six mature black-crowned night herons left the reeds at the northeast corner of the CDF when approached. No herons left the cottonwoods; no herons or nests were observed in the cottonwoods.

3.7.4 Adjacent Habitat

3.7.4.1 The Illinois International Port District land immediately west of the CDF contains many tall (12' to 20') cottonwoods; these do not appear to be tall enough to be attractive to nesting herons. By the time the Port District trees are large enough to be a potential rookery, the CDF may already be filled and capped.

3.7.4.2 What appeared to be a single abandoned heron nest (of sun-bleached twigs; no birds, feathers, or droppings visible with binoculars; possibly from a previous year) was seen in a cottonwood on Port District land (about 50 yards west of the Corps property line) on 23 April 1998.

3.8 SOCIAL SETTING AND LAND USE

3.8.1 General - the CDF lies on the eastern edge of the South Chicago and East Side neighborhoods, in the City of Chicago. Both areas are old industrial districts; steel mills were established here during 1875-1881; residential subdivisions were made in the mid-1870s, and the steel mills and other industries attracted immigrant workers. Between 1890 and 1920 heavy industry came to dominate this area, with coalyards, foundries, steel mills, lumberyards, and grain elevators built along the Calumet River and the Lake Michigan shore. South Chicago, East Side, and adjacent neighborhoods have been economically depressed since the

3.9.1 The CDF property consists of disturbed lakebed, post-1982 limestone rubble-mound dikes, and post-1880 "made land"(slag placed on the lake bottom by steel mills); it contains no archaeological or historical properties.

3.10 HTRW ISSUES

3.10.1 The CDF contains no hazardous or toxic material.

3.11 PERMITS

3.11.1 401 Water Quality Certification - the Illinois Environmental Protection Agency issued water pollution control permits to the Chicago District for the operation of the CDF in June 1982 (log number 0352-82), August 1982 (log number 0878-82), and March 1993 (permit no. 1992-EA-0476-1). The permits of 1982-1993 (included in Appendix B) grant certification under Section 401 of the Clean Water Act of 1970 (letter dated 14 May 1992). In February 1994 IEPA and Chicago District staff discussed the "plastic liner vs. sand blanket" issue; IEPA staff confirmed the fact that the Chicago District had a valid permit for operation of the CDF (phone conversation with Bruce Yurdin, IEPA, 7 February 1994).

3.11.2 The 1993 IEPA 401 permit expired in May 1997; it was renewed in April 1997. The new IEPA 401 permit (permit no. 1997-EA-3213, in Appendix A) provides for hydraulic dredging, mechanical dredging, pumping during disposal, and monitoring; the new permit expires on 1 April 2002.

3.11.3 Water Quality Monitoring Plan - a new monitoring plan (included in Appendix A) was prepared in 1996-1997 and submitted to the Illinois EPA in 1997, as part of the water pollution control permit process.

SECTION 4 - ENVIRONMENTAL CONSEQUENCES

4.1 GENERAL IMPACTS

4.1.1 Section 122 (Rivers, Harbors, Flood Control Act of 1970)- the proposed changes in project operation will not displace people or farms; the proposed changes will have no adverse impact on aesthetic values, community cohesion or growth, tax revenues, property values, public facilities or services, regional growth, business or industrial activity, or employment.

4.1.2 Other Impacts - the proposed changes in project operation will have no adverse impact on floodplains or floodways; groundwater; water quality; air quality; sediment quality; aquatic communities; social setting; public health or safety; transportation; recreational

trees provide minmal wildlife habitat; their removal will not be a significant adverse impact. The U.S. Fish and Wildlife Service and Illinois Department of Natural Resources have concurred with this determination (letters dated 6 February 1998 and 26 January 1998, respectively).

4.4 THREATENED AND ENDANGERED SPECIES IMPACTS

4.4.1 Chicago District staff (PD-S or CO-R) will survey the CDF one to two days before tree cutting begins (to determine whether endangered birds are nesting on the property), then inform IDNR endangered species coordinator, USFWS staff, and appropriate Chicago District staff of their findings.

4.4.2 If no nesting birds are found, tree cutting (if initiated within two days of the inspection and then performed without an interruption of more than two consecutive days) will have no adverse impact on threatened or endangered species.

4.4.3 If cutting is not initiated within two days of the inspection, or if cutting is interrupted for more than two days, another inspection of the CDF will be performed (to determine whether nests are present); cutting will be resumed only when no impacts will result (as specified in sections 4.4.1 and 4.4.2 above).

4.4.4 The U.S. Fish and Wildlife Service (letter dated 6 February 1998, phone conversation on 24 April 1998) and Illinois Department of Natural Resources (phone conversation with IDNR endangered species staff on 15 June 1992 and 24 April 1998, and letter dated 26 January 1998) were consulted regarding tree removal, and have agreed that the procedure outlined above will have no adverse impact on threatened or endangered species.

4.5 HTRW IMPACTS

4.5.1 The proposed changes in CDF operation will not impact toxic or hazardous materials.

4.6 LONG-TERM AND CUMULATIVE IMPACTS

4.6.1 The proposed changes in project operation will have no long-term or cumulative adverse impacts.

SECTION 5 - LIST OF PREPARERS

NAME	EXPERTISE	EXPERIENCE	SECTIONS PREPARED
Keith Ryder	archaeology; history	20 years, Omaha, Louisville, and Chicago Districts	overall SEIS preparation
Philip Moy	fisheries; aquatic ecology	3 years, Ill. Nat. Hist. Survey; 6 years, Chicago District	aquatic communities
Charles Morris	fisheries	1 year, Chicago District	aquatic communities
Ajit Vaidya	environmental engineering	6 years, Chicago District	water quality sediment quality
Jay Semmler	environmental engineering	11 years, Chicago District	water quality sediment quality

SECTION 6 - COORDINATION

6.1 REQUIRED COORDINATION

6.1.1 1982 FEIS - Appendix H of the May 1982 FEIS contains 31 coordination letters (18 from pre-DEIS coordination; 13 sent after release of DEIS) from the following agencies:

Chicago Regional Port District
Illinois Environmental Protection Agency
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Illinois Dept. of Conservation
(Endangered Species Program)
Illinois Historic Preservation Agency (SHPO)
National Park Service
U.S. Dept. of Health and Human Services
U.S. Dept. of Agriculture
Indiana Dept. of Natural Resources
Illinois State Clearing House
Chicago Assn. of Commerce and Industry

A copy of the May 1982 FEIS is available for review at the Chicago District office.

6.1.3 1998 Supplemental EIS - copies of correspondence obtained during coordination of this supplemental EIS are attached, and cited throughout this document.

6.2 PUBLIC INVOLVEMENT

6.2.1 In 1981-1982 a public notice was distributed; the notice announced the proposed dredging of Calumet Harbor; no one responded to thenotice by requesting a public meeting; no public meeting was held.

6.2.2 Anyone may request that the Corps of Engineers hold a public meeting to obtain comments on the supplemental EIS; the Chicago District Commander will decide whether a public meeting will be held.

6.3 SUPPLEMENTAL EIS REVIEW PROCESS

6.3.1 The draft supplemental EIS was circulated for a 45-day public review and comment period. No significant comments were received; the only differences between the draft SEIS and the final SEIS are

a) addition of one address to list of recipients;
b) deletion of one address to list of recipients;
c) correction of one address in list of recipients;
d) addition of Table 6 and Table 7;
e) addition of comment letter and "comment and response" page;
f) revision of section 6.3 ("EIS review process")
g) revision of cover/abstract/contents pages from "draft" to "final"; and
h) addition of draft Record of Decision

6.3.2 Five copies of the entire final SEIS have been sent to the USEPA Office of Federal Activities, and a notice thereof published in the Federal Register.

6.3.3 The "revised-from-the-draft" portions (listed in section 6.3.1 above) of the final SEIS will be circulated to the recipients listed below, for a 30-day public review period. All comments received during the SEIS comment period will be considered in making decisions regarding the ongoing operation of the CDF, and in the preparation of a Record of Decision. The Record of Decision will be signed by the Commander, Chicago District, Army Corps of Engineers, and published in the Federal Register.

6.4 LIST OF RECIPIENTS

6.4.1 1981-1982 DEIS/FEIS - the DEIS was sent to 44 parties (Federal, State, and local elected officials; Federal, state, and local agencies, and local organizations and interest groups) in December 1981. The FEIS went to the same parties in May 1982. Copies of the DEIS and FEIS

FEDERAL ELECTED OFFICIALS

Hon. Carol Moseley-Braun
United States Senate
320 Hart Senate Office Bldg.
Washington, DC 20510-1303

Hon. Carol Moseley-Braun
United States Senator
6 Executive Dr. Suite 6
Fairview Heights, IL 62208

Hon. Richard J. Durbin
United States Senator
525 South 8th Street
Springfield, IL 62703

Hon. Richard J. Durbin
United States Senate
267 Russell Senate Office Bldg.
Washington, DC 20510

Hon. Bobby L. Rush
U.S. House of Representatives
131 Cannon House Office Bldg.
Washington, DC 20515-1301

Hon. Bobby L. Rush
Representative in Congress
655 East 79th Street
Chicago, IL 60619

Hon. Gerald Weller
U.S. House of Representatives
1710 Longworth House Office Bldg.
Washington, DC 20515-1312

Hon. Gerald Weller
Representative in Congress
51 West Jackson St.
Suite 100
Joliet, IL 60432

STATE AND LOCAL ELECTED OFFICIALS

Hon. James Edgar
Governor of Illinois
207 Statehouse
Springfield, IL 62706

Hon. Richard M. Daley
Mayor
City of Chicago
City Hall Room 507
121 N. La Salle Street
Chicago, IL 60602

Hon. Constance A. Howard
Rep. - State of Illinois
8800 S. Cottage Grove
Chicago, IL 60619

Hon. Donne E. Trotter
Senator - State of Illinois
2954 East 92nd St.
Chicago, IL 60617

Alderman John Buchanan
9618 S. Commercial
Chicago, IL 60617

Hon. Todd Stroger
Rep. - State of Illinois
8539 S. Cottage Grove
Chicago, IL 60619

President
Metropolitan Water Reclamation
District of Greater Chicago
100 East Erie St.
Chicago, IL 60611

Hugh McMillan
General Superintendent
Metropolitan Water Reclamation
District of Greater Chicago
100 East Eire St.
Chicago, IL 60611

FEDERAL AGENCIES

STATE AGENCIES

Deanna Glosser
Endangered Species Program
Illinois DNR
524 South 2nd Street
Springfield, IL 62706

Robert Schanzle
Illinois DNR
524 South 2nd Street
Springfield, IL 62706

Donald Vonnahme, Director
Office of Water Resources
Illinois DNR
524 South 2nd Street
Springfield, IL 62701-1787

Dan Injerd
Lake Michigan Mgt. Unit
310 South Michigan Ave.
Chicago, IL 60604

Illinois EPA
Water Pollution Division
1001 N. Grand
Springfield, IL 62794

Illinois EPA
Air Pollution Division
1340 N. 9th
Springfield, IL 62702

Illinois EPA
Land Pollution Division
1001 N. Grand
Springfield, IL 62794

Claire Manning
Ill. Pollution Control Board
100 W. Randolph Suite 11-500
Chicago, IL 60601

Illinois Hist. Pres. Agency
Old State Capitol
Springfield, IL 62701
ATTN: Anne Haaker

LOCAL AGENCIES AND LIBRARIES

City of Chicago
Dept. of Environment
30 N. La Salle St.
25th floor
Chicago, IL 60602
ATTN: Henry Henderson

Chicago Public Library
400 South State St.
Chicago, IL 60605
ATTN: government publications

Chicago Park District
Dept. of Research & Planning
425 E. McFetridge
Chicago, IL 60605
ATTN: Edward Uhlir

Chicago Public Library
South Chicago Branch
9055 S. Houston Ave.
Chicago, IL 60617

Chicago Public Library
East Side Branch
10542 South Ewing Ave.

Chicago Public Library
Hegewisch Branch
3048 E. 130th St.

2860 S. River Rd. #185
Des Plaines, IL 60018

City of Chicago Marine Police
1121 S. State St.
Chicago, IL 60605

ORGANIZATIONS

Chicago Audubon Society
North park Village
5801-C N. Pulaski
Chicago, IL 60646

Joanna Hoelscher, State Director
Citizens for Better Environment
407 S. Dearborn Suite 1775
Chicago, IL 60605

Executive Director
Lake Michigan Federation
220 S. State
Suite 2108
Chicago, IL 60604

Sierra Club
1 N. La Salle St.
Suite 4242
Chicago, IL 60602

Illinois Internatl. Port District
3600 East 95th St.
Chicago, IL 60617-5193
ATTN: Anthony J. Ianello,
Executive Director

East Side Historical Society
3658 East 106th St.
Chicago, IL 60617-6611
ATTN: F. Stanley, R. Sellers

Calumet Environ. Resource Center
9501 S. King Dr. LIB-303
Chicago, IL 60628-1598

Grand Cal Task Force
2400 New York Ave.
Whiting, IN 46394

INDIVIDUALS

John Geddie
8040 Bellamah Ct.
Albuquerque, NM 87110

H. Paul Friesema
Institute for Policy Research
Northwestern University
2040 Sheridan Rd.
Evanston, IL 60208-4100

Dr. Paul Friesma
Environ. Policy Program, IPR
Northwestern University
2040 Sheridan Rd.
Evanston, IL 60208-4100

William N. Robertson
Hannah Marine Corp.
13155 Grant Rd.
Lemont, IL 60439

LITERATURE CITED

U.S. Army Corps of Engineers

1981 Draft Environmental Impact Statement; Chicago Area Confined Disposal Facility and Maintenance Dredging in Cook County, Illinois. Chicago District; Chicago, IL

1982 Final Environmental Impact Statement; Chicago Area Confined Disposal Facility and Maintenance Dredging in Cook County, Illinois. Chicago District; Chicago, IL

1995 Report on Maintenance Dredging of Calumet River (12/2/94 - 12/31/94). Chicago District; Chicago, IL

Illinois Environmental Protection Agency · P. O. Box 19276, Springfield, IL 62794-9276

217/782-0610

May 14, 1992

Department of the Army
Chicago District
Corps of Engineers
River Center Building
111 North Canal Street
Chicago, Illinois 60604

Re: Chicago District Corps of Engineers (Cook County)
Chicago Area CDF - Lake Michigan
Log # C-1020-92

Gentlemen:

This Agency received a request on March 26, 1992, from the Chicago District Corps of Engineers requesting necessary comments for environmental consideration concerning the continued operation of the Chicago Area Confined Disposal Facility, in Lake Michigan. We offer the following comments.

Based on the information included in this submittal, it is our engineering judgment that the proposed project may be completed without causing water pollution as defined in the Illinois Environmental Protection Act, provided the project is carefully planned and supervised.

These comments are directed at the effect on water quality of the construction procedures involved in the above described project and is not an approval of any discharge resulting from the completed facility, nor an approval of the design of the facility. These comments do not supplant any permit responsibilities of the applicant towards this Agency.

This Agency hereby issues certification under Section 401 of the Clean Water Act (PL 95-217), subject to the applicant's compliance with the following conditions:

1. The applicant shall not cause:

   a. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulations;

   b. water pollution as defined and prohibited by the Illinois Environmental Protection Act; and

   c. interference with water use practices near public recreation areas or water supply intakes.

2. The applicant shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.

3. Any spoil material excavated, dredged or otherwise produced must not be returned to the waterway but must be deposited in a self-contained area in compliance with all State statutes, regulations and permit requirements with no discharge to the waters of the State unless a permit has been issued by this Agency. Any back filling must be done with clean material and placed in a manner to prevent violation of applicable water quality standards.

4. The applicant shall comply with Permit 1992-EA-0476 or with any supplemental permit for the operation of this disposal facility.

5. This certification becomes effective when the Department of the Army, Corps of Engineers, includes the above conditions #1 through 4 as conditions of the requested permit issued pursuant to Section 404 of PL. 95-217.

This certification does not grant immunity from any enforcement action found necessary by this Agency to meet its responsibilities in prevention, abatement, and control of water pollution.

Very truly yours,

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:BY:ct,1393r,101-102

cc: IDOT, Division of Water Resources, Chicago
USEPA, Region V
DWPC, Records Unit
DWPC, Field Operations Section, Region Maywood

CENCC-PD 12 June 1992

MEMORANDUM FOR Chief, CENCC-CO
ATTN: Monfeli, CENCC-CO

SUBJECT: Scheduling Brush Removal at Chicago Area CDF; Avoiding Impacts to State-Listed Endangered Species (Black-Crowned Night Heron).

1. On 11 June 1992 PD-S staff observed eight to ten black-crowned night herons (Nycticorax nycticorax) in the vegetation (willow, cottonwood, and common reed) growing on dry dredged material along the north wall of the CDF. A map of the CDF is attached.

2. The heron is a state-listed endangered species; under the Illinois Endangered Species Protection law, the bird, its nests, eggs, etc. may not be destroyed. The birds may have come from the nesting colony near 116th Street and Torrence Avenue to feed on fish in the CDF.

3. PD-S staff has requested comments from the Illinois Department of Conservation (IDOC) endangered species coordinator. That official advised that the Corps postpone brush removal until the IDOC ornithologist has reviewed the situation. The IDOC will provide comments by 18 June 1992. As no nests were observed by PD-S staff, it is unlikely that the IDOC will require postponement of the work until after the nesting season ends (around 1 August). If required by the IDOC, PD-S staff can quickly do a more thorough survey to make sure no nests are present. If no nests are present, the work might be permitted to begin by the last week in June.

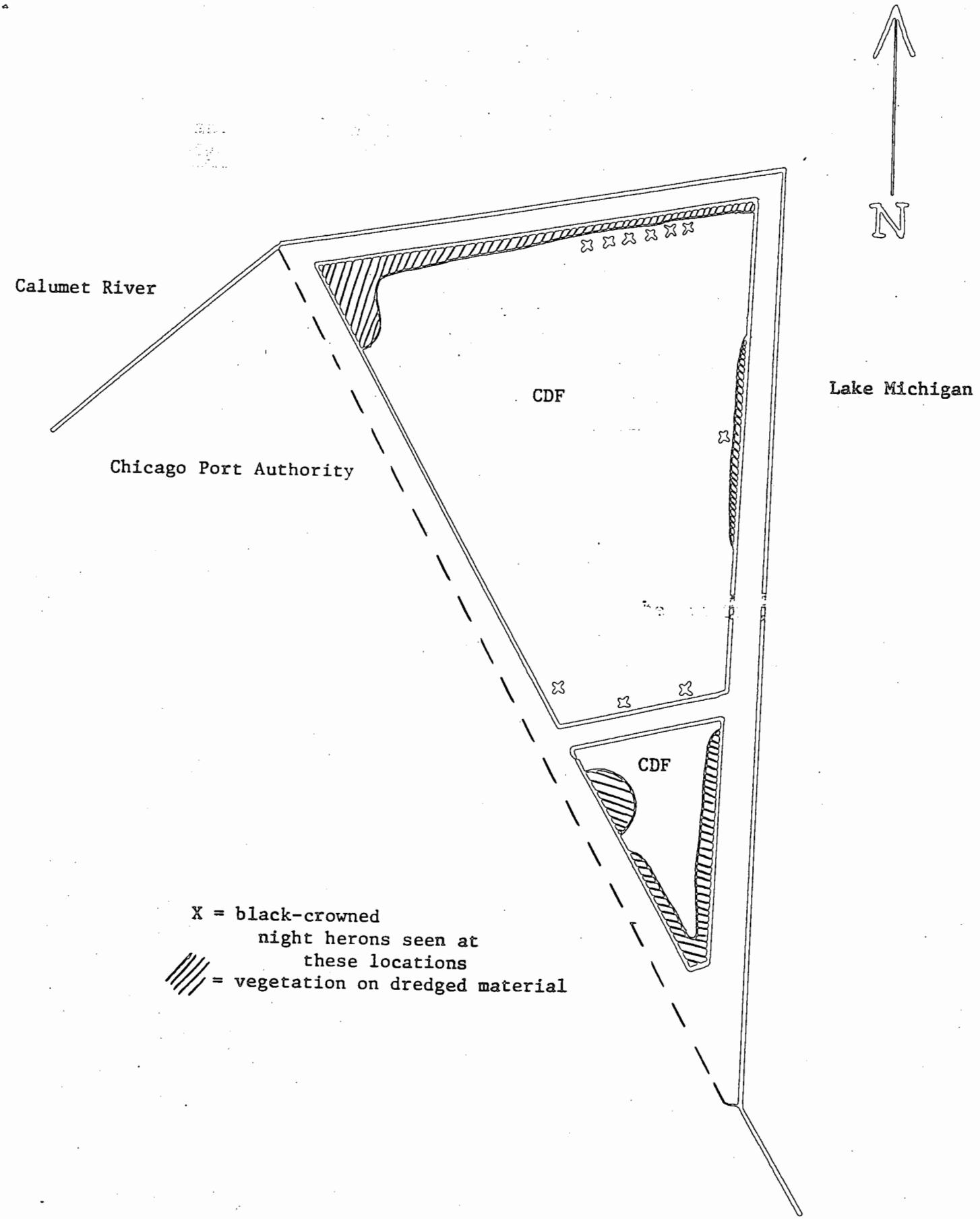
4. To ensure that the Chicago District does not violate state law, brush removal must be postponed until the question of endangered species impacts is resolved. Once this is done, it will probably be necessary to remove vegetation from the CDF on a regular basis to keep the facility as "unattractive" (to wildlife) as possible.

5. POC is Paul Whitman (3-8901) or Keith Ryder (3-7795).

for Susan M. Smoley 12 June 92
Philip R. Bernstein
Chief of Planning Division

Attachment

CF: CENCC-PD-S


N
Calumet River
CDF
Lake Michigan
Chicago Port Authority
CDF
X = black-crowned night herons seen at these locations
= vegetation on dredged material

CENCC-PD-S 15 June 1992

MEMORANDUM TO Chief, CENCC-CO-O
ATTN: Monfeli, CENCC-CO-O

SUBJECT: Scheduling brush removal at Chicago Area CDF to Avoid Impacts to Endangered Species (Black-Crowned Night Heron).

1. At 3:40 PM on 15 June 1992 I spoke with Deanna Glosser, endangered species coordinator with the Illinois Department of Conservation (phone 217-785-8774).

2. Ms. Glosser said that she has no record of new nesting sites in the CDF vicinity. The birds are undoubtedly from the rookery at the "Big Marsh" (near Torrence and 116th) and have entered the CDF to feed.

3. There are no nests at the CDF; the feeding birds will simply leave when maintenance crews appear; brush removal will not adversely impact the endangered herons, and may commence at any time.

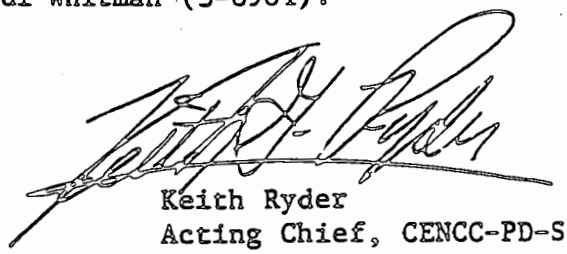
4. Ms. Glosser requested that

a) the Chicago District inform her office just prior to future brush removal or disposal at the CDF, and

b) survey the CDF a day or two before cutting, to ensure that no nesting will be affected. The coordination and site survey can be done by PD-S staff for about 5 man-hours total.

5. The CDF should be kept as free as possible from vegetation (particularly cottonwood, willows, and common reed) to prevent nesting by endangered birds.

6. POC is Keith Ryder (3-7795) or Paul Whitman (3-8901).



Keith Ryder
Acting Chief, CENCC-PD-S

CF: CENCC-PD-S
CENCC-CO

DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7205

FILE
Chicago CDF
SO

REPLY TO
ATTENTION OF:

CENCD-SO (385) 21 June 1994

MEMORANDUM FOR Commander, Chicago District, ATTN: SO

SUBJECT: Results of Monitoring the CDF

1. On June 13, 1994, I went to your Calumet Harbor CDF to monitor the maintenance team for exposure to metals (lead, cadmium, nickle, and copper) and pollychlorinated biphenyls (PCBs). The purpose of this mointoring was to determine whether respiratory protection was required based on exposure levels.

2. Monitoring was conducted through the entire work shift, which the maintenance team noted was a fairly normal day. The samples collected were sent to National Loss Control Service Corporation (NATLSCO). All metals and PCBs meassured were found to be below the OSHA permissible exposure levels and were found to be less than the minimal detection level of the laboratory instruments.

3. Based upon the results obtained, the wearing of respiratory protection is not required. Should maintenance crew procedures change significantly, additional monitoring may be required. Please provide copies of this report to Mr. Stewart and Mr. Bray.

4. If there are any questions, please contact CENCD-SO, Edward Kulzer, 312-886-9311.

Edward L. Kulzer

Encl

EDWARD L. KULZER
Safety and Health Officer

ıs Control Service Corporation
Illinois 60049-0075
18 ○ Fax (708) 320-4331
TAL SCIENCES LABORATORY K-2

REPORT DATE JUN. 16, 1994
SAMPLES REC'D JUN. 9, 1994
REQUEST NUMBER 223423
PAGE NUMBER 1 OF REQUEST.

EDWARD L. KULTER
US ARMY CORPS ENGINEERS
111 N. CANAL
CHICAGO IL 60606

MBER	ANALYSIS REQUESTED		RESULTS			
	BLANK....	LEAD	SUBTRACTED			
	BLANK....	CADMIUM	SUBTRACTED			
	BLANK....	NICKEL	SUBTRACTED			
	BLANK....	COPPER	SUBTRACTED			
			Micrograms	mg/m3		
	LEAD		<0.50	<0.0013		
	CADMIUM		<0.10	<0.00025		
	NICKEL		<0.10	<0.00025		
	COPPER		<0.10	<0.00025		
	LEAD		<0.50	<0.0031		
	CADMIUM		<0.10	<0.00062		
	NICKEL		<0.10	<0.00062		
	COPPER		<0.10	<0.00062		
			Micrograms		mg/m3	
			Front	Back	Front	Back
	POLYCHLORINATED BIPHENYLS		<0.075	<0.075	<0.0033	<0.0033
	BLANK....	POLYCHLORINATED BIPHENYLS	NONE DETECTED			

CU23-94-M-0641. PCB SAMPLES QUANTITATED AS AROCHLOR 1248, BUT SCANNED
OTHER PCBS.
LESS THAN

ly submitted.

ronski, CIH, Manager
ntal Sciences Laboratory

ED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

National Loss Control Service Corporation
Long Grove, Illinois 60049-0075
(708) 320-2488 ○ Fax (708) 320-4331
ENVIRONMENTAL SCIENCES LABORATORY K-2

REPORT DATE JUN. 16, 1994
SAMPLES REC'D JUN. 9, 1994
REQUEST NUMBER 223423
PAGE NUMBER OF REQUEST.

TO:
EDWARD L. KULZER
US ARMY CORPS ENGINEERS
111 N. CANAL
CHICAGO IL 60606

	ANALYSIS REQUESTED	METHODOLOGY
	CADMIUM	OSHA METHOD ID-121 EQUIVALENT
	COPPER	OSHA METHOD ID-121 EQUIVALENT
	LEAD	OSHA METHOD ID-121 EQUIVALENT
	NICKEL	OSHA METHOD ID-121 EQUIVALENT
	POLYCHLORINATED BIPHENYLS	NIOSH METHOD 5503 EQUIVALENT

Respectfully submitted,

Joan A. Wronski, CIH. Manager
Environmental Sciences Laboratory

ACCREDITED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

SAMPLING DATA
METALS

Mr. Stewart: MSA Model A Sampling pump flow rate 2.15 liters per minute. Calibrated with Sensidyne EZ Cal 2.

Time on: 183 minutes.
Total Volume: 393 Liters

Mr. Bray: MSA Model S Sampling pump flow rate 0.825 liters per minute. Calibrated: Sensidyne EZ Cal 2.

Time on: 191 minutes.
Total Volume: 162 Liters

Polychlorinated Biphenyls:
Sipion, No. 6301;
Kv 1.583 cc/stroke
Start 164314 stroke
Finish 178591 stroke
Total Vol 22.84 Liters Air

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Metro Wetlands Office
1000 Hart Road - Suite 180
Barrington, Illinois 60010

IN REPLY REFER TO:

FWS/AES-CIFO

708/381-2253

October 14, 1994

LTC Robert E. Slockbower
District Engineer
Chicago District, Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606-7206
ATTN: CENCC-PD-S, Philip Moy

Dear LTC Slockbower:

At the request of Philip Moy of your staff, representatives of this office recently toured the Calumet Harbor Confined Disposal Facility to assess wildlife habitat conditions and to make habitat management recommendations for the site. Our understanding is that the District periodically has been cutting vegetation around the CDF perimeter in an attempt to discourage use of the site by wildlife, particularly those that are listed as threatened or endangered.

We have reviewed the available information regarding contaminant levels in the sediments and in fish tissue from within the CDF. Our analysis of this information is contained in the enclosed memorandum. In summary, we believe use of the site by wildlife should be discouraged, particularly by those species that feed on fish (e.g., herons, egrets, terns, gulls) or that feed on benthic invertebrates (e.g., shorebirds, waterfowl).

Use by these species can be discouraged in two ways. First, the growth of woody vegetation should be controlled by cutting and then herbiciding the cut stumps with an herbicide approved for use in or near aquatic areas. Cutting without herbiciding will only result in resprouting and will create a continuous maintenance problem. Herbaceous vegetation, such as the Common Reed that has colonized the northern part of the site, should be allowed to grow. It does not provide optimal wildlife habitat, and its removal would result in exposed mud which would actually create good foraging habitat for shorebirds.

Second, the disposal of dredged material within the CDF should be done in a way that creates high land well above normal water level, which then abruptly drops off into water depths in excess of three feet. The shoreline should be linear with no bays or peninsulas. The goal is to avoid creating mudflats, wetland, or shallow water habitat that is preferred by waterfowl and wading birds.

It will not be possible to discourage all bird use, nor is this necessary. Songbirds that use existing or future upland portions of the site should not be at risk, nor would transient species that use the site for only brief periods. The goal is to prevent the establishment of semi-permanent resident species that preferentially use aquatic habitats.

As a final consideration, contaminant risk could be further reduced if fish populations could be eliminated from within the CDF. It is our understanding that funds are not now available to do this, but the cost will become less as more of the CDF volume is taken up by dredgings. Please consider this when the economics become more favorable.

Thank you for the opportunity to comment. If you need further technical assistance on this matter, please contact Mr. John Rogner of this office.

Sincerely,

Benjamin N. Tuggle, Ph.D.
Field Supervisor

Enclosure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Metro Wetlands Office
1000 Hart Road - Suite 180
Barrington, Illinois 60010

IN REPLY REFER TO:

Memorandum

Date: October 13, 1994

To: John Rogner, Assistant Field Supervisor

From: Edward Karecki, Contaminants Biologist EK

Subject: Chicago Confined Disposal Facility

I reviewed the March 1994 Final Report on PCB Congener Sediment/Fish Distribution in the Chicago Confined Disposal Facility (CDF), prepared by the U.S. Army Corps of Engineers Waterways Experiment Station. The mean concentration of total PCB in fillets of Black Bullheads was 0.567 mg/kg. This number exceeds the PCB objective in fish tissue of 0.1 mg/kg set by the International Joint Commission to protect piscivorous wildlife in the Great Lakes from adverse affects[1]. Studies performed on chickens, corrected with an uncertainty factor for interspecies extrapolation to other birds, yielded a similar fish tissue criterion of 0.11 mg/kg in a Niagara River biota study[2]. A 1986 study by the Illinois Natural History Survey determined that fish and crayfish collected from inside the CDF contained PCB levels which were in the approximate range of 2 to 15 times higher than those collected from Calumet Harbor[3].

These studies do not take into account the effects of additional contaminants which are present in the CDF, including petroleum hydrocarbons and heavy metals. No data was available on the fish tissue concentrations of these contaminants from within the CDF. The concentration of PCBs would also likely be higher in larger fish, since the bullheads collected ranged from 10-15 cm, and in whole fish.

Based on these findings I would recommend that efforts to discourage piscivorous wildlife from using the CDF continue.

References

1. International Joint Commission United States and Canada. 1988. Great Lakes Water Quality Agreement. Amended by protocol signed November 1987. Ottawa, Canada.

2. Newell, A.J., Johnson, D.W., and Allen, L.K. New York State Department of Environmental Conservation. 1987. Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorous Wildlife.

3. Dorkin, J., Ross, P., Henebry, M.S., Miller, J., and Wetzel, M. Illinois Natural History Survey. 1986. Biological and Toxicological Investigations of Chicago Area Navigation Projects.

Illinois Department of Conservation
LINCOLN TOWER PLAZA o 524 SOUTH SECOND STREET o SPRINGFIELD 62701-1787 CHICAGO OFFICE o ROOM 4-300 o 100 WEST RANDOLPH o CHICAGO 60601
Brent Manning, Director John W. Comerio, Deputy Director Bruce F. Clay, Assistant Director

October 14, 1994

Phil Moy
U.S. Army Corps of Engineers
Chicago District
111 North Canal Street
Chicago, IL 60606-7206

RE: Chicago Confined Disposal Facility

Dear Mr. Moy:

This is in reference to our recent telephone conversations regarding the Chicago CDF and the need to manage the area to minimize the likelihood that endangered and threatened species would begin to nest there. The site will be used as a disposal area beginning early next spring, and the nesting of listed species would pose problems not easily resolved. It is my understanding that you have discussed this situation with the U.S. Fish and Wildlife Service (USFWS) as well.

The species that are known to nest within the Lake Calument region are the Great Egret, Black-cronwed Night Heron, Pied-Billed Grebe and other state endangered or threatened species. None are federally listed. To minimze the opportunity for these birds to nest in this area, it is recommended that tree species be controlled to prevent them from reaching a suitable size to accommodate nesting activity. It is not necessary to remove all vegetation, although birds in this area are known to nest in dense stands of cattails or phragmites.

These birds can begin returning to the area as early as mid-April. Because they tend to be easily disturbed by the presence of humans, having people on the site conducting surveys could make the site less attractive to them for nesting. It is important to remember, however, that the Illinois Endangered Species Protection Act prohibits these birds from being harmed or harrassed in any way.

It is my understanding that the USFWS recommended not exposing mudflats to prevent use of the area by shorebirds. They also recommeded that when depositing the fill material that steep slopes be used to avoid creating additional habitat for a variety of bird species. We concur with that recommendation.

Please be aware that it is not typical for me to propose recommendations as to how to prevent wildlife habitat from being created. I do understand, however, that the intended use of this

area and wildlife are not compatible. Preventing them from nesting appears to be the best way of avoiding problems that would not be in the best interests of the birds or the Corps of Engineers.

If you need additional information or have any questions, please do not hesitate to contact me at 217-785-8290.

Sincerely,

Deanna Glosser

Deanna Glosser, Ph.D.
Endangered Species Program Manager

CENCC-PD-S 15 AUGUST 1996

MEMORANDUM FOR M. Krepfl, CENCC-ED-P

SUBJECT: Chicago CDF; recommendations for revised operating plan

1. The attached letters from U.S. Fish and Wildlife Service and Illinois DNR/DOC (dated 14 October 1994) contain recommendations for minimizing adverse imnpacts to wildlife (particularly endangered bird species) at the CDF by

a) preventing establishment of semi-permanent (or nesting) colonies of bird species that prefer aquatic habitats, and
b) preventing exposure of waterfowl, shorebirds, or wading birds to contaminated sediments.

2. I recommend that the USFWS/IDNR comments be incorporated into the revised operating plan, and that procedures described in the agencies' letters be implemented during maintenance and disposal.

4. The operating plan should require

a) that growth of woody vegetation be prevented by cutting, and by herbiciding cut stumps with an herbicide approved for use in or near aquatic areas;
b) that herbaceous vegetation (such as the Common Reed growing in the northern portion of the site) be allowed to grow (it provides minimal wildlife habitat and its removal would result in exposed mudflats attractive to shorebirds);
c) that disposal of dredged material be done to create high land well above normal water level (dropping abruptly into water depths in excess of three feet), or that dredged material be covered by more than three feet of water; and
d) that the shoreline be linear, without bays or peninsulas (to avoid creating mudflats, wetland, or shallow water habitat preferred by shorebirds).

5. POC is Keith Ryder, CENCC-PD-S, ext. 2020.

for BARBARA J. WILLIAMS
Chief, Environmental and Social
Analysis Branch

Attachments

CF: B. Tuggle, USFWS/Barrington Office
D. Glosser, IDNR/Endangered Species Program
CENCC-PD

Illinois Department of Conservation
LINCOLN TOWER PLAZA ○ 524 SOUTH SECOND STREET ○ SPRINGFIELD 62701-1787 CHICAGO OFFICE ○ ROOM 4-300 ○ 100 WEST RANDOLPH ○ CHICAGO 60601
Brent Manning, Director John W. Comerio, Deputy Director Bruce F. Clay, Assistant Director

October 14, 1994

Phil Moy
U.S. Army Corps of Engineers
Chicago District
111 North Canal Street
Chicago, IL 60606-7206

RE: Chicago Confined Disposal Facility

Dear Mr. Moy:

This is in reference to our recent telephone conversations regarding the Chicago CDF and the need to manage the area to minimize the likelihood that endangered and threatened species would begin to nest there. The site will be used as a disposal area beginning early next spring, and the nesting of listed species would pose problems not easily resolved. It is my understanding that you have discussed this situation with the U.S. Fish and Wildlife Service (USFWS) as well.

The species that are known to nest within the Lake Calument region are the Great Egret, Black-cronwed Night Heron, Pied-Billed Grebe and other state endangered or threatened species. None are federally listed. To minimze the opportunity for these birds to nest in this area, it is recommended that tree species be controlled to prevent them from reaching a suitable size to accommodate nesting activity. It is not necessary to remove all vegetation, although birds in this area are known to nest in dense stands of cattails or phragmites.

These birds can begin returning to the area as early as mid-April. Because they tend to be easily disturbed by the presence of humans, having people on the site conducting surveys could make the site less attractive to them for nesting. It is important to remember, however, that the Illinois Endangered Species Protection Act prohibits these birds from being harmed or harrassed in any way.

It is my understanding that the USFWS recommended not exposing mudflats to prevent use of the area by shorebirds. They also recommeded that when depositing the fill material that steep slopes be used to avoid creating additional habitat for a variety of bird species. We concur with that recommendation.

Please be aware that it is not typical for me to propose recommendations as to how to prevent wildlife habitat from being created. I do understand, however, that the intended use of this

area and wildlife are not compatible. Preventing them from nesting appears to be the best way of avoiding problems that would not be in the best interests of the birds or the Corps of Engineers.

If you need additional information or have any questions, please do not hesitate to contact me at 217-785-8290.

Sincerely,

Deanna Glosser

Deanna Glosser, Ph.D.
Endangered Species Program Manager

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Metro Wetlands Office
1000 Hart Road - Suite 180
Barrington, Illinois 60010

IN REPLY REFER TO:

FWS/AES-CIFO

708/381-2253

October 14, 1994

LTC Robert E. Slockbower
District Engineer
Chicago District, Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606-7206
ATTN: CENCC-PD-S, Philip Moy

Dear LTC Slockbower:

At the request of Philip Moy of your staff, representatives of this office recently toured the Calumet Harbor Confined Disposal Facility to assess wildlife habitat conditions and to make habitat management recommendations for the site. Our understanding is that the District periodically has been cutting vegetation around the CDF perimeter in an attempt to discourage use of the site by wildlife, particularly those that are listed as threatened or endangered.

We have reviewed the available information regarding contaminant levels in the sediments and in fish tissue from within the CDF. Our analysis of this information is contained in the enclosed memorandum. In summary, we believe use of the site by wildlife should be discouraged, particularly by those species that feed on fish (e.g., herons, egrets, terns, gulls) or that feed on benthic invertebrates (e.g., shorebirds, waterfowl).

Use by these species can be discouraged in two ways. First, the growth of woody vegetation should be controlled by cutting and then herbiciding the cut stumps with an herbicide approved for use in or near aquatic areas. Cutting without herbiciding will only result in resprouting and will create a continuous maintenance problem. Herbaceous vegetation, such as the Common Reed that has colonized the northern part of the site, should be allowed to grow. It does not provide optimal wildlife habitat, and its removal would result in exposed mud which would actually create good foraging habitat for shorebirds.

Second, the disposal of dredged material within the CDF should be done in a way that creates high land well above normal water level, which then abruptly drops off into water depths in excess of three feet. The shoreline should be linear with no bays or peninsulas. The goal is to avoid creating mudflats, wetland, or shallow water habitat that is preferred by waterfowl and wading birds.

It will not be possible to discourage all bird use, nor is this necessary. Songbirds that use existing or future upland portions of the site should not be at risk, nor would transient species that use the site for only brief periods. The goal is to prevent the establishment of semi-permanent resident species that preferentially use aquatic habitats.

As a final consideration, contaminant risk could be further reduced if fish populations could be eliminated from within the CDF. It is our understanding that funds are not now available to do this, but the cost will become less as more of the CDF volume is taken up by dredgings. Please consider this when the economics become more favorable.

Thank you for the opportunity to comment. If you need further technical assistance on this matter, please contact Mr. John Rogner of this office.

Sincerely,

Benjamin N. Tuggle, Ph.D.
Field Supervisor

Enclosure

IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Metro Wetlands Office
1000 Hart Road - Suite 180
Barrington, Illinois 60010

TAKE PRIDE IN AMERICA

Memorandum

Date: October 13, 1994

To: John Rogner, Assistant Field Supervisor

From: Edward Karecki, Contaminants Biologist EK

Subject: Chicago Confined Disposal Facility

I reviewed the March 1994 Final Report on PCB Congener Sediment/Fish Distribution in the Chicago Confined Disposal Facility (CDF), prepared by the U.S. Army Corps of Engineers Waterways Experiment Station. The mean concentration of total PCB in fillets of Black Bullheads was 0.567 mg/kg. This number exceeds the PCB objective in fish tissue of 0.1 mg/kg set by the International Joint Commission to protect piscivorous wildlif the Great Lakes from adverse affects[1]. Studies performed on chickens, corrected with an uncertainty factor for interspecies extrapolation to other birds, yielded a similar fish tissue criterion of 0.11 mg/kg in a Niagara River biota study[2]. A 1986 study by the Illinois Natural History Survey determined that fish and crayfish collected from inside the CDF contained PCB levels which were in the approximate range of 2 to 15 times higher than those collected from Calumet Harbor[3].

These studies do not take into account the effects of additional contaminants which are present in the CDF, including petroleum hydrocarbons and heavy metals. No data was available on the fish tissue concentrations of these contaminants from within the CDF. The concentration of PCBs would also likely be higher in larger fish, since the bullheads collected ranged from 10-15 cm, and in whole fish.

Based on these findings I would recommend that efforts to discourage piscivorous wildlife from using the CDF continue.

References

1. International Joint Commission United States and Canada. 1988. Great Lakes Water Quality Agreement. Amended by protocol signed November 1987. Ottawa, Canada.

2. Newell, A.J., Johnson, D.W., and Allen, L.K. New York State Department of Environmental Conservation. 1987. Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorous Wildlife.

3. Dorkin, J., Ross, P., Henebry, M.S., Miller, J., and Wetzel, M. Illinois Natural History Survey. 1986. Biological and Toxicological Investigations of Chicago Area Navigation Projects.

CENCC-PD-S 30 August 1996

MEMORANDUM FOR M. Krepfl, CENCC-ED-P

SUBJECT: Chicago CDF; vegetation and wildlife; recommendations for operating plan

1. K. Ryder visited the CDF on 29 August with M. Krepfl and O. Eliashevsky. Wildlife seen at CDF included:

3 double-crested cormorants
6 or 8 small diving ducks
2 immature black-crowned night herons
3 plovers or sandpipers
2 terns
1 green-backed heron
1 great blue heron
many crawfish remains (left by gulls or raccoons)

3. Within the CDF there are no exposed mudflats; the vegetated dredged material forms bays and peninsulas (see attached map). Vegetation (see attached map) along the north and east sides is dominated by common reed, with scattered stands of small cottonwood and willow (saplings under 6' tall). There is a small stand of purple loosestrife near the northeast corner, and a stand of sumac (or tree-of-heaven?) near the east end of the cross-dike. The top of the east dike is covered in sweet clover.

4. There are larger cottonwoods (6' to 12' tall) along the west bank of the CDF. There are many still larger cottonwoods (12' to 20' tall) on Corps property between the CDF's west bank and the fence marking the Chicago Port District property line (see attached map). More tall (12' to 20') cottonwoods stand at the extreme south end of the Corps property.

5. The Chicago Port District land immediately west of the CDF contains many tall (12' to 20') cottonwoods; however, these are not yet tall enough to be attractive to nesting herons. By the time the Port District trees are large enough to be a potential nesting site, the CDF may already be filled and capped.

6. To prevent endangered birds from nesting within the CDF (black-crowned night heron in particular), I recommend

a) that trees on Corps property be cut down, with taller trees cut first (they are most likely to be used by nesting herons) and reeds left standing where practical (to prevent exposure of dredged material);
b) that "bays and peninsulas" (see map) be eliminated during future disposal, to make CDF less attractive to birds;
c) that the operating manual incorporate recommendations made by CENCC-PD-S (memo dated 15 August 1996), and by USFWS and IDNR (letters of 14 October 1994) regarding disposal, dredged material management, and vegetation control.

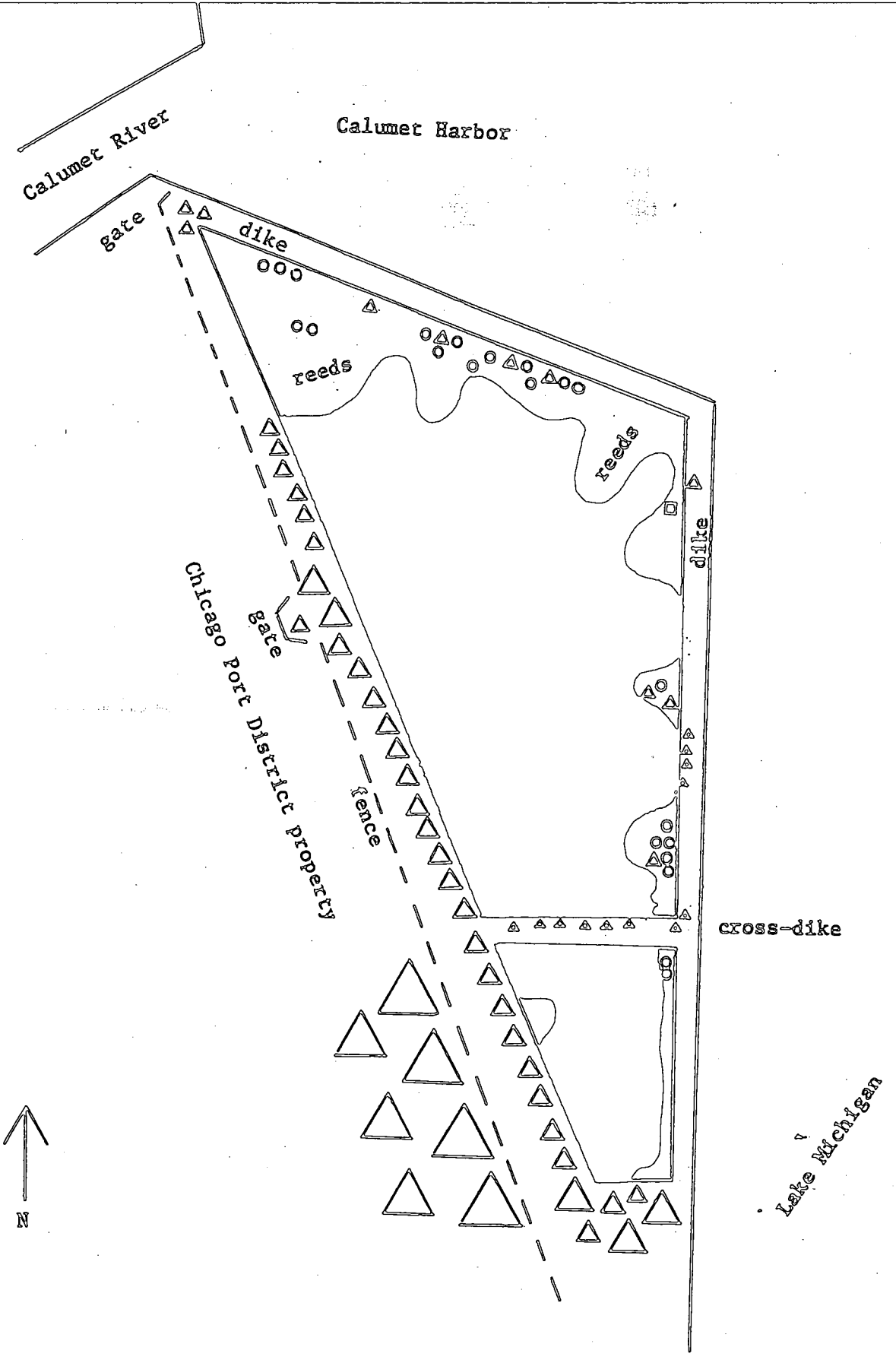
7. I also recommend that the Chicago District issue a brief supplement (2 or 3 pages plus a few coordination letters) to the 1982 FEIS, in view of discrepancies between the FEIS and the actual operation of the CDF. The reviewing agencies know of the plastic liner and sand blanket; they also know that the CDF is functioning as intended. The operating permit expires soon; major repairs to the dike are needed; this is an appropriate time to issue a supplement.

8. POC is Keith Ryder, ext. 2020.

BARBARA J. WILLIAMS
Environmental and Social
Analysis Branch

Attachment

CF: B. Tuggle, USFWS/Barrington Office
D. Glosser, IDNR/Endangered Species
CENCC-PD
CENCC-ED
CENCC-DE



LEGEND: △ △ cottonwoods
o willows
□ purple loosestrife

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

REPLY TO
ATTENTION OF:

26 MAR 1997

CENCC-PD-S (1105-2-10b)

MEMORANDUM FOR U.S. Army Publication and Printing Command, 2461 Eisenhower Avenue, Alexandria, VA 22331-0302, ATTN: Ms. Vivian Lacy, Agency Liaison Officer with the Office of the Federal Register

SUBJECT: Notice of Intent to Prepare a Draft Environmental Impact Statement

Enclosed are three signed copies of a Notice of Intent to prepare a Supplemental Environmental Impact Statement. This information is furnished for publication in the Federal Register.

ROGER A. GERBER
LTC, EN
Commanding

3 Enclosures

DEPARTMENT OF DEFENSE 3710-HN

CORPS OF ENGINEERS, DEPARTMENT OF THE ARMY

Intent to Prepare a Supplemental Environmental Impact Statement (SEIS) in Conjunction with Proposed Chnages in Operation of Chicago Area Confined Disposal Facility at Chicago, Cook County, Illinois

AGENCY: U.S. Army Corps of Engineers, Chicago District, DoD

ACTION: Notice of Intent

SUMMARY: The project involves changes in the operation of a confined disposal facility (CDF) built in 1984 to hold contaminated sediment dredged from the Chicago River, Chicago Harbor, and Calumet River and Harbor. The CDF was discussed in a Final Environmental Impact Statement released in May 1982.

FOR FURTHER INFORMATION CONTACT: Mr. Keith Ryder, 312/353-6400 ext. 2020; U.S. Army Corps of Engineers, Chicago District; 111 North Canal Street; Chicago, Illinois 60606-7206.

SUPPLEMENTAL INFORMATION: 1. The Supplement Environmental Impact Statement will document deviations (in construction and operation) from the project as it was discussed in the 1982 impact statement; proposed improvements to the project's operating plan (regarding water quality monitoring, vegetation control, sediment management, and endangered species); and interagency coordination during 1984-1996.

2. The SEIS is expected to be available to the public in June 1997.

DATE: 26 MAR 1997

Roger A. Gerber
Lieutenant Colonel, U.S. Army
District Engineer

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

REPLY TO
ATTENTION OF

Environmental and Social
Analysis Branch

9 - JAN 1998

FAX TO: J. Rogner, USFWS/Barrington
R. Schanzle, IDNR/Planning
D. Glosser, IDNR/End. Species

SUBJECT: proposed vegetation management at Chicago Area Confined Disposal Facility, Chicago, Cook County, IL

1. The Chicago District proposes vegetation control measures on its confined disposal facility (CDF) property, to prevent nesting of endangered bird species there.

2. The CDF parcel is located on the Lake Michigan shoreline at the Illinois-Indiana state line in Chicago, Cook County, Illinois. Maps of the CDF parcel are attached.

3. Habitat within the CDF parcel - There are no exposed mudflats within the dike; dredged material is covered by common reed and stands of small (under 6' high) cottonwoods and willows. There is a stand of purple [illegible] near the northeast corner, and a stand of sumac (or tree-of-heaven) near the east end of the cross-dike; the top of the east dike is covered in sweet clover. Along the west bank of the CDF are larger (6' to 12' high) cottonwoods (growing atop old "made land"). On the upland strip of Corps property between the CDF and Port District property are many still larger (12' to 20' high) cottonwoods; more tall (12' to 20' high) cottonwoods stand on the small upland area at the extreme southern end of the Corps property. The CDF property provides only low-quality wildlife habitat.

4. Habitat adjacent to CDF parcel - Illinois Regional Port District property adjacent to the northern half of the CDF is paved, providing no valuable wildlife habitat. Port District property adjacent to the southern half of the CDF is "made land" (slag and crushed stone) supporting sweet clover and sumac (and probably garden sunflower and Queen Anne's lace as well), but dominated by tall (12' to 20' high) cottonwoods. The adjacent uplands (Calumet Park, Illinois International Port District, railyards, and vacant land) provide only low-quality habitat, and probably support such urban species as cottontail rabbit, raccoon, opossum, striped skunk, fox squirrel, Norway rat, thirteen-lined ground squirrel, starling, and English sparrow.

5. Wildlife observed - Species periodically observed at the CDF site include black-crowned night heron and peregrine falcon. Species seen within the dike in August 1996 included double-crested cormorant, diving ducks, immature black-crowned night heron, plovers or sandpipers, terns, green-backed heron, and great blue heron; atop the dike were many crawfish remains (presumably left by herring gulls).

parcel consists primarily of cottonwoods and sweet clover growing on slag, atop limestone dikes, or through piles of concrete. The parcel is bordered on three sides by industrial "made land" (primarily slag), urban parkland (mowed grass), and residential areas (with tiny yards at best), and is not likely to provide habitat for threatened or endangered species (with the possible exception of the black-crowned night heron). Birds species seen periodically at the CDF site by Corps of Engineers and U.S. Fish and Wildlife Service staff include the state-listed black-crowned night heron (Nycticorx nycticorax) and the Federal-listed peregrine falcon (Falco peregrinus). Neither species nests at the site; the black-crowned night herons have been seen resting in stands of common reed within the dike, but are not nesting in the CDF or in the cottonwoods surrounding the CDF. Illinois International Port District land immediately west of the CDF contains many tall (12' to 20') cottonwoods; however, these are not yet tall enough to be attractive to nesting herons. By the time the Port District trees are large enough to be a potential rookery, the CDF may already be filled and capped.

7. Proposed vegetation control - to prevent shorebirds, waterfowl, and wading birds (black-crowned night heron in particular) from nesting in the CDF, the CDF's operating manual will incorporate recommendations made by Chicago District staff, USFWS, and IDNR. Dredged material will be managed to avoid creation of mudflats. The operating manual will require

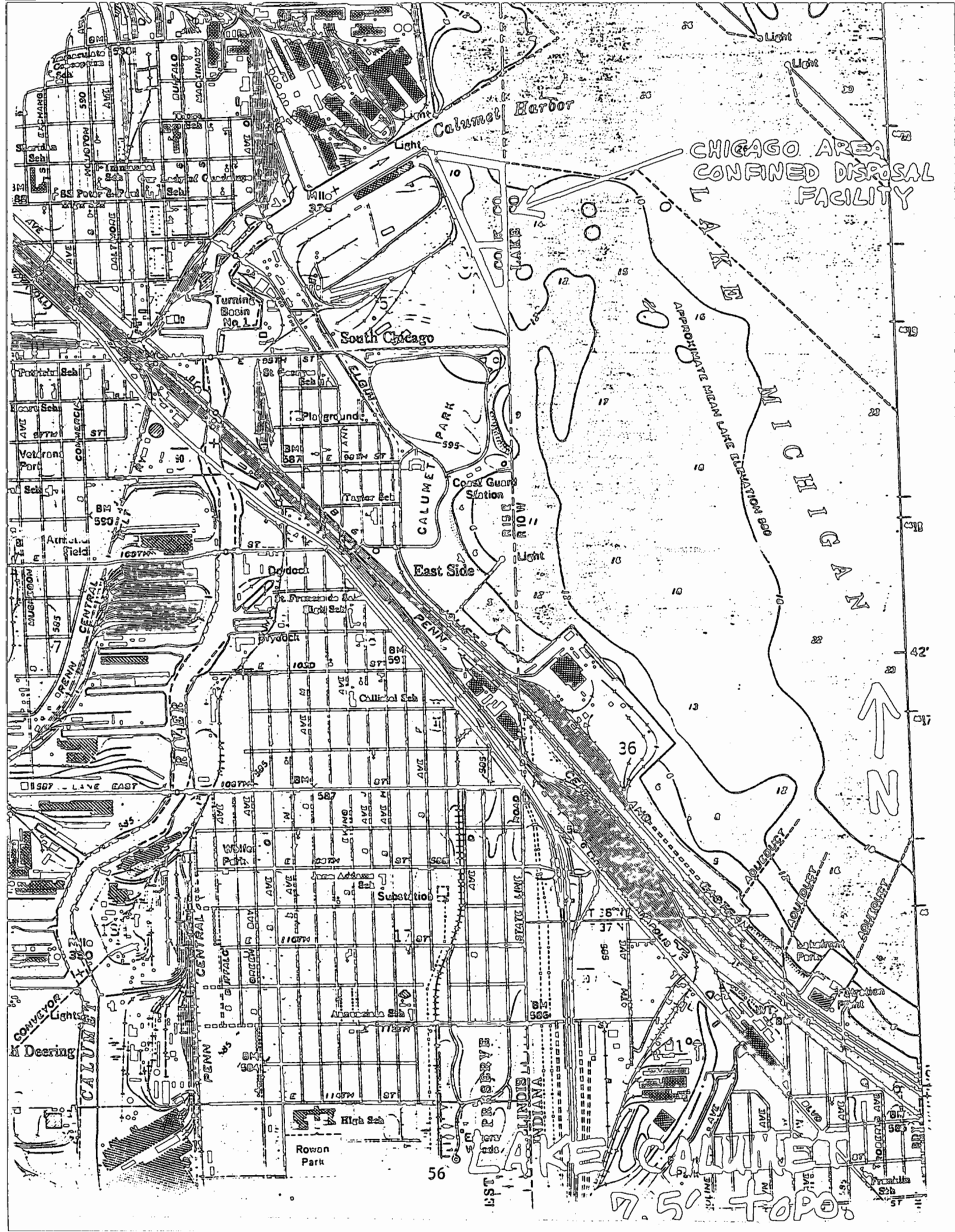
a) that growth of woody vegetation (such as the cottonwoods around the facility) be prevented by cutting, and by herbiciding cut stumps with an herbicide approved for use in or near aquatic areas;
b) that herbaceous vegetation (such as common reed growing in the northern part of the CDF) be allowed to grow (it provides minimal habitat; its removal would expose mudflats attractive to shorebirds, waterfowl, and wading birds); and
c) that qualified Chicago District staff survey the CDF a day or two before tree cutting to be done during April-May (to ensure that no nesting birds will be affected) and inform the IDNR endangered species coordinator of their findings.

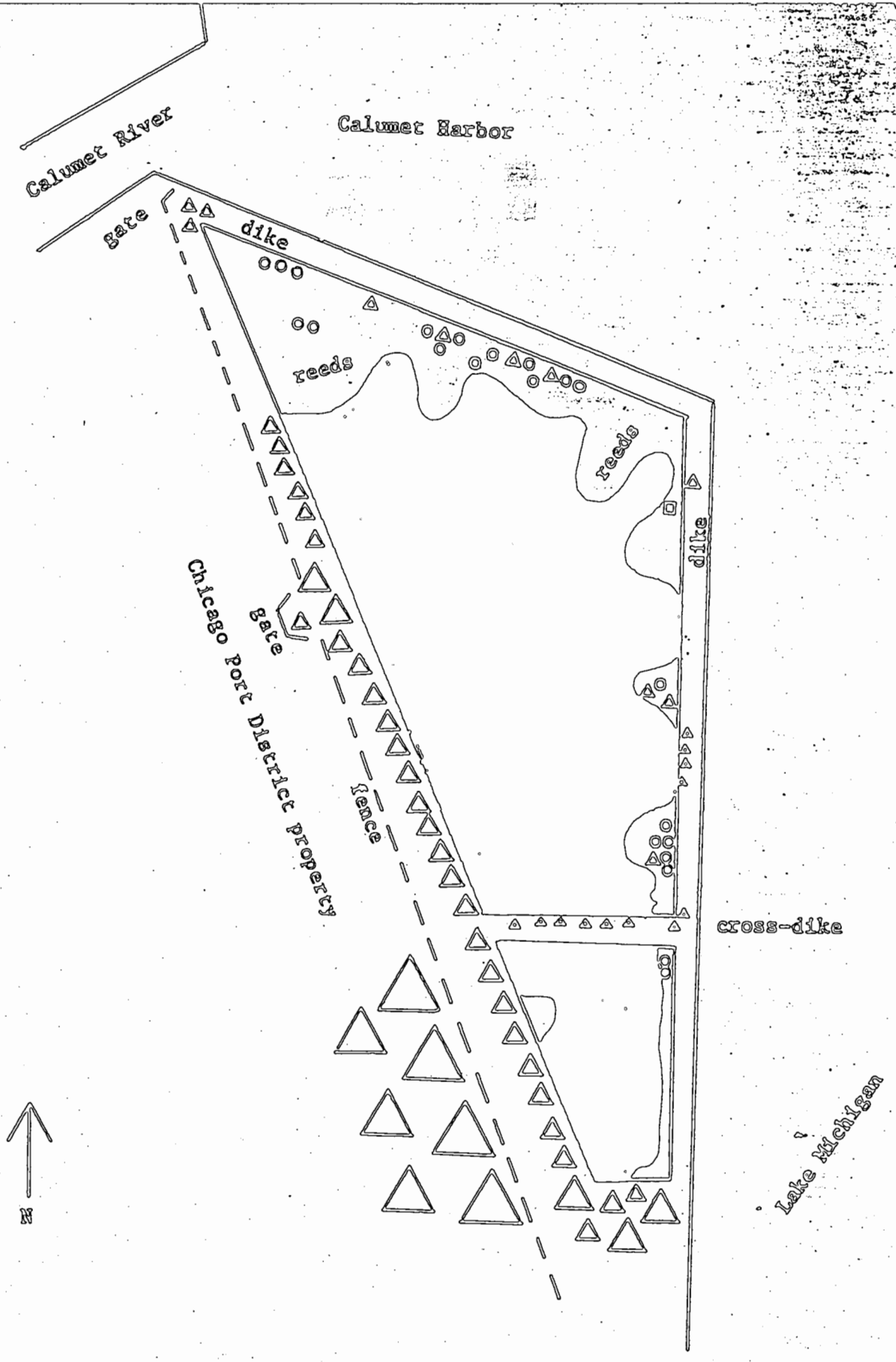
8. It is my staff's opinion that the proposed vegetation management will not adversely affect threatened or endangered species.

9. I would appreciate your comments on impacts to fish and wildlife habitat and to state-listed and Federal-listed threatened and endangered species not later than 22 January 1998. If your staff has questions regarding the CDF, please contact Keith Ryder, CELRC-PD-S, at 312/353-6400 ext. 2020.

Paul D. Mohrhardt
Acting Chief, Planning Division

Attachments


CHICAGO AREA
CONFINED DISPOSAL
FACILITY
LAKE MICHIGAN
Calumet Harbor
Turning Basin No. 1
South Chicago
CALUMET PARK
East Side
Coast Guard Station
Playground
Veterans Park
Dry Dock
Wolfe Park
Substation
Rowan Park
High Sch
Light
Conveyor Lights
Deering
CALUMET
PENN CENTRAL
STATE LINE
ILLINOIS
INDIANA
LAKE CALUMET
7.5' TOPO
56



LEGEND: △ △ cottonwoods
o willows
□ purple loosestrife
open water

CHICAGO AREA CDF: CONDITIONS ON 29 AUG. 19

ILLINOIS
DEPARTMENT OF
NATURAL RESOURCES

524 South Second Street, Springfield 62701-1787 Jim Edgar, Governor ◊ Brent Manning, Director

January 26, 1998

Mr. Paul D. Mohrhardt
Acting Chief, Planning Division
Department of the Army
Chicago District, Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606-7206

ATTN: Mr. Keith Ryder

Dear Mr. Mohrhardt:

Reference is made to your letter of 9 January 1998 concerning the Chicago District's proposed vegetation control measures to prevent nesting of endangered bird species at its confined disposal facility located on the Lake Michigan shoreline in Section 5, Township 37 North, Range 15 East, in Chicago, Cook County, Illinois. The CDF currently supports woody vegetation (primarily small willows and cottonwoods) and herbaceous vegetation (mostly common reed) on a substrate of dredged material placed within the CDF in years past.

The Chicago District proposes to incorporate various vegetation control measures in the operating plan for the CDF to prevent shorebirds, waterfowl and wading birds from nesting there. Proposed control measures include cutting and herbiciding woody vegetation and allowing herbaceous vegetation such as common reed to grow and spread, thus preventing the exposure of mud flats that are attractive to many bird species. Staff of the Chicago District propose to survey the CDF prior to any tree cutting to insure that no nesting birds will be affected.

Based on a review of the Department's Natural Heritage Database, we find that there are no current records of threatened/endangered bird species nesting at the CDF or in the immediately surrounding area. Provided the site is thoroughly inspected by qualified staff prior to any vegetation control activity, the work should not result in any direct adverse impact to state listed species. As a general comment, we would suggest that any tree cutting take place during the winter months (rather than in April-May as is proposed) before migratory species return to the area.

We appreciate the opportunity to comment. Please contact me at 217-785-5500 if we can be of further assistance.

Sincerely,

Deanna Glosser

Deanna Glosser,
Supervisor, Division of Natural Resource Review and Coordination

DG:RWS:rs

cc: IDNR/OWR (Casey), IEPA (Yurdin), USFWS (Rogner), USEPA (Pierard)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Illinois Field Office
1000 Hart Road – Suite 180
Barrington, Illinois 60010
708/381-2253

IN REPLY REFER TO:

February 6, 1998

Mr. Paul D. Morhardt
Acting Chief, Planning Division
Attention: Keith Ryder
Chicago District, U.S. Army Corps of Engineers
111 N. Canal Street
Chicago, IL 60606-7206

Dear Mr. Morhardt:

Thank you for informing us of your plans for proposed vegetation management at Chicago Area Confined Disposal Facility, Chicago, Illinois. The management plan, described in you January 9, 1998 facsimile transmittal, should minimize wildlife use of the confined disposal facility.

The contaminated sediments disposed of at this site represent a hazard to migratory birds and other wildlife, and we agree that minimizing the amount of wildlife habitat is beneficial in this instance. We recommend that tree cutting be done during the winter, rather than in spring, so that the site is less attractive to migratory birds arriving for spring nesting.

If you have any questions, please contact Mr. Edward Karecki at 847/381-2253

Sincerely,

John D Rogner

John Rogner
Acting Field Supervisor

COMMENTS AND RESPONSES

COMMENT :

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

REPLY TO THE ATTENTION OF:

AUG 17 1998

Mr. Keith Ryder
SEIS Coordinator
Army Corps of Engineers, Chicago District
111 North Canal Street
Suite 600
Chicago, Illinois 60606-7206

B-19J

Dear Mr. Ryder:

In accordance with Section 309 of the Clean Air Act and National Environmental Policy Act, the United States Environmental Protection Agency Region 5 has reviewed the Supplemental Environmental Impact Statement (SEIS) for the Chicago Area Confined Disposal Facility (CDF). The purpose of the SEIS is to document existing conditions at the CDF and the discrepancies between the project as presented in the 1982 FEIS and the project as operated during 1984 through 1997. The document will also address the proposed improvements to water quality monitoring plan management of vegetation in the CDF and sediment plan.

Based on the information provided in the document, we have rated the SEIS a "LO". The "LO" indicates that our agency has a lack of objection. This rating will be published in the Federal Register. However, we would like to note that table 7showing polychorinated biphenyls (PCB) appears not be included in the SEIS. Our agency did obtain the PCB concentration data through a phone conversation with Mr. Jay Semmler of your office.

Thank you for the opportunity to review and comment on the SEIS for Chicago Area CDF. If you have any questions or comments, please contact Al Fenedick of the Environmental Review Group at 312.886-6872.

Sincerely yours,

A K Fenedick Jr

Michael MacMullen, Group Manager
Environmental Review Group
Office of Strategic Environmental Analysis

RESPONSE: Tables 6 and 7 were accidentally ommitted from the draft EIS; they have been included in the final SEIS in the ADDENDUM.

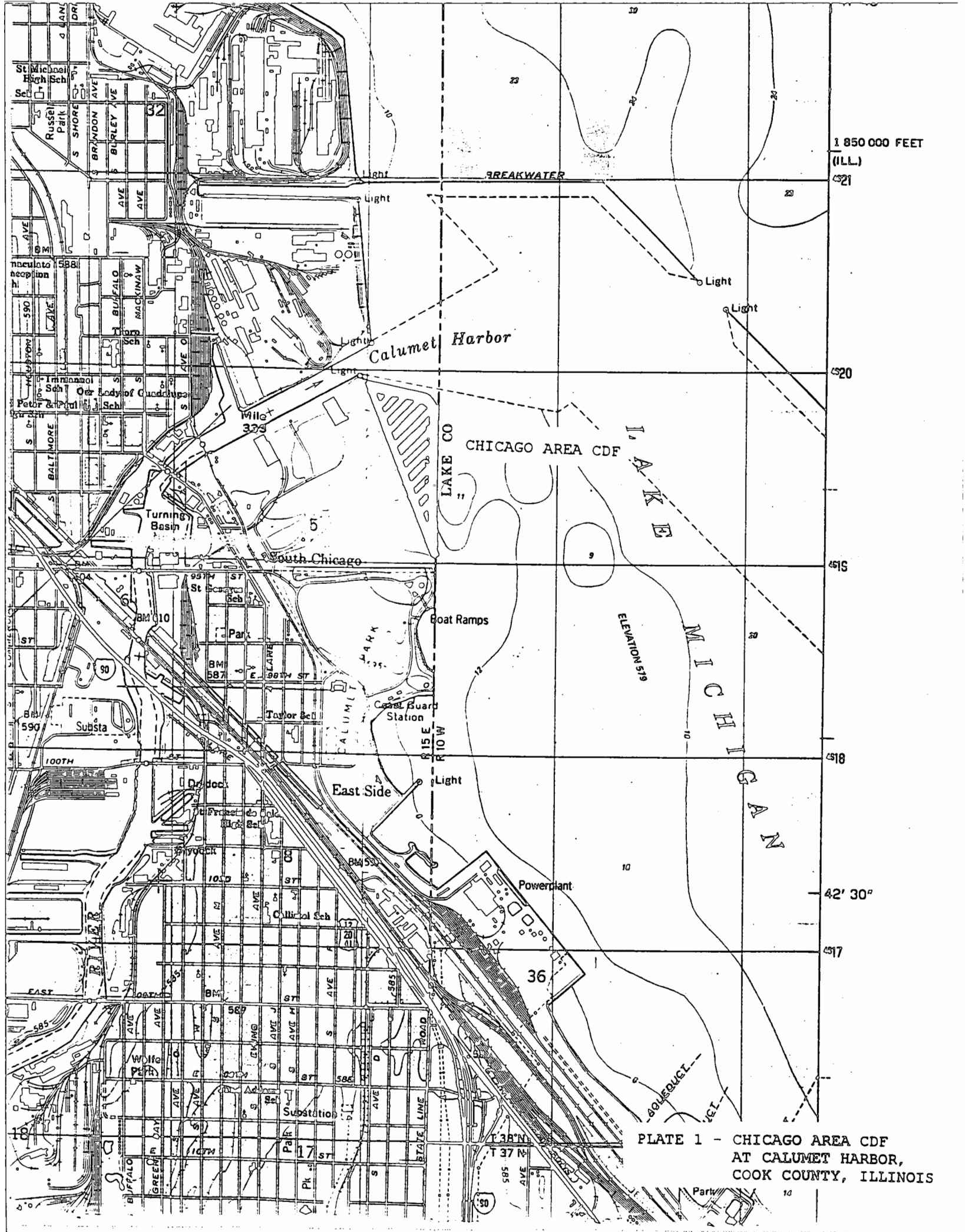


PLATE 1 - CHICAGO AREA CDF
AT CALUMET HARBOR,
COOK COUNTY, ILLINOIS

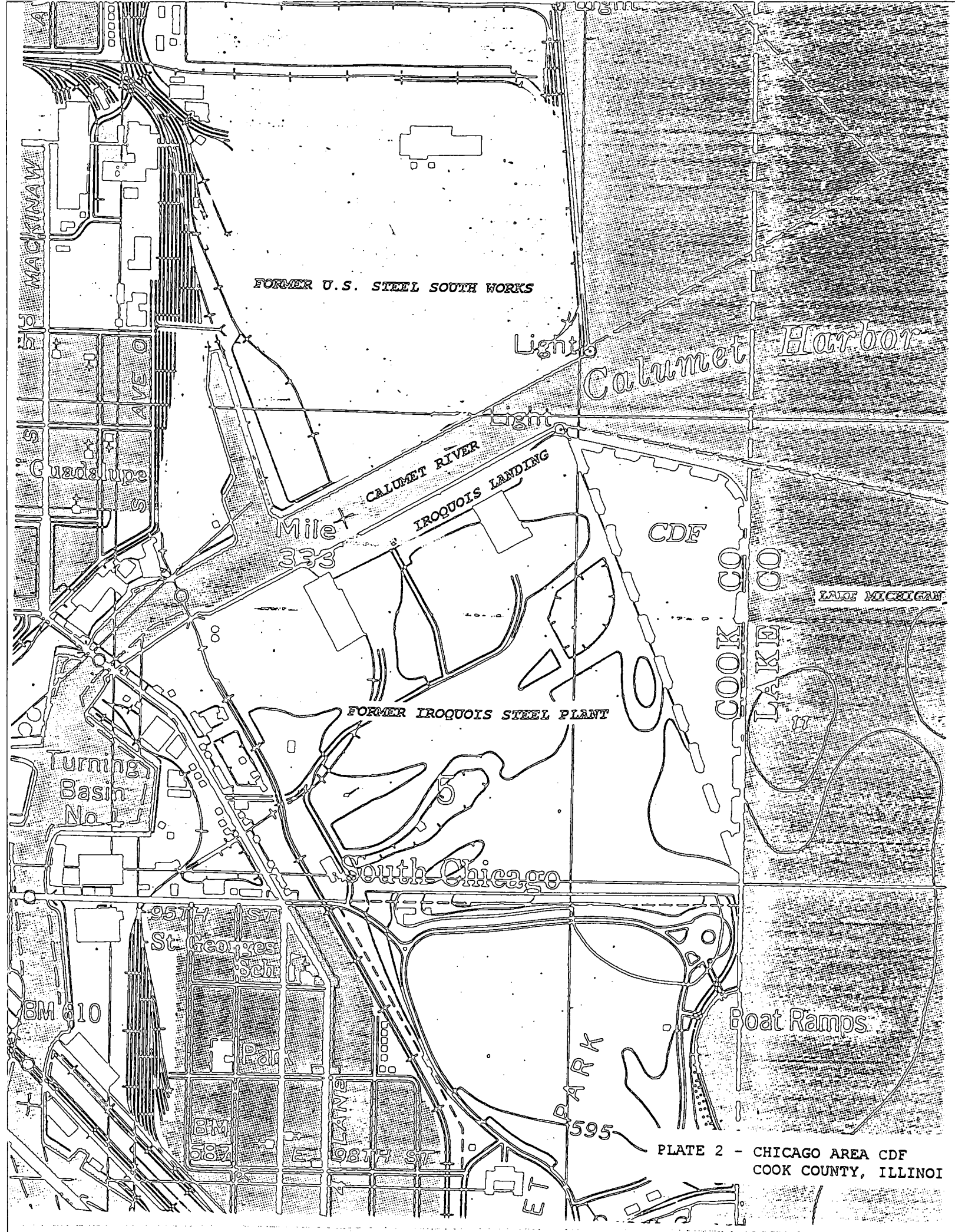
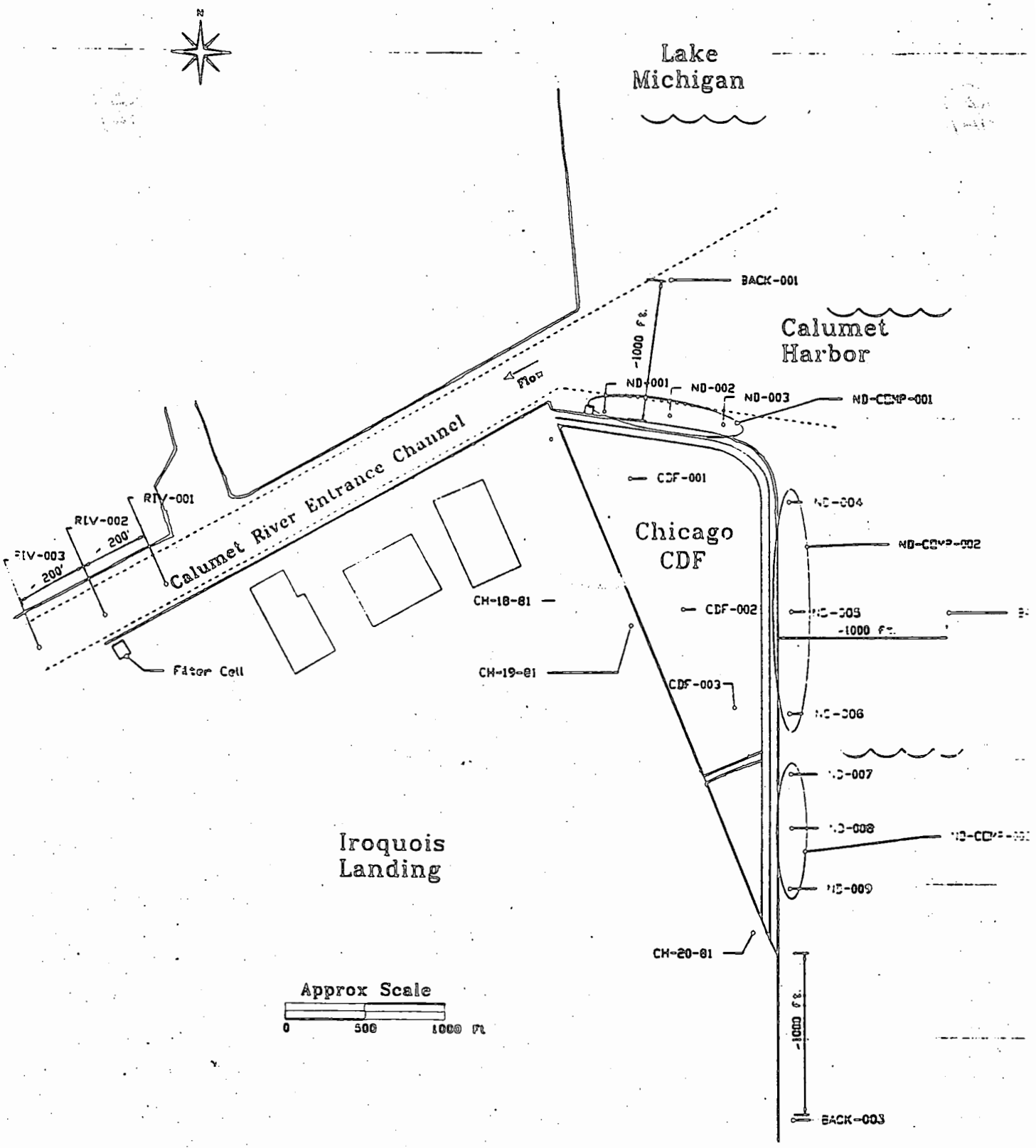
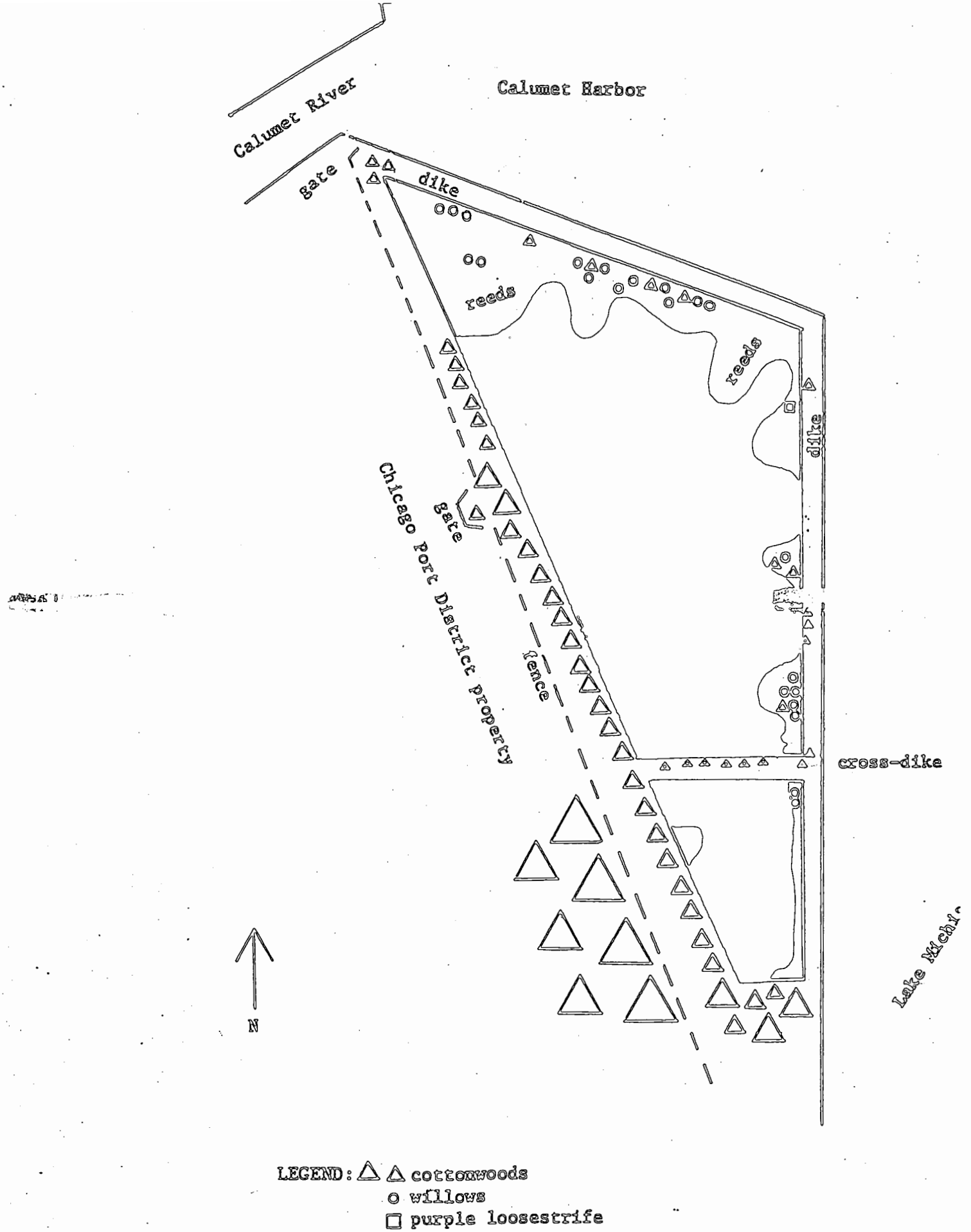


PLATE 2 - CHICAGO AREA CDF
COOK COUNTY, ILLINOI



Proposed Sampling Locations

PLATE 3 - MONITORING WELLS
CHICAGO AREA CDF
COOK COUNTY, ILLINOIS



LEGEND: △△ cottonwoods
o willows
□ purple loosestrife

PLATE 4 - TERRESTRIAL HABITAT
CHICAGO AREA CDF
COOK COUNTY, ILLINOIS

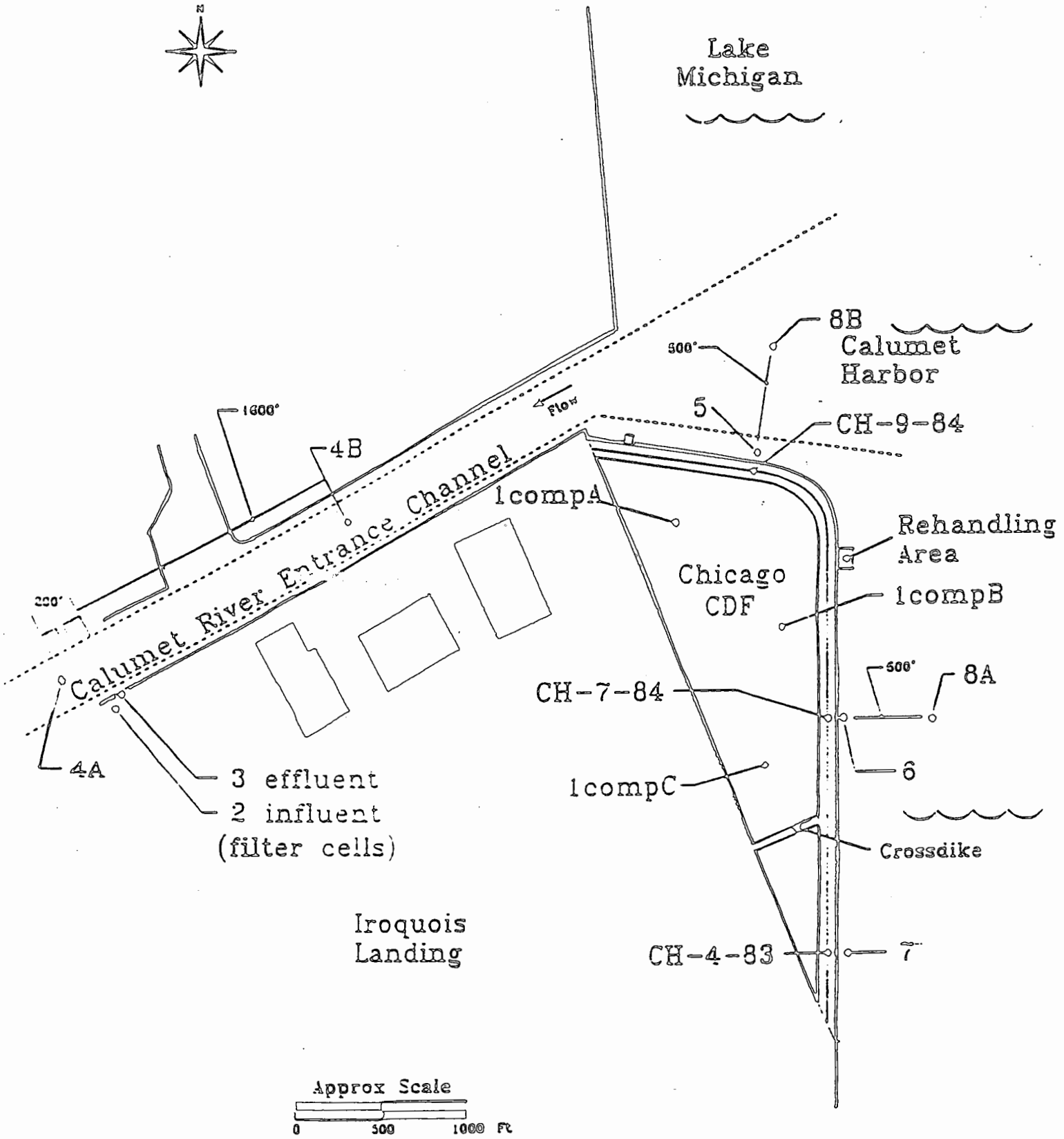


PLATE 5 - WATER QUALITY SAMPLE LOCATIONS
NOVEMBER 1995
CHICAGO AREA CDF
AT CALUMET HARBOR,
COOK COUNTY, ILLINOIS

ADDENDUM

TO

FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

FOR

CHICAGO AREA CONFINED DISPOSAL FACILITY

AT CALUMET HARBOR, CHICAGO,

COOK COUNTY, ILLINOIS

TABLE 6 - Water Quality Data and Standards: CDF, Calumet River, Calumet Harbor, and Lake Michigan

TABLE 7 - Sediment Characteristics for Dredging Events

(Tables 6 and 7 were accidentally omitted from the draft SEIS)

APPENDIX A

IEPA 401 WATER QUALITY PERMIT (1997)
AND
WATER QUALITY MONITORING PLAN

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 3213-97

PERMIT NO.: 1997-EA-3213

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Chicago District Corps of Engineers

DATE ISSUED: April 30, 1997

SUBJECT: Chicago District Corps of Engineers--Chicago Area Confined Disposal Facility

PERMITTEE TO OPERATE

Chicago District Corps of Engineers
111 North Canal Street
Chicago, IL 60606

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows:

The facilities include a 43 acre confined disposal facility (CDF) for dredged material from the Chicago and Calumet Rivers. The settling basin has a capacity of approximately 1.45 million gallons. The settling pond discharges to two (2) 34 foot diameter dual media filter cells, with discharge to the Calumet River.

This operating permit expires on April 1, 2002.

This permit is issued subject to the following Special Conditions(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: A pump with a capacity of 2250 gallons per minute shall be used during dredging operations to carry wastewater to the filter cells in order to reduce the volume within the CDF in direct proportion to the incoming sediment and wastewater volume during dredging and disposal events.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TGM:BY:

DIVISION OF WATER POLLUTION CONTROL

Thomas G. McSwiggin, P.E.
Manager, Permit Section

cc: IEPA, Maywood Region
Records
Binds

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 3231-97

PERMIT NO.: 1997-EA-3231

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS

DATE ISSUED: April 30, 1997

PREPARED BY: Chicago District Corps of Engineers

SUBJECT: Chicago District Corps of Engineers--Chicago Area Confined Disposal Facility

SPECIAL CONDITION 2: Monitoring shall be conducted in accordance with the Corps of Engineers report entitled "Water Quality Monitoring at the Chicago Area Confined Disposal Facility, Calumet Harbor, IL", submitted as part of the February 6, 1997 application. In addition to these monitoring parameters, the permittee shall monitor for:

i) temperature, in routine monitoring as specified in Section 5.2.1 of the above cited report; and

ii) polychlorinated biphenyls (PCBs), if dredged material from the Chicago River is disposed at the Chicago Area CDF, in accordance with the list of established "Target Parameters During Dredging Events" as specified under Section 5.2.2 of the above cited report.

SPECIAL CONDITION 3: Reports of all analytical results shall be submitted to the Illinois EPA on a monthly basis for hydraulic dredging operations and on an annual basis for mechanical dredging operations.

SPECIAL CONDITION 4: Upon completion, the site shall be covered with a five (5) foot thick clay and topsoil cap, graded to drain, and seeded and mulched to prevent erosion.

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes. Chapter 111-1 2. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protect Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit.

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit.

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit.

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants.

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the Agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rule or Regulation effective thereunder as a result of the construction or development authorized by this permit.

FEB 4 1997

Engineering Division

Mr. Thomas G. McSwiggin, P.E.
Illinois Environmental Protection Agency
Division of Water Pollution Control
P.O. Box 19276
Springfield, Illinois 62794

Reference: Chicago Area Confined Disposal Facility
Permit # 1992-EA-0476

Dear Mr. McSwiggin:

The U.S. Army Corps of Engineers (USACE), Chicago District operates the Chicago Area Confined Disposal Facility (CDF) under IEPA permit no. 1992-EA-0476 (Enclosure 1) and supplemental permit no. 1992-EA-0476-1 issued March 5, 1993 (Enclosure 2). The current permit was issued May 14, 1992 and is due to expire May 1, 1997. Along with seeking renewal of this permit, USACE is seeking agency approval of a modified water quality sampling plan that USACE believes will better monitor water quality in the vicinity of the CDF, and thereby, better protect the natural water resources in Calumet Harbor.

The attached Table 1 is a summary comparison of the current (permitted) monitoring plan, and the proposed monitoring plan. A detailed explanation of the proposed plan and justification for the proposed changes are contained in the enclosed report (Enclosure 3). In general, the proposed plan provides coverage of a wider area, standardizes sampling locations between routine and dredging event monitoring, and targets a smaller more meaningful parameter set for laboratory analysis during routine monitoring.

The proposed sampling program will provide a standardized data set for monitoring long and short term changes in contaminant concentrations in Calumet Harbor. Additionally, changes are proposed to the sampling locations in order to insure that all samples are collected from similar environments. This will allow for a more direct and useful comparison of contaminant concentrations between sampling locations.

Monitoring the water quality in the vicinity of the CDF has been a significant proportion of the operational costs of the CDF. The cost of water quality monitoring can account for over 50% of the CDF's routine operational and maintenance costs in a given fiscal year and was approximately 15% of the cost of the 1994 dredging operation in Calumet Harbor and Calumet River.

Due to budgetary restrictions, the funds available for operating, maintaining, and monitoring the CDF are becoming increasingly limited. The proposed changes to the monitoring plan will make more efficient use of the available funds, provide leak detection over a wider area, and also furnish a standardized, long-term data set that will be more useful in making statistical comparisons between sampling locations.

Finally, USACE requests a change in the wording of Special Condition 1 for the renewal of Water Pollution Control Permit no. 1992-EA-0476. Currently, special condition 1 reads, " A pump with a capacity of 2,250 gallons per minute will be used during dredging operations to carry wastewater to the filter cells, and in order to maintain operating levels within the CDF at or below the level of Lake Michigan." USACE requests a change in the special condition to read, "A pump with a capacity of 2,250 gallons per minute will be used during dredging and operations to carry wastewater to the filter cells in order to reduce the volume within the CDF in direct proportion to the incoming sediment volume during dredging and disposal events."

USACE requests that the changes described in the report be incorporated into the new water pollution control permit for the Chicago Area CDF to be issued before May 1, 1997. Please respond with any comments on or acceptance of the proposed changes by February 21, 1997. If you have any

questions concerning the enclosures please contact Scott Cieniawski at (312) 353-6400 extension 3111.

Sincerely,

15/

Joseph D. Jacobazzi, P.E.
Chief, Engineering Division

Enclosures
1. IEPA Water Pollution Control Permit No. 1992-EA-0476.
2. IEPA Water Pollution Control Permit No. 1992-EA-0476-1.
3. Report on "Water Quality Monitoring at the Chicago Area Confined Disposal Facility, Calumet Harbor, IL"

Cieniawski ext 3111
CENCC-ED-HE
CENCC-ED-H
CENCC-CO-O
CENCC-PD-S
CENCC-ED-E
CENCC-ED-A

Component	Current Plan	Proposed Plan
Sampling Frequency	Monthly, Quarterly, or Semi-Annually Depending on Target Parameter	Three times annually at all sampling locations
Sampling Locations (Routine Monitoring)	Six dike well samples, three landing well samples, and one near-dike sample[1] (Sampling environments are significantly different, no background samples are collected for comparisons)	Three background harbor samples, three Calumet River samples, three landing well samples, three samples from CDF pond, and three near-dike composite samples taken from a total on nine near-dike locations. (Sampling environments similar and background samples provided for comparisons)
Sampling Locations (Dredging Events)	Three shallow dike wells samples[1], three near-dike samples[1], two background samples[1], and one sample from the CDF pond	SAME AS ROUTINE MONITORING
Target Parameters (Routine Monitoring)	TSS, pH, temperature, ammonia-nitrogen, cyanide, mercury, nickel, copper, arsenic, TKN, phosphorus, oil and grease, lead, zinc, PCBs, manganese, chromium, cadmium	TSS, TDS, pH, ammonia-nitrogen, phosphorus, TKN, zinc, manganese, chromium (total), temperature
Target Parameters (Dredging Events)[2]	TSS, pH, temperature, ammonia-nitrogen, cyanide, mercury, nickel, copper, arsenic, TKN, phosphorus, oil and grease, lead, zinc, PCBs, manganese, chromium, cadmium, hardness, dissolved oxygen	TSS, pH, temperature, ammonia-nitrogen, cyanide, mercury, nickel, copper, arsenic, TKN, phosphorus, oil and grease, lead, zinc, manganese, chromium, cadmium, hardness, dissolved oxygen
Water Elevations	Monthly levels recorded for landing wells, continuous data collected for CDF pond and Calumet Harbor	Landing well elevations recorded three times annually, continuous data collected for CDF pond and Calumet Harbor

Notes: (1) Sampling location are currently monitored, but are not required by the permit

(2) Weekly sediment samples will be collected during dredging/disposal events and analyzed for total volatile solids, ammonia-nitrogen cyanide, mercury, nickel, copper, arsenic, cadmium, barium, phosphorus, oil&grease, iron, lead, zinc, PCBs, manganese, chromium, TKN, and chemical oxygen demand

Table 1. Comparison of Current and Proposed Monitoring Plans for the Chicago Area CDF

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 0476-92 PERMIT NO.: 1992-EA-0476

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers

DATE ISSUED: May 14, 1992

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility

PERMITTEE TO OPERATE
Chicago District Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606

Permit is hereby granted to the above designated permittee to operate water pollutio control facilities described as follows:

The facility is a 43 acre confined disposal facility for dredged material from the Chicago and Calumet Rivers. The settling basin has a capacity of approximately 1.45 million gallons. The settling pond discharges to two (2) 34 foot diameter dual medi filters cells, with discharge to the Calumet River. The facility is monitored by eight (8) monitoring wells.

This Operating Permit expires on May 1, 1997.

This Permit renews and replaces Permit Number 1987-EA-2851 which was previously issued for the herein permitted facilities.

This Permit is issued subject to the following Special Condition(s). If such Specia Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: A pump with a capacity of 2250 gallons per minute will be use during dredging operations to carry wastewater to the filter cells, and in order to maintain operating levels within the CDF at or below the level of Lake Michigan.

Continued on Page 2

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TGM:BY:bjh/1459r/32,34
cc: EPA - Maywood Region
Chicago District Corps of Engineers
Records
Binds

DIVISION OF WATER POLLUTION CONTROL

Thomas G. McSwiggin, P.E.
Manager, Permit Section

IL 532-0009
WPC 146 (Rev. 2/82)

Enclosure 1

LOG NUMBERS: 0476-92 PERMIT NO.: 1992-EA-0476

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers DATE ISSUED: May 14, 1992

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility

SPECIAL CONDITION 2: Monitoring shall be in accordance with the following:

i. Monitoring wells CH-18-81, CH-19-81 and CH-20-81 shall be monitored on a quarterly basis for:

total suspended solids
total dissolved solids
pH
temperature
hardness
ammonia-nitrogen (as N)
phosphorus (total)
oil and grease
iron
lead
zinc
cyanide
polychlorinated biphenyls

ii. All other monitoring wells shall be monitored on a monthly basis for:

total suspended solids
pH
temperature
ammonia-nitrogen (as N)
mercury
total Kjeldahl nitrogen
phosphorus (total)
oil and grease
zinc
polychlorinated biphenyls
manganese

These wells shall also be monitored quarterly for:

arsenic
cadmium
cyanide
chromium
copper
lead
nickel

iii. Surface water shall be monitored on a weekly basis for:

total suspended solids
pH
temperature
ammonia-nitrogen (as N)
cyanide
mercury
nickel
copper
arsenic
total Kjeldahl nitrogen
phosphorus (total)
oil and grease
lead
zinc
polychlorinated biphenyls
manganese
chromium
cadmium
dissolved oxygen

LOG NUMBERS: 0476-92 PERMIT NO.: 1992-EA-0476

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS DATE ISSUED: May 14, 1992
PREPARED BY: Chicago District Corps of Engineers

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility

iv. Monitoring of the dredged sediments shall involve analysis of one sample collected for each day that water quality sampling is done during dredging operations. Parameters for sediment analysis shall include:

total volatile solids	phosphorus (total)
ammonia-nitrogen (as N)	oil and grease
cyanide	iron
mercury	lead
nickel	zinc
copper	polychlorinated biphenyls
arsenic	manganese
cadmium	chromium
barium	total Kjeldahl nitrogen
chemical oxygen demand	

v. Reports of all analyses shall be submitted to the Agency on a monthly basis.

SPECIAL CONDITION 3: Upon completion, the site shall be covered with a five (5) foot thick clay and topsoil cap, graded to drain and seeded and mulched to prevent erosion

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2517-93 PERMIT NO.: 1992-EA-0476-1

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Chicago District Corps of Engineers

DATE ISSUED: March 5, 1993

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS - Chicago Area Confined Disposal Facility

PERMITTEE TO OPERATE
Chicago District Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606

Supplemental permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities, which were previously approved under Permit # 1992-EA-0476.
Special Conditions 2iii and 2v are revised as follows:

Special Condition 2iii: Surface water shall be monitored on a weekly basis when discharges occur for:

total suspended solids
pH
temperature
ammonia-nitrogen (as N)
cyanide
mercury
nickel
copper
arsenic
total Kjeldahl nitrogen
phosphorus (total)
oil and grease
lead
zinc
polychlorinated biphenyls
manganese
chromium
cadmium
dissolved oxygen

Special Condition 2v: Reports of all analyses shall be submitted to the Agency on monthly basis for hydraulic dredging operations and on an annual basis for mechanical dredging operations.

All Special Conditions on the original permit issued are also applicable to this permit unless specifically deleted or revised in this permit.

This Operating Permit expires on May 1, 1997.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TCH:BY:ct,393v,19
cc: EPA - Region
Chicago Dist. Corps of Engr.
Record
Files

DIVISION OF WATER POLLUTION CONTROL

Thomas G. McSwiggin, P.E.
Manager, Permit Section

IL 532-0009

Enclosure 2

FEB 06 1997

Water Quality Monitoring at the Chicago Area Confined Disposal Facility, Calumet Harbor, IL

1. Purpose

Since the construction of the Chicago Area confined disposal facility (CDF) in 1982-1984, the U.S. Army Corps of Engineers (USACE), Chicago District has collected water quality samples in the vicinity of the CDF in order to monitor the CDF's impact on water quality in the harbor. Based on the data collected to date, USACE believes that the sampling program for the Chicago CDF can be improved. This report summarizes the historical water quality sampling program for the Chicago CDF, discusses some weaknesses in the design of the current sampling program, and details a modified sampling program that will address the weaknesses of the old plan and is believed to better monitor, and thereby, protect the natural water resources in Calumet Harbor.

2. Background

The Chicago Area CDF is a diked facility for the disposal and containment of polluted dredged materials from the deep-draft federal navigation projects in Chicago, Illinois. The Chicago Area CDF is an in-water structure specifically designed to receive polluted dredged materials and to prevent their reentry into the harbor. The CDF was constructed in 1982-1984 and is located in Calumet Harbor, adjacent to the Iroquois Landing port terminal and north of Calumet Park. The facility is operated and maintained by USACE, Chicago District under the authority of Public Law 91-611, Section 123.

Since the construction of the CDF, USACE Chicago District has monitored water quality in the vicinity of the facility in compliance with Section 401 certification requirements and the applicable Illinois Environmental Protection Agency water pollution control permit. The current water permit, number 1992-EA-0476, was issued May 14, 1992 with supplemental permit special conditions 2iii and 2v issued March 5, 1993. The current permit will expire May 1, 1997.

3. Historical Water Quality Monitoring in Calumet Harbor

Historically, there have been two distinct schedules for water quality monitoring in conjunction with Chicago Area CDF. Routine monitoring takes place on a set schedule (monthly, quarterly, or semi-annually based on sampling location and sample parameter) throughout the year. Additionally, during U.S. Army Corps of Engineers managed dredging events an intensified sampling program is instituted in order to better observe the impact that dredging and disposal

Enclosure 3

events have on water quality in the harbor. Specifics of the routine and event-based monitoring programs are discussed in the following subsections.

3.1 Routine Water Quality Monitoring Program

Routine monitoring throughout the year consists of obtaining samples from nine (9) monitoring wells and one (1) surface water station (see Figure 1) for the parameters and according to the sampling schedule shown in Table 1. Routine water quality samples are collected from six (6) wells in the CDF dike wall, three (3) landing wells, and one (1) near-dike surface water station.

3.2 Water Quality Monitoring During Dredging Events

The dredging and disposal events present the greatest opportunity for impact to water quality in Calumet Harbor. Because of this opportunity for impact, a separate monitoring program is instituted during dredging events in Calumet Harbor. The dredging event sampling program is conducted in order to establish the water quality before, during, and after the dredging event. Monitoring is conducted at the stations shown in Figure 2 according the schedule given below.

1. For two weeks before and two weeks after the dredging event water quality samples are collected twice-a-week, and
2. During dredging, samples are collected on a once-a-week schedule except for one week of twice-a-week sampling.

Water quality samples are collected from three (3) in-harbor, near-dike locations, two (2) river samples, three (3) wells in the CDF dike wall, two (2) background samples, and one (1) composite sample is collected from the CDF.

Station 1 is a composite sample from the CDF pond. Stations 2 and 3 test the filter cell influent and effluent respectively in order to determine the efficiency of the filtration process. Stations 4A and 4B are river samples used to analyze the impact of the filter cell effluent on river water quality. Samples 5, 6, and 7 measure the impact of the CDF and the rehandling operation on water quality near the dike. Stations CH-09-84, CH-07-84, and CH-04-84 are shallow wells that are monitored for indication of any contaminant breach through in the dike walls. Finally, Stations 8A and 8B are background samples, outside the range of influence of the CDF, that are used for comparison purposes.

Additionally, water samples are collected from around the dredging and rehandling areas and analyzed for total suspended solids (TSS) in order to assess the performance of the dredging program during the dredging and rehandling

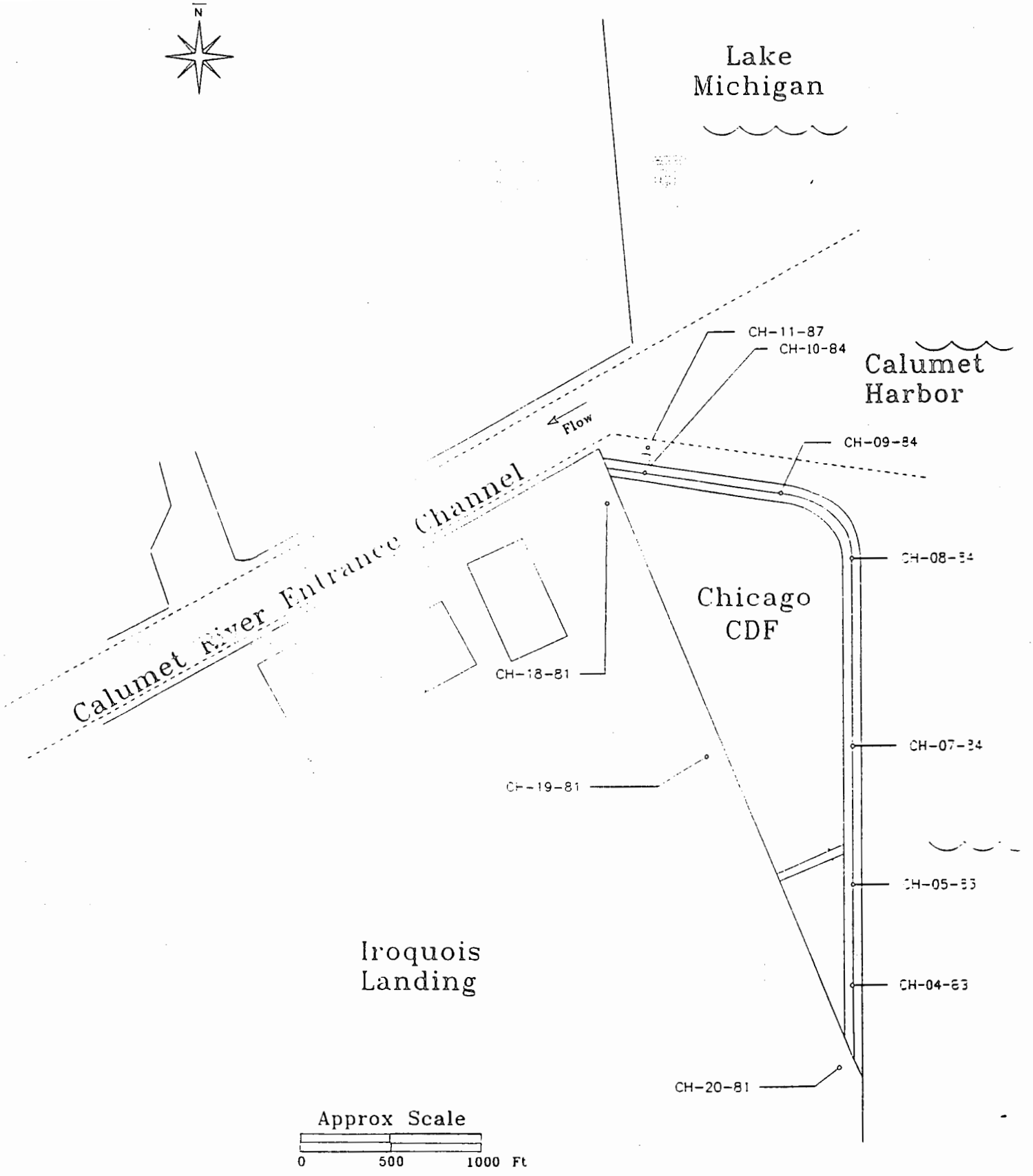


Figure 1. Current Sampling Locations during Routine Monitoring.

Parameter	Dike Wells CH-4,5,7,8,9,10	Landing Wells CH-18,19,20	Surface Station CH-11[2]
Total Suspended Solids (Residue, Non-Filterable)	M	S	M
Total Dissolved Solids - 180° (Residue, Filterable)		S	
pH (field)	M	Q	M
Temperature (field)	M	Q	M
Dissolved Oxygen			
Hardness (total as $CaCO_3$)		S	
Ammonia-Nitrogen (Dissolved NH3-N)	M	S	M
Phosphorus (total)	M	S	M
Oil and Grease (Freon-IR)	M	S	M
Iron (dissolved)		S	
Lead (dissolved)	S	S	M
Zinc (dissolved)		S	M
Cyanide (total)	S	S	M
PCBs (total) (wells 0.1 µg/L)	M	S	M
Mercury (dissolved)	M		M
Manganese (dissolved)	M		M
Arsenic (dissolved)	S		M
Cadmium (dissolved)	S		M
Chromium (dissolved)	S		M
Copper (dissolved)	S		M
Nickel (dissolved)	S		M
Total Kjeldahl Nitrogen (as N)	M		M

Note: 1. Frequency monitored (M = Monthly, Q = Quarterly, S = Semi-Annually)
2. Harbor water surface station samples taken directly from dock.

Table 1. Current Monitoring Schedule for the Chicago CDF

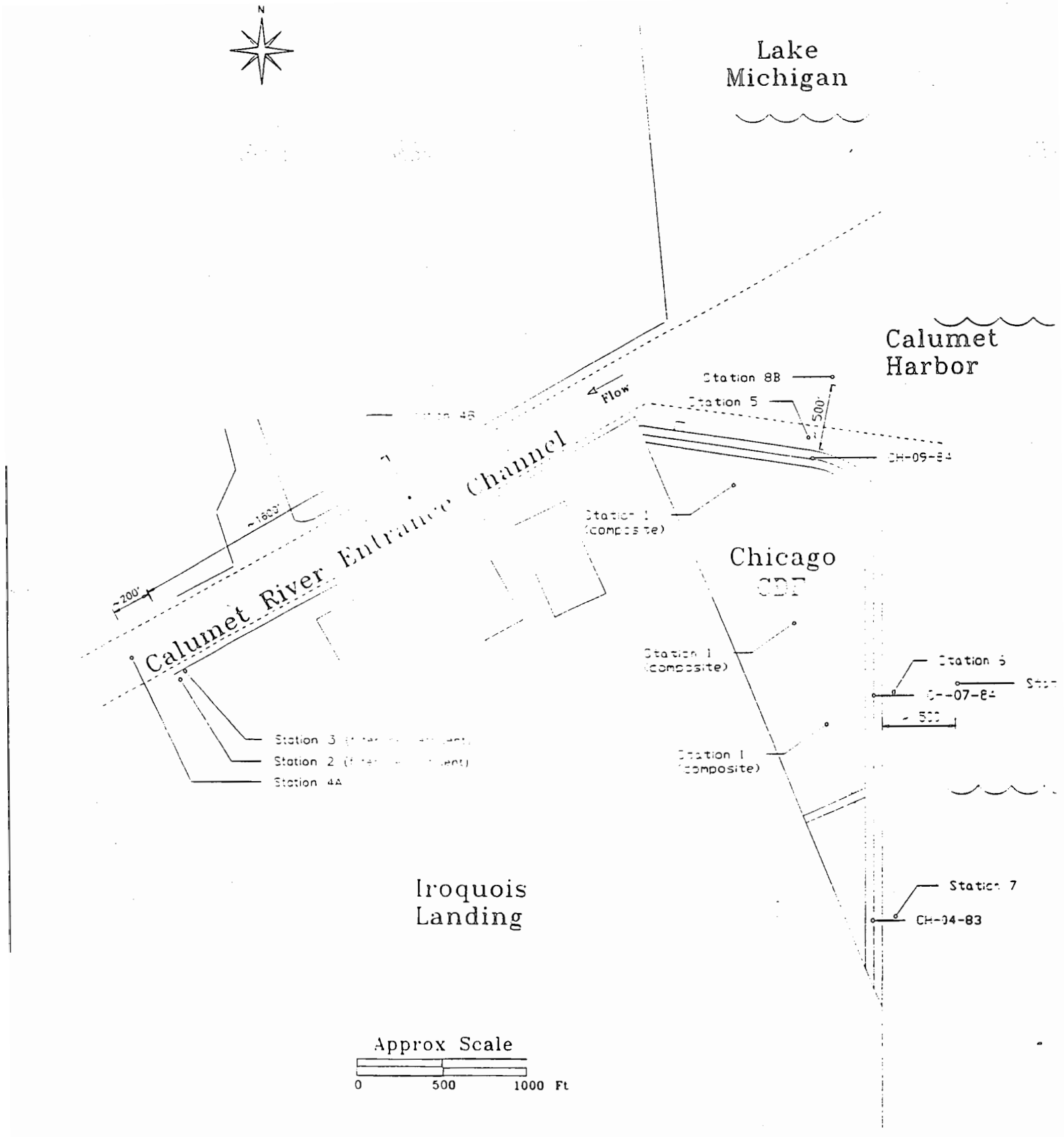


Figure 2. Current Sampling Locations during Dredging/Disposal Events.

operations. During dredging operations, TSS samples are collected once a week from the sampling locations shown in Figure 3.

3.3 Summary of Results from Historical Monitoring Program

USACE has submitted yearly reports to IEPA detailing the results of the sampling operations. Sporadic spikes in contaminant concentrations have been noted at several of the sampling locations, including background stations located well outside the CDF's zone of influence. However, to date, there has been no indication that the operation of the CDF has had a negative impact on the water quality of Calumet Harbor. Additionally, the large number of "non-detects" in the data sets hamper statistical analysis of the data that has been gathered to date.

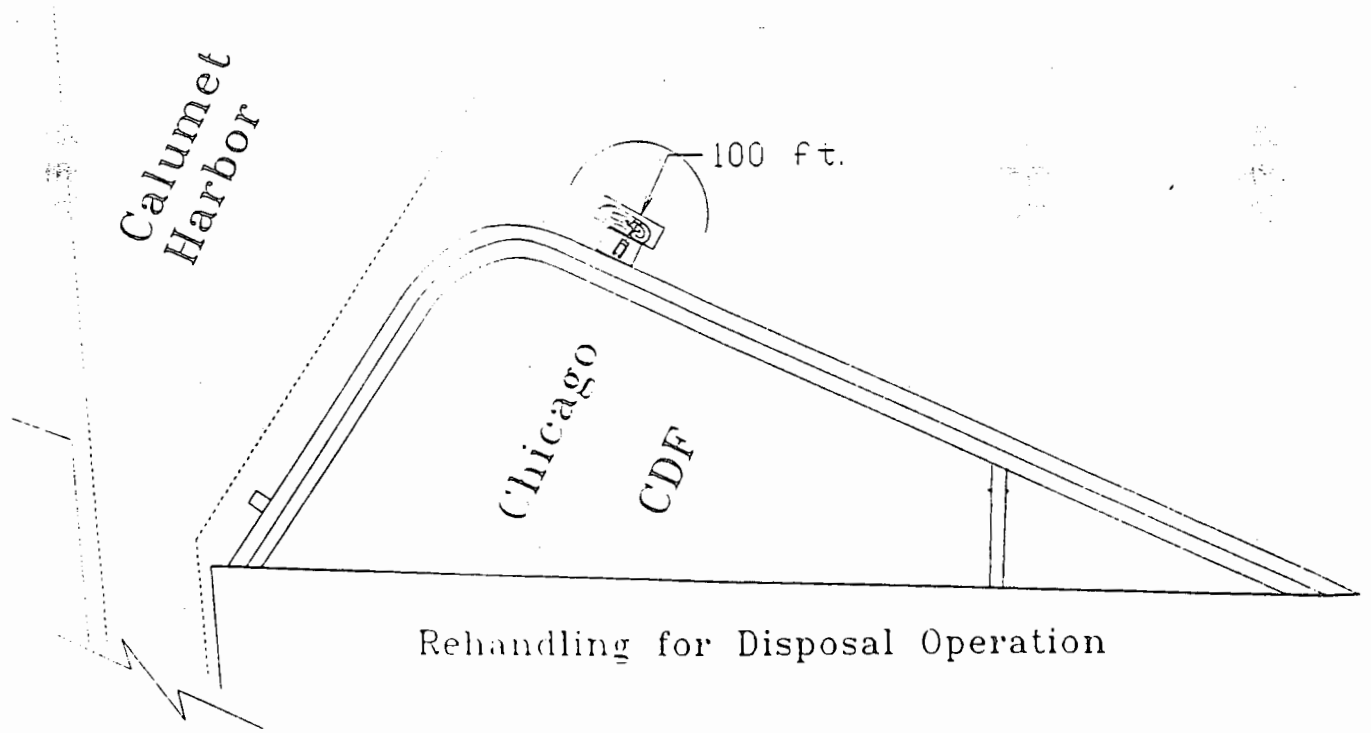
Analytical results from TSS monitoring during the five dredging events indicate that the re-suspension of solids that occurs during the dredging and rehandling operations is a localized, short-term impact. TSS data indicate that this impact quickly decreases with time and distance from the work zones.

4 Deficiencies in the Design of the Current Monitoring Program

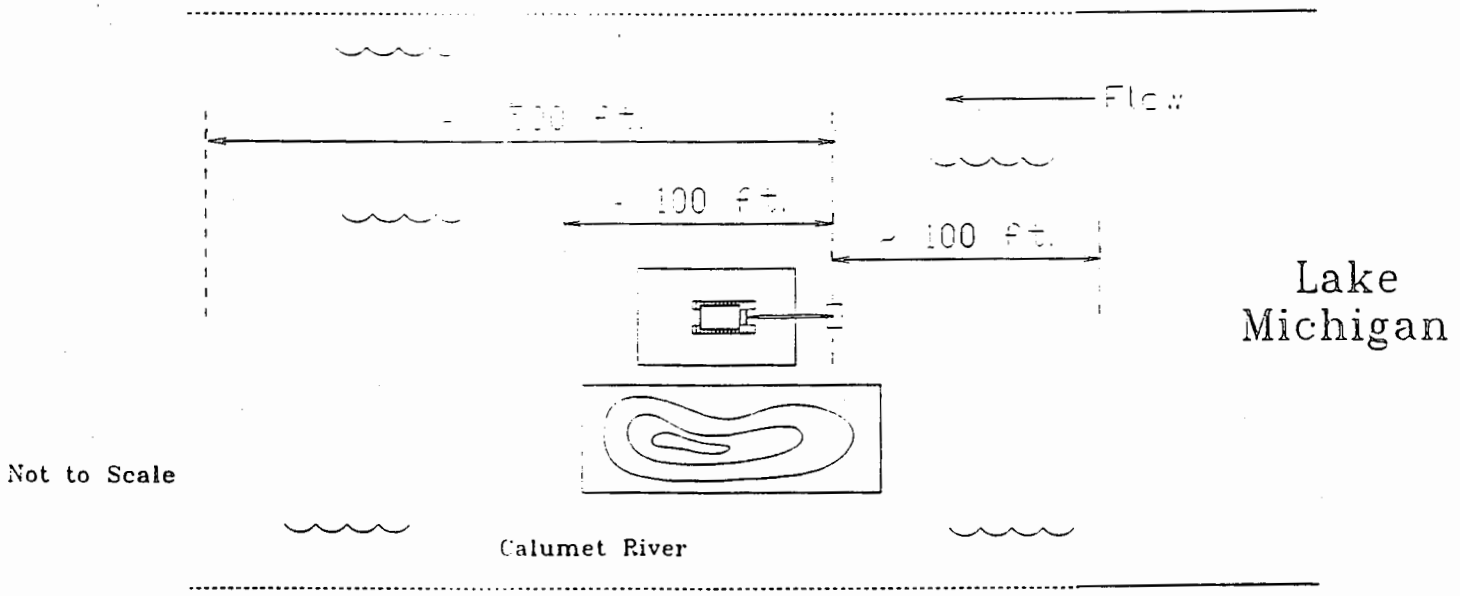
Several shortcomings in the design of the current monitoring programs limit the ability to perform meaningful, statistical comparisons across sampling locations and sampling events. The major deficiencies of the current program include:

1. Differences in the sampling environments at the various sampling locations make it difficult to make statistical comparisons between sampling locations. Due to the differences in sampling environments present in the dike wells versus background harbor samples, (i.e., "pseudo-groundwater" vs. surface water) it is problematic to identify the cause of any differences that might appear. The water quality in the shallow wells is potentially impacted by Harbor water quality, CDF water quality, and the limestone environment of the dike where the wells are finished. The differences in sampling environments make it difficult to ascertain the cause of any differences in contaminant concentration at the various sampling locations and complicate a direct statistical comparison between the data sets collected at the different locations.

2. Sampling locations are different during dredging events than during routine monitoring. Varying the sampling locations prevents the collection of a standardized long-term data set. This hampers the ability of the sampling program to detect any long-term changes in the water quality in Calumet Harbor.



Rehandling for Disposal Operation



Dredging Operation

Figure 3. TSS Monitoring Locations during Dredging/Rehandling Operati

3. The large number of non-detect results from sample analysis complicates quantitative statistical comparisons. As can be seen from the calculations performed in *USACE* (1995), a large number of data transformations are required in order to compare data sets with large proportions of "non-detect" data. This results in less powerful statistical comparisons. Additionally, the large number of "non-detects" are evidence that: (1) the CDF is performing its function of preventing the release of sediment into the harbor, and (2) the current sampling program is inefficient in terms of the quality of data collected.

4. Monitoring wells placed within the perimeter dike can potentially miss any discrete contaminant plumes that might occur. Research by *Pranger and Schroeder* (1986) showed that seepage through the dike walls of shoreline CDFs occurs in discrete fingers. This being the case, monitoring wells placed within the perimeter dike can potentially miss any of the discrete contaminant plumes that might occur.

5. The dike wells are susceptible to vandalism and damage. In an effort to deter vandalism of the monitoring wells at the site, USACE installed locking caps installed on each of the wells and erected a 10-foot high chain link fence around the site. Even after instituting these protective measures, the dike wells have be the target of vandalism throughout the life of the CDF. A wide variety of items have been dropped and poured down the wells adversely affecting the ability to collect samples and the validity of laboratory analysis. This diminishes the usefulness and power statistical comparisons between the water samples taken from the wells and the background locations.

6. No background samples are collected during routine monitoring for comparison to the other sampling locations. This shortcoming prevents analysis of natural and man-induced variances in Calumet Harbor water quality. This prevents determining if the CDF is the cause of any changes in water quality that may occur.

Differing sampling environments and the varying environmental influences have made it difficult to definitively ascertain the effect, if any, the CDF has had on water quality in the harbor. This limits the effectiveness of the current sampling program as a leak detection tool. Additionally, there are several inefficiencies inherent in the current monitoring program that can be avoided by implementing modifications to the Chicago CDF monitoring plan. The changes will result in a more efficient monitoring plan that will increase the probability of detecting any releases that may occur.

5. Proposed Monitoring Plan with Modifications

After analyzing and assimilating the water quality data that has been collected to date, USACE, Chicago District believes that a more meaningful, cost effective, and efficient routine monitoring plan should be implemented for monitoring the Chicago CDF. This section discusses the proposed changes to both the routine and dredging event monitoring programs for the Chicago CDF. Implementing these changes will increases the probability of detecting a release from the CDF and furnish a standardized, long-term data set for performing statistical analysis. The new monitoring program will also provide better insight into the long-term impact of the CDF on Calumet Harbor water quality and better protect the natural resources of Calumet Harbor.

5.1 Proposed Sampling Locations

The proposed locations for collection of both routine monitoring and dredging event samples are shown in Figure 4. The new sampling locations include:

1. Three (3) individual CDF stations, CDF-001, CDF-002, and CDF-003,
2. Three (3) near-dike composite samples, ND-COMP-001, ND-COMP-002, and ND-COMP-003 composited from nine near-dike sampling locations ND-001, ND-002, ND-003, ND-003, ND-004, ND-005, ND-006, ND-007, ND-008, and ND-009. The near-dike stations will be located in the harbor, near enough to the dike wall to obtain a representative sample, but at an appropriate distance to maintain safety and to avoid contamination of the samples by fines and solids washing off of the dike wall.
3. Three (3) landing well locations, CH-18-81, CH-19-81, and, CH-20-81.
4. Three (3) background sampling locations, BACK-001, BACK-002, and BACK-003. Two of the background stations will be located in the harbor approximately 1000' from the dike wall and the third background station will be located approximately 1000' south of the CDF and 50' offshore of the landing.
5. Three (3) river sampling locations, RIV-001, RIV-002, and RIV-003. The river samples would be located 200' upstream of the filter cell effluent, at the filter cell effluent, and 200' downstream of the filter cell effluent, respectively.

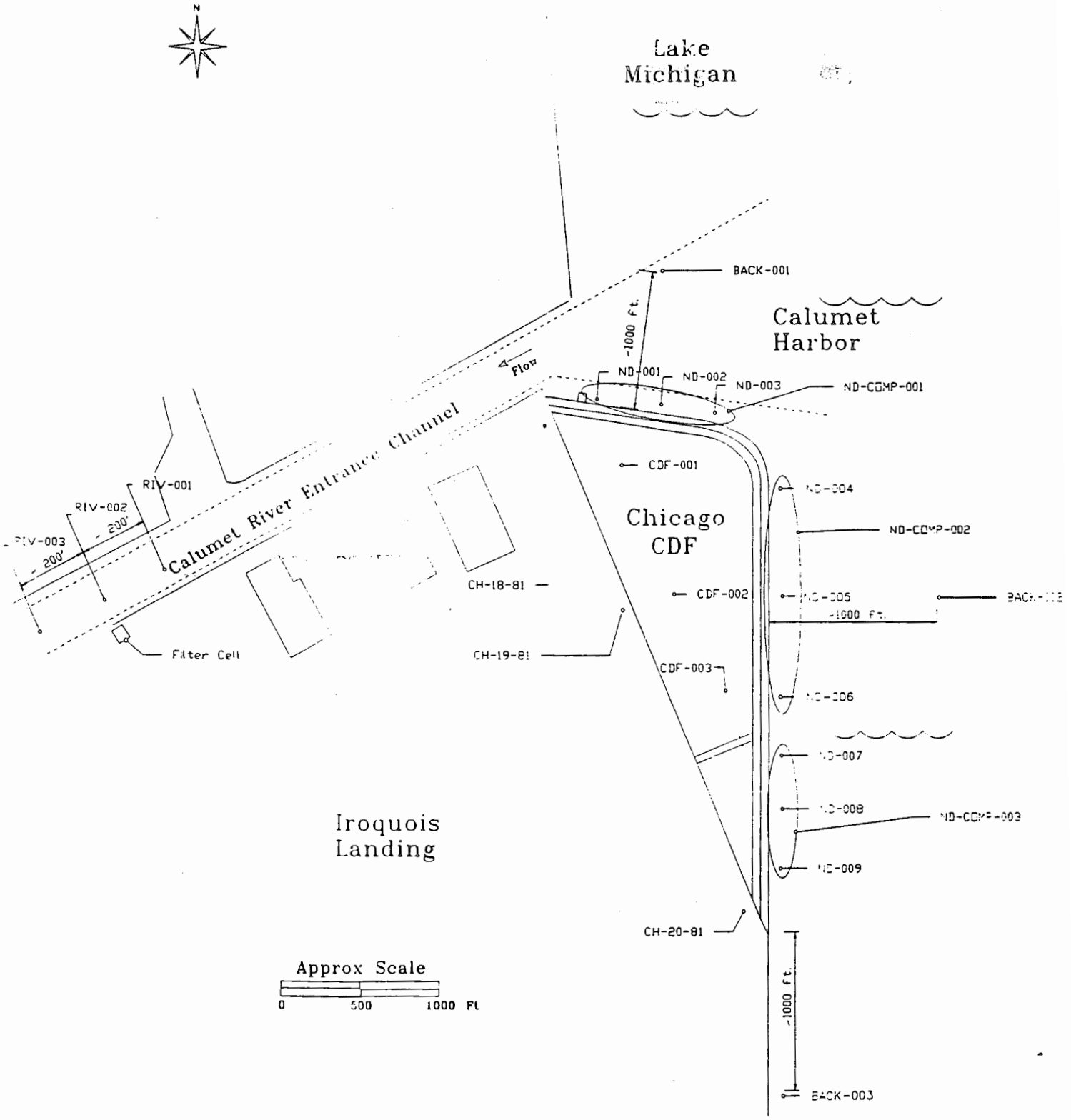


Figure 4. Proposed Sampling Locations during Routine Monitoring and Dredging E.e

5.2 Proposed Target Parameters and Required Detection Limits

5.2.1 Target Parameters During Routine Monitoring

A major shortcoming in the current monitoring program for the Chicago CDF is the large number of "non-detect" results present in the data sets collected to date. The "non-detects" have made it difficult to directly compare data from the various sampling locations. This makes it difficult to quantify the impact of the CDF on Calumet Harbor water quality and to detect a breach of the CDF. Additionally, the large number of non-detects is an indication that the current monitoring program is inefficient in terms or costs and the amount of information it provides.

In order to provide a standardized water quality data set and allow for more meaningful comparisons between sampling locations, USACE proposes targeting sample analysis to the smaller, more meaningful parameter set during routine monitoring. Based on historical results, chromium, manganese, zinc, phosphorus, ammonia, and total kjeldahl nitrogen (TKN) are the contaminants most likely to occur at detectable levels at all sampling locations. Therefore, it would be expected that monitoring the concentrations of these six contaminants could provide an indication of contaminant migration from the CDF. Contaminant concentrations significantly above background levels could be an indication of a leak or release from the CDF. Additionally, large differences in pH levels, total suspended solids (TSS), and/or Total Dissolved Solids (TDS) concentrations could indicate potential problems with the performance of the CDF.

The proposed parameter set is listed in Table 2 along with their corresponding RDLs. The parameter list contains three metals, three nutrients, and three general water quality parameters. This new parameter set and corresponding RDLs should provide a more complete and useful data set for quantitative analysis and statistical comparisons between sampling locations.

5.2.2 Target Parameters During Dredging Events

Due to the potential for impact during dredging events, the samples will be analyzed for a more comprehensive parameter list. Samples will be analyzed for each of the parameters listed in Table 3. RDLs are also listed for each parameter.

Parameter	Required Detection Limit (mg/L)
Chromium (total)	0.005
Manganese (total)	0.005
Zinc (total)	0.005
Ammonia as Nitrogen	0.01
Phosphorus	0.005
Total Kjeldahl Nitrogen (as N)	0.2
pH	1.0 - 14.0
Total Suspended Solids	5.0
Total Dissolved Solids	5.0

Table 2. Proposed Parameters List for Routine Monitoring

Parameter	Required Detection Limit (mg/L)
Parameter from Routine Monitoring	
Chromium (total)	0.005
Manganese	0.005
Zinc	0.005
Ammonia as Nitrogen	0.01
Phosphorus	0.005
Total Kjeldahl Nitrogen (as N)	0.2
pH	±0.01 units
Total Suspended Solids	5.0
Total Dissolved Solids	5.0
Additional Parameters	
Arsenic (total)	0.002
Cadmium (total)	0.02
Copper (total)	0.02
Cyanide (total)	0.01
Lead (total)	0.005
Mercury (total)	0.0002
Nickel (total)	0.02
Oil & Grease	5.0
Temperature	±0.1 °C
Dissolved Oxygen	±0.1 mg/L
Hardness	10.0

Table 3. Proposed Parameters List and RDLs for Dredging Event Monitoring

5.3 Sampling Frequencies

5.3.1 Sampling Frequencies During Routine Monitoring

USACE has collected routine water quality samples since 1986. The results of this monitoring indicate that the CDF is performing its task of retaining dredged materials within the boundaries of the facility. Additionally, there is no indication that the CDF is adversely impacting the water quality of Calumet Harbor. As noted earlier, the current monitoring plan has several deficiencies and inefficiencies, and the current sampling frequencies (monthly) are excessive and overly costly.

Considering the monitoring results from the period of record (10 years) and a significant safety concern with collection open water samples from the lake and CDF dike wall during winter months, the USACE proposes collecting water quality samples for CDF monitoring three times per year. Approximate dates of sample collection would be March-April, July-August, and November-December. All sampling locations (Near-Dike, Background, River, CDF, and Landing Wells) will be sampled during these three, yearly sampling events.

5.3.2 Sampling Frequencies During Dredging Event Monitoring

Due to the potential for impact during dredging events a more comprehensive sampling program should be implemented during dredging events than during routine monitoring. The sampling locations would be sampled according to the frequencies outlined below:

1. For two weeks before and two weeks after the dredging event water quality samples are collected twice-a-week, and
2. During dredging, samples are collected on a once-a-week schedule except for two consecutive weeks of twice-a-week sampling (scheduled at the approximate half-way point of the dredging event).

These samples will be analyzed for the comprehensive list of contaminants and water quality parameters listed in Table 3.

5.4 Additional Data Collection

5.4.1 Groundwater Elevations

Groundwater elevation data from the Iroquois Landing monitoring wells has been collected to determine the direction of groundwater flow between the

landing and the CDF pond. Historical groundwater elevations and lake and CDF pond water levels indicate that groundwater flow has been from Iroquois landing towards the CDF pond and Calumet Harbor. Water level measurements will be collected from the landing wells (CH-18-81, CH-19-81, and CH-20-81) during the monitoring events. These elevations will be compared to the CDF pond and Lake Michigan water elevations in order to determine the direction of flow between landing groundwater, the CDF pond, and Calumet Harbor.

5.4.2 Total Suspended Solids Monitoring During Dredging Events

In order to continue to assess the performance of the dredging operation during the dredging and rehandling of sediment, water quality samples will be collected around the dredging and rehandling areas and analyzed for total suspended solids (TSS). During dredging, TSS samples will be collected once a week from the same sampling locations shown in Figure 3.

5.5 Reporting

Yearly reports documenting the results of the routine monitoring program will be submitted to IEPA. Additionally, a separate report for each dredging event will be prepared to document the results of monitoring during dredging in order to assess the performance of the dredging operations

6. Advantages of the New Sampling Program

The new sampling locations would have several major advantages over the current sampling locations.

1. An important advantage of the new sampling program is that the sampling locations will be standardized across routine monitoring and dredging events in order to provide a uniform, long-term data set for quantitative analysis. Standardization of the sampling locations will also allow for comparisons of contaminant concentrations during dredging and non-dredging events.

2. The use of three (3) near-dike composite samples from nine (9) near-dike sampling locations in place of the dike well locations has two advantages over the current plan. First, the nine (9) sampling locations provides a greater area of coverage than the three (3) dike wells. This addresses the problem of discrete fingers of contaminant plumes as discussed in *Pranger and Schroeder* (1986). Second, using near-dike stations allows for plume dispersion (if the dike wall is

breached), thereby increasing the probability of detecting a release at one of the sampling locations. Using near-dike stations also would constitute a mixing zone allowance as provided for in Section 131 of Act 40 of the Code of Federal Regulations.

3. The collection of three (3) samples from each of the sampling environments (CDF, river, near-dike, landing wells, and background) allows for analysis of the variation within a given sampling environment and provides for more valid statistical comparisons.

4. The new parameter set will increase the cost effectiveness of the monitoring program by reducing the number of "non-detect" data appearing in the data sets. This will reduce the complexity and increase the validity and power of statistical comparisons made using the data sets.

5. The addition of sampling locations in Calumet River will provide an indication of any impacts to water quality due to dredging operations and/or a breach in the CDF. Currently, there is not any data available regarding water quality in Calumet River during non-dredge periods for comparison to the dredging event data.

6. Similar environments of the sampling locations will allow for a more direct and useful comparison between sampling stations.

7. Monitoring background locations during routine monitoring will allow for the calculation and analysis of natural and man-induced (besides the CDF) variances in contaminant concentrations. The background samples can be used for comparisons with the other sampling locations.

This revised sampling plan will provide more meaningful and cost-effective data set and allow for quantitative comparisons between the sampling locations over time. Additionally, by monitoring the proposed station, USACE will be able to collect a standardized data set during dredging and non-dredging periods and make more meaningful comparisons between the data sets.

7. References

Pranger, S.A., and P.R. Schroeder, 1986, "Dye Tracer Studies at the Kenosha, Manitowoc, Milwaukee, and Kewaunee Harbors Combined Disposal Facilities", *Miscellaneous Paper D-86-4*, Depart of the Army Waterways Experiment Station, Vicksburg, MS.

USACE, 1995, "Report on Maintenance Dredging of Calumet River (12/2/94 through 12/31/94), Prepared by U.S. Army Corps of Engineers, Chicago District, November, 1995.

APPENDIX B

401 WATER QUALITY PERMITS
1982-1993

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2517-93 PERMIT NO.: 1992-EA-0476-1

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers

DATE ISSUED: March 5, 1993

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS - Chicago Area Confined Disposal Facility

PERMITTEE TO OPERATE
Chicago District Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606

Supplemental permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities, which were previously approved under Permit # 1992-EA-0476.
Special Conditions 2iii and 2v are revised as follows:

Special Condition 2iii: Surface water shall be monitored on a weekly basis when discharges occur for:

total suspended solids
pH
temperature
ammonia-nitrogen (as N)
cyanide
mercury
nickel
copper
arsenic
total Kjeldahl nitrogen
phosphorus (total)
oil and grease
lead
zinc
polychlorinated biphenyls
manganese
chromium
cadmium
dissolved oxygen

Special Condition 2v: Reports of all analyses shall be submitted to the Agency on a monthly basis for hydraulic dredging operations and on an annual basis for mechanical dredging operations.

All Special Conditions on the original permit issued are also applicable to this permit unless specifically deleted or revised in this permit.

This Operating Permit expires on May 1, 1997.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TGM:BY:ct,393v,19
cc: EPA - Region
Chicago Dist. Corps of Engr.
Record
Binds

DIVISION OF WATER POLLUTION CONTROL

Thomas G. McSwiggin, P.E.
Manager, Permit Section

'LL'NOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 0476-92

PERMIT NO.: 1992-EA-0476

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Chicago District Corps of Engineers

DATE ISSUED: May 14, 1992

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility

PERMITTEE TO OPERATE
Chicago District Corps of Engineers
111 North Canal Street
Chicago, Illinois 60606

Permit is hereby granted to the above designated permittee to operate water pollution control facilities described as follows:

The facility is a 43 acre confined disposal facility for dredged material from the Chicago and Calumet Rivers. The settling basin has a capacity of approximately 1.45 million gallons. The settling pond discharges to two (2) 34 foot diameter dual media filters cells, with discharge to the Calumet River. The facility is monitored by eight (8) monitoring wells.

This Operating Permit expires on May 1, 1997.

This Permit renews and replaces Permit Number 1987-EA-2851 which was previously issued for the herein permitted facilities.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: A pump with a capacity of 2250 gallons per minute will be used during dredging operations to carry wastewater to the filter cells, and in order to maintain operating levels within the CDF at or below the level of Lake Michigan.

Continued on Page 2

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TGM:BY:bjh/1459r/32,34
cc: EPA - Maywood Region
Chicago District Corps of Engineers
Records
Binds

DIVISION OF WATER POLLUTION CONTROL

Thomas G. McSwiggin, P.E.
Manager, Permit Section

LOG NUMBERS: 0476-92 PERMIT NO.: 1992-EA-0476

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers

DATE ISSUED: May 14, 1992

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility

SPECIAL CONDITION 2: Monitoring shall be in accordance with the following:

i. Monitoring wells CH-18-81, CH-19-81 and CH-20-81 shall be monitored on a quarterly basis for:

total suspended solids
total dissolved solids
pH
temperature
hardness
ammonia-nitrogen (as N)
phosphorus (total)
oil and grease
iron
lead
zinc
cyanide
polychlorinated biphenyls

ii. All other monitoring wells shall be monitored on a monthly basis for:

total suspended solids
pH
temperature
ammonia-nitrogen (as N)
mercury
total Kjeldahl nitrogen
phosphorus (total)
oil and grease
zinc
polychlorinated biphenyls
manganese

These wells shall also be monitored quarterly for:

arsenic
cadmium
cyanide
chromium
copper
lead
nickel

iii. Surface water shall be monitored on a weekly basis for:

total suspended solids
pH
temperature
ammonia-nitrogen (as N)
cyanide
mercury
nickel
copper
arsenic
total Kjeldahl nitrogen
phosphorus (total)
oil and grease
lead
zinc
polychlorinated biphenyls
manganese
chromium
cadmium
dissolved oxygen

LOG NUMBERS: 0476-92 PERMIT NO.: 1992-EA-0476

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers DATE ISSUED: May 14, 1992

SUBJECT: CHICAGO DISTRICT CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility

iv. Monitoring of the dredged sediments shall involve analysis of one sample collected for each day that water quality sampling is done during dredging operations. Parameters for sediment analysis shall include:

total volatile solids	phosphorus (total)
ammonia-nitrogen (as N)	oil and grease
cyanide	iron
mercury	lead
nickel	zinc
copper	polychlorinated biphenyls
arsenic	manganese
cadmium	chromium
barium	total Kjeldahl nitrogen
chemical oxygen demand	

v. Reports of all analyses shall be submitted to the Agency on a monthly basis.

SPECIAL CONDITION 3: Upon completion, the site shall be covered with a five (5) foot thick clay and topsoil cap, graded to drain and seeded and mulched to prevent erosion.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

PERMIT NO.: 1982-EA-0325-1 DATE ISSUED: August 20, 1982

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers LOG NUMBERS: 0878-82

SUBJECT: CORPS OF ENGINEERS -- Chicago Area Confined Disposal Facility -- Relocation of Filter Cells and Discharge Point

PERMITTEE TO CONSTRUCT AND OPERATE
District Engineer
Chicago District Corps of Engineers
219 South Dearborn
Chicago, Illinois 60604

Supplemental permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities, which were previously approved under Permit #1982-EA-0325 dated June 15, 1982. These facilities have been revised as follows:

Revision in the alignment and location of the filter cells, a portion of the 12 inch diameter force main and the discharge line and point of discharge at Calumet River mile 0.0; the facilities are to be relocated east and north of the previously authorized location, the discharge point being approximately 40 feet upstream of the previously authorized site.

All Special Conditions on the original permit issued are also applicable to this permit unless specifically deleted or revised in this permit.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: Standard Condition No. 1 of this Permit is hereby deleted and replaced by the following Special Condition:

> Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources, (2) three years after the date of issuance for permits to construct treatment works or pretreatment works or (3) on the expiration date specified for a mine-related facility.

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TGM:BY:ba/4952c/9
cc: EPA - Region 2
Chicago District Corps of Engineers
IDOT, DHR, Coastal Zone
USEPA, Region V

DIVISION OF WATER POLLUTION CONTROL
Thomas G. McSwiggin, P.E.
Manager, Permit Section

Ill.532-90009
WPC-146 (10/81)

READ ALL CONDITIONS CAREFULLY.
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year after date of issuance unless construction or development on this project has started on or prior to that date. In any event, construction must be completed in three years for treatment works and two years for sewers and wastewater sources, unless otherwise stated by special condition.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:

   a. to enter at reasonable times the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the Agency before the facility or equipment covered by this permit is placed into operation.

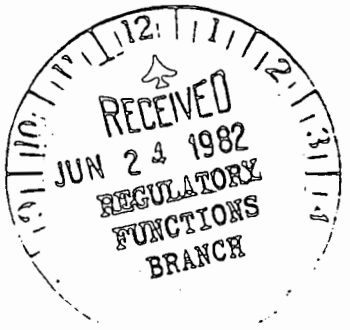
7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rule or Regulation effective thereunder as a result of the construction or development authorized by this permit.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

PERMIT NO.: 1982-EA-0325 DATE ISSUED: June 15, 1982

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS LOG NUMBERS: 0325-82
PREPARED BY: Chicago District Corps of Engineers

SUBJECT: CORPS OF ENGINEERS - Chicago Area Confined Disposal Facility

PERMITTEE TO CONSTRUCT AND OPERATE

District Engineer
Chicago District Corps of Engineers
219 South Dearborn
Chicago, Illinois 60604

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows:

A confined disposal facility constructed with a prepared limestone core, an inner synthetic liner having a permeability of 1×10^{-17} centimeters per second (cm/sec.) and an outer synthetic filter cloth, having a capacity of approximately 1,450,000 cubic yards; approximately 4855 feet of 12 inch diameter force main; two 34 foot diameter sand and anthracite media filter cells with outfall to the Calumet River; ten (10) groundwater and dike wall monitoring wells.

This Construction and Operating Permit expires on June 15, 1987.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: Standard Condition No. 1 of this Permit is hereby deleted and replaced by the following Special Condition:

> Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources, (2) three years after the date of issuance for permits to construct treatment works or pretreatment works or (3) on the expiration date specified for a mine-related facility.

Continued on Page 2

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TGM:BY:mgg4348c/14-15
cc: EPA - Region 2
Chicago District Corps of Engineers
IDOT, DWR, Coastal Zone
USEPA, Region V

DIVISION OF WATER POLLUTION CONTROL
Thomas G. McSwiggin, P.E.
Manager, Permit Section

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

PERMIT NO.: 1982-EA-0325 DATE ISSUED: June 15, 1982

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS PREPARED BY: Chicago District Corps of Engineers

LOG NUMBERS: 0325-82

SUBJECT: CORPS OF ENGINEERS - Chicago Area Confined Disposal Facility

SPECIAL CONDITION 2: Air relief valves shall be installed at all high points on the force main to prevent air locking.

SPECIAL CONDITION 3: Silt curtains shall be used during placement of the limestone for dike construction, and in the case of mechanical excavation of the special excavation of approximately 70,000 cubic yards from Calumet Harbor.

SPECIAL CONDITION 4: A pump with capacity of 2250 GPM shall be used during dredging operations to carry wastewater to the filter cells, and in order to maintain operating levels within the CDF at or below lake level.

SPECIAL CONDITION 5: Calumet Harbor special excavation may be undertaken by mechanical means with disposal in a temporary clay-lined upland site with final deposition in the CDF, or by hydraulic means with disposal in a self-contained portion of the CDF on the south end of the site with discharge to the filter cells, then to the Calumet River.

SPECIAL CONDITION 6: Monitoring shall be in accordance with the following: 1) background groundwater conditions, groundwater conditions and groundwater post-operating conditions shall be monitored on a monthly basis; 2) surface water background conditions, operating conditions and general post-operating conditions shall be monitored on a weekly basis; and 3) operating conditions during the first week of operation shall be monitored every other day. Parameters for water quality monitoring analysis are:

Ammonia-Nitrogen
Phosphorus (total)
Mercury
Lead
Dissolved Oxygen
Manganese
Zinc
pH
Nickel
Oil and Grease
Cyanide
Total Kjeldahl Nitrogen
Total Suspended Solids
Polychlorinated Biphenyls (PCB)
Chromium
Copper
Temperature
Arsenic
Cadmium

Monitoring of the dredged sediment shall involve analysis of one sample collected each day that water quality sampling is done during dredging operations. Parameters for sediment analysis shall include all parameters listed above for water quality monitoring (except Dissolved Oxygen, pH and Temperature) plus:

Continued on Page 3

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

PERMIT NO.: 1982-EA-0325 DATE ISSUED: June 15, 1982

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS LOG NUMBERS: 0325-82
PREPARED BY: Chicago District Corps of Engineers

SUBJECT: CORPS OF ENGINEERS - Chicago Area Confined Disposal Facility

Volatile Solids	Chemical Oxygen Demand
Iron	Barium

Effluent monitoring shall be done in the case of hydraulic dredging, disposal and treatment of the special excavated material from the Calumet Harbor for the construction of the CDF. Composite weekly grab samples shall be analyzed for the water quality monitoring parameters listed above. Reports of all analyses shall be submitted to the Agency on a monthly basis.

SPECIAL CONDITION 7: Upon completion the site shall be covered with a 5 foot thick clay and topsoil cap, graded to drain and seeded and mulched to prevent erosion.

SPECIAL CONDITION 8: Prior to construction or operation of this facility, legislation must be approved to allow the use of this area as a dredged material confined disposal facility.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

PERMIT NO.: 1982-EA-0325 DATE ISSUED: June 15, 1982

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS LOG NUMBERS: 0325-82
PREPARED BY: Chicago District Corps of Engineers

SUBJECT: CORPS OF ENGINEERS - Chicago Area Confined Disposal Facility

Volatile Solids
Iron
Chemical Oxygen Demand
Barium

Effluent monitoring shall be done in the case of hydraulic dredging, disposal and treatment of the special excavated material from the Calumet Harbor for the construction of the CDF. Composite weekly grab samples shall be analyzed for the water quality monitoring parameters listed above. Reports of all analyses shall be submitted to the Agency on a monthly basis.

SPECIAL CONDITION 7: Upon completion the site shall be covered with a 5 foot thick clay and topsoil cap, graded to drain and seeded and mulched to prevent erosion.

SPECIAL CONDITION 8: Prior to construction or operation of this facility, legislation must be approved to allow the use of this area as a dredged material confined disposal facility.