

ILLINOIS POLLUTION CONTROL BOARD
September 17, 1987

DEPARTMENT OF THE ARMY,)
)
 Petitioner,)
)
 v.) PCB 87-38
)
 ILLINOIS ENVIRONMENTAL)
 PROTECTION AGENCY,)
)
 Respondent.)

NEIL A. SMART, COLONEL, DISTRICT ENGINEER; APPEARED ON BEHALF OF THE PETITIONER.

E. WILLIAM HUTTON APPEARED ON BEHALF OF THE RESPONDENT.

OPINION AND ORDER OF THE BOARD (by J. Marlin):

This matter comes before the Board on a Petition for Variance (hereinafter cited as Pet.) filed by the Department of Army (Army) on March 23, 1987. In response to the Board's Order of April 1, 1987 requesting that Army submit additional information, Army filed an Amended Petition (hereinafter cited as Am. Pet.) on May 16, 1987 which supplements the March 23 Petition. Army is requesting that it be granted a five-year extension, with some modifications, of the variance that the Board granted to Army on October 25, 1984 in PCB 84-86. Army was granted in the previous proceeding and is currently seeking in this proceeding variance from 35 Ill. Adm. Code 304.105, Violation of Water Quality Standards, as it applies to the following Sections: 302.203, Unnatural Sludge; 302.206, Dissolved Oxygen; 302.208, Chemical Constituents only to the extent it concerns the standards for total lead, total cadmium, and total hexavalent chromium; and 302.212, Ammonia Nitrogen and Un-ionized Ammonia. The purpose behind the request for a variance extension is to allow Army to continue its program of maintenance dredging in portions of Illinois River (River) in order to ensure that the River remains navigable. By its Order of July 16, 1987, the Board granted an Illinois Environmental Protection Agency's (Agency) Motion to File Agency Recommendation Instanter. In its Recommendation (hereinafter cited as Ag. Rec.), the Agency recommended that a five-year extension of the variance be granted subject to certain changes in the variance's conditions. Army filed a Response to the Agency Recommendation on July 17, 1987. Since Army waived its right to a hearing and no person filed an objection to the variance request, no hearing was held in this matter.

In its Petition, the Army requested that the entire record for two prior variance proceedings concerning Army's dredging activities, PCB 83-25 and PCB 84-81, be incorporated by reference. The Board stated in its Order of April 1, 1987 that it would incorporate Opinions and Orders by the Board by reference but that "[i]f the Army believes there are documents upon which the Board must rely to make a final determination in this matter, those documents must be physically submitted in this proceeding." Army has supplied information with its Amended Petition which includes a report that was submitted in PCB 84-86. However, Army still requests in its Amended Petition that "material forwarded [by Army] in PCB 83-25 be incorporated by reference." Army has not provided the Board with copies of this material. Attachment #1 to the Amended Petition in PCB 83-25 was previously incorporated into the Board's Order in PCB 84-86. As a result, the Board will incorporate that Amended Petition, but the remainder of the record in PCB 83-25 will not be incorporated.

The need for maintenance dredging was explained by the Board in PCB 84-86:

Briefly, the Illinois River is a main pathway for commerce. When sedimentary material accumulates on the bottom of the river navigation may be impeded. Unless the material is removed the build-up of sediment could stop river commerce. Dredging to remove the sediments may be done by mechanical means, such as clamshell, backhoe and dragline, or it may be done by hydraulic means, such as cutterhead pipeline. The material dredged from the river (sediments and water) may then be disposed of in the waterway (open water disposal), on the shore (bankline disposal), or in a confined disposal area. Both the dredging operation and the disposal operation may have adverse water quality impacts. Several factors may influence these impacts including: characteristics of the material to be dredged (sediment and ambient water), method of dredging, method of disposal, hydrologic and meteorologic conditions. Army contends that it essentially has no control over when and how much dredging will be needed to ensure a safe navigation channel. Army also claims that if channel obstructions occur movement of four billion dollars worth of commodities would be impaired, costing as much as \$150 million annually for alternative transportation.

60 PCB at 365-66.

There is nothing in the record to suggest that this need for maintenance dredging has changed since the Board's Opinion and Order of October 25, 1986. In the Agency's Recommendation, the Agency states:

Dredging is essential to continued navigability of the Illinois waterway. Dredging activity is carried out pursuant to Agency 401 Certification # C-157-82. However, the quality of sediment at some locations in the river is such that the terms and conditions of the certification and the Board's water quality standards cannot be met, necessitating variance relief....

The hardship resulting from denial of the variance remains unchanged -- the potential inability to utilize the river for shipping. Reductions in coal and grain shipments could have a significant impact on the state's economy. Further, the Board, in PCB 84-86, noted the substantial additional cost of transporting commodities by alternative methods.

Ag. Rec., p. 4).

In its October 25, 1984 Opinion and Order in PCB 84-86, the Board addressed the environmental impact of past dredging operations:

Dredging of the Illinois River has historically (1952-1982) occurred along 36.5 miles of the 150-mile length. The most relevant water quality monitoring data came from dredging under variances in PCB 82-136 and 83-25. While water quality violations do appear in the data, it does not appear that dredging to date has caused or significantly exacerbated water quality violations (Final Report in PCB 83-25, Enclosure 2). While different dredging events will not necessarily follow this pattern, the data so far shows minimal water quality impact from dredging. Consequently, on the factual record presented there, [In PCB 84-86] the Board finds that the anticipated adverse environmental consequences are outweighed by the arbitrary and unreasonable hardship that would be imposed if the Illinois River became non-navigable to commerce.

60 PCB at 366

It is Army's position that the same conclusions are currently applicability to the instant variance extension request. Army claims that this position is supported by results from tests conducted pursuant to the PCB 84-86 variance.

Army states that the test results show that:

- a) [M]ost sediment samples having high concentrations of contaminants were fine grained (greater than 20 percent passing a #230 sieve), however, not all fine grained sediments were contaminated;
- b) Bulk sediment testing often revealed high concentrations of materials which did not appear in subsequent elutriate testing;
- c) Results of the elutriate tests consistently showed ammonia to be the single parameter most likely to occur in high concentrations downstream of the disposal site, while other parameters were observed in high concentrations only sporadically;
- d) No violations of Illinois State water quality standards resulting from the disposal of dredge material were observed during the variance period. On several occasions, mercury was observed to exceed the water quality standard downstream of the disposal site, however, since the upstream ambient water also had mercury concentrations in excess of the standard this violation can not be attributed to the return water.

(Pet., p. 5-6)

As enclosure #1 to its Amended Petition, Army supplied the Board with the underlying sampling and analysis data for these conclusions.

In its analysis of the Army's monitoring data, the Agency claims that Army may have "understated" the adverse environmental impacts of the dredging activities. First, the Agency states that the dredging, and corresponding monitoring tests, have been conducted during periods of high river flows which would provide

for greater dilution of contaminant concentrations. Secondly, the Agency asserts that a change in methodology in Army's conducting of elutriate tests has resulted in test results that are not representative of water quality. An elutriate test is conducted to predict concentrations of contaminants in the water column after a discharge. The test is performed by mixing a sample and letting it settle for a period of time. According to the Agency, the Agency informed Army in 1984 that a settling time of zero hours (or no settling) would be most representative of a discharge into the Illinois River. The Agency states that this methodology was employed for tests conducted in 1984. However, the Agency asserts that the Army utilized a four-hour settling period for tests conducted in 1985 and 1986. It is the Agency's position that tests conducted in these two years show a "lessened environmental impact" solely due to the change in methodology. The Agency claims that "in 1984 all metals except selenium exceeded water quality standards on at least one occasion and there were consistent excursions of the lead, copper, and zinc water quality standards." Finally, the Agency states that "the precise adverse environmental impact cannot be determined." Despite that pronouncement, the Agency concludes that "the hardship from denial of a variance is so substantial that it outweighs any adverse environmental impact." (Ag. Rec., p. 6-7).

One method by which Army could comply with the regulations at issue would be to dispose of the dredged material in confined disposal sites. As enclosure #2 to the Amended Petition, Army submitted cost estimates for long term upland confined disposal facilities for ten areas that when dredged would cause violations. Utilization of confined disposal facilities at these areas would eliminate the violations during dredging. According to Army's figures, the total cost for long term upland, confined disposal for these ten areas amounts to \$15,380,000. (Am. Pet., enclosure #2, p. 2).

Also, Army states that the discharge of dredged material at any given site may or may not meet Certification criteria depending on hydrologic conditions and the seasonal timetables when the material originally accretes. Given this uncertainty, Army maintains that providing long term upland confined disposal sites for all potential dredging areas would be "unreasonable and unnecessary hardship". (Am. Pet., p. 2-3).

Army further contends that current Certification standards are not appropriate for maintenance dredging when considering the background quality of the River, tributary input, and other discharges as well the current federal requirements concerning dredging and disposal in such waters. Army also offers its assistance to the Agency in determining Certification standards which would be more appropriate for the River. (Pet. p., 4; Am. Pet., p. 3).

Army made a similar contention in its amended petition in PCB 83-25 when it said at page 13:

It is arbitrary to apply standards for an NPDES program to the dredging process. The effects of dredging discharge, which are not yet proven, are temporary and no new constituents are added to the system, even though the discharge does release available elements. Federal EPA rules recognize this point and have specific guidelines governing the discharge of dredged material. We would propose that through a sediment testing and dredging operations monitoring program, conducted during the variance period, the Rock Island District Corps of Engineers and the Agency could work together to develop meaningful standards and guidelines for dredging operations.

Given the evidence in the record, the Board concurs with the Agency in finding that the burden on Army and commerce utilizing the River would outweigh the environmental impact avoided if the variance was denied. A denial of the variance extension would constitute an arbitrary or unreasonable hardship.

Therefore, the Board will grant Army a variance. The remaining issues to be decided are the conditions of the variance. Next, the Board will present Army's proposed modifications to the conditions of the previous variance as well as the Agency's response to those proposals.

Proposed Variance Conditions

In its request for an extension of the PCB 84-86 variance, Army requests that Paragraphs #2, 3, and 9 of that variance Order be modified.

Paragraph #2 of the previous variance in part provided that the variance would apply to potential violations from dredging only within 25 sites on the Illinois River Waterways between river miles 80.2 and 230.2, as specified in Attachment No. 1 to the Amended Petition for Variance filed on May 6, 1983, in PCB 83-25. Army originally requested modifying Paragraph #2 to include all potential maintenance dredging sites in the LaGrange Pool between river miles 80.2 and 157.9. This request was withdrawn in the Amended Petition. (Am. Pet., p. 4).

Paragraph 3 of the 1984 variance deals with sediment samples that must be taken prior to dredging in order to determine whether the dredging would cause violations. Army seeks to modify this condition by dropping a five-day biochemical oxygen demand (BOD₅) analysis from the list of parameters that the

sediment samples are to be evaluated for. In addition, Army requests that this pre-dredging sampling requirement be deemed fulfilled if the same site had been sampled previously as a part of an annual survey conducted pursuant to the requirements of Paragraph 9(a). (Pet., p. 7).

The Agency's version of Paragraph #3 specifies that sediment samples are to be sampled according to Paragraph #10 (of the Agency's proposed conditions) which requires in part that the elutriate tests be conducted with a 30 minute mixing period and a zero (0)-hour settling period. The Agency version of Paragraph #3 requires analysis of parameters in the sediments the same as what Army is requesting save for the Agency's inclusion of grain size, BOD₅, cadmium, chromium and nickel. In short, the Agency is not requesting any change in the list of parameters from the previous variance. The Agency concurs with Army's modification that a Paragraph #3 sample is not necessary if the site was previously sampled in a survey pursuant to Paragraph #9(a). However, the Agency adds a further condition; the prior sampling must have been conducted in the last 12 months. (Ag. Rec., p. 9).

Army is also suggesting a new version of Paragraph 9(a). Sediment samples taken for this annual "survey" are to be analyzed for the same parameters as Army requests in its Paragraph #3. That is, the suggested changes in testing, from the previous variance, included dropping the tests for grain size, BOD₅, cadmium, chromium, and nickel. Similarly, Army's version of Paragraph 9(a) eliminates the requirement for the taking of ambient surface and mid-depth water samples at the time the sediment samples are gathered. Army also wants to add the provision that elutriate tests be conducted with a 30 minute mixing period and a four-hour settling period. (Pet., p. 7-8).

The Agency concurs with Army's request and proposes to eliminate water sampling when the survey sediment samples are taken. Once again, the Agency's version accepts the list of parameters from the previous variance. Elutriate tests are to be utilized with this sampling. However, in the Agency's version of the variance conditions, all elutriate tests are to be conducted with a 30 minute mixing period and zero (0)-hour settling period. (Ag. Rec., p. 10).

Army's requested Paragraph # 9(b) essentially modifies the language of Paragraph 9(c) of the previous variance, which deals with water quality monitoring requirements during all dredging events. Army's list of suggested parameters for testing the water samples differ from the parameters as prescribed by the previous variance requirements in that Army no longer wants to test for total suspended solids, total cadmium, total hexavalent and total trivalent chromium and total nickel. However, Army's request includes that total polychlorinated biphenyls (PCB's) be analyzed, which was not a requirement of the previous variance. (Pet., p. 7, 8).

The Agency recommends that the water samples be analyzed for the parameters as listed in the previous variance. (Ag. Rec. p. 11).

The next issue concerning these water samples, which are to be taken for every dredging event, concerns the exact location of the sampling. The Army requests that the surface sampling, as required by the previous variance, be eliminated. Also, the Army requests that each sample consist of three subsamples collected over a eight-hour period. This procedure was not required in the previous variance. The previous variance required that four samples be taken at each sampling point. Although each sample would consist of three subsamples, Army's version does not specify how many samples must be taken.

The Army seeks to collect samples from only two points downstream of the discharge: one at half the distance to the periphery of the mixing zone and the other at twice the distance to the periphery of the mixing zone. The previous variance required three different points to be sampled downstream, however, the variance Order only delineated two locations, the same as specified by Army's proposal. Army also wishes to sample only one point representative of the discharge of dredged material. The previous variance required such sampling to be gathered from three points. (Pet., p. 8-9).

The Agency adopts Army's position that each sample shall consist of "three aliquots collected over an eight-hour period". Also, the Agency proposal removes the four sample requirement. However, the Agency's version retains the surface sampling requirement. The Agency essentially requests that the locations for sampling, as specified by the previous variance, remain unchanged. However, the Agency does add the description of a third location to the requirement that samples be collected from three points downstream. The additional location is "at the periphery of the mixing zone." (Ag. Rec., p. 11). It is the Agency's position that the failure to include this third site description in the previous variance Order was a clerical omission. (Ag. Rec., p. 2). The Board agrees.

The final issue regarding the water quality sampling concerns the frequency with which the samples must be taken given the differing types of dredges used. Army has requested that the variance condition concerning this point be modified only to limit the sampling frequency to no more than five consecutive days. (Pet., p. 9). The Agency assumes that this request is made to reflect the fact that Army utilizes a five-day work week. The Agency concurs with this change. (Ag. Rec., p. 8, 11).

With regard to the Agency's recommendations, the only difference between the Agency proposed conditions and the conditions of the previous variance, which have not already been

discussed, concern modifications of the compliance plan enunciated in Paragraph #7. The Agency's version of this Paragraph includes a specific timetable by which Army must eventually attain compliance. The Agency's requested actions and corresponding deadlines are as follows:

- 1) Army must file a Petition for site-specific relief from the water quality regulation at issue on or before July 1, 1988;
- 2) Army must file plans and specifications for the construction of confined disposal facilities required to meet 401 Certification #C-157-82 and/or water quality standards by July 1, 1990, unless Army has already obtained site-specific relief by that date.
- 3) Construction of the combined disposal facility shall be completed by July 1, 1992.

(Ag. Rec., p. 10)

In addition, the Agency's Paragraph #7 requires that Army "shall fully cooperate with the [Illinois] Department of Transportation" in its compliance efforts. Also, Paragraph #7 includes the provision that the pendency of a site-specific rulemaking that was filed before July 1, 1990 does not excuse or delay the deadlines for compliance by confined disposal facilities. (Ag. Rec., p. 10).

In its Response to the Agency Recommendation (Response), the Army states that it will file a petition for site-specific relief by July 1, 1988. However, Army asserts that "it cannot commit Congress to authorize or provide funding for the plans and specifications for the construction of confined disposal facilities." Also, Army seems to suggest that it may not be able to "fully cooperate" with the Illinois Department of Transportation (IDOT) since Army and IDOT disagree over whether it is the State's responsibility to provide land for disposal. (Response, p. 1-2).

Also, in its Response, the Army states that the Agency's proposed conditions of Paragraph #9 concerning the sampling of the discharge "are not clear, but that resolution of the technical details can be worked out with the Agency." (Response, p. 2).

Conclusions

Pursuant to Army's request and the Agency's Recommendation, the Board will grant Army a five-year variance. The Board will require Army to file a Petition for site-specific relief by July 1, 1988. This will allow the Board to consider whether the Army's maintenance dredging operations in the River are entitled

to permanent relief and to consider Army's contention that the current regulations are inappropriate for dredging activities. If Army fails to meet this deadline, the variance will terminate on that date. In the event that permanent relief is denied, the Board may review this variance. A variance is a mechanism by which a person is temporarily relieved from compliance with regulations or Orders of the Board while that person takes action to ultimately achieve compliance. Variances are not to be utilized in succession indefinitely as a means of attaining defacto permanent relief. In other words, if Army is entitled to permanent relief it must seek that relief through a site-specific rulemaking.

The Board will not order actions contingent upon the outcome of a potential site-specific rulemaking. Instead, in Paragraph #7 of the Order, the Agency will be required to submit to the Agency by December 1, 1990 plans and specifications for compliance. The Board will not specify confined disposal facilities at this time as an alternative may yet be discovered. Action on a rule change may make the filing unnecessary. It is also possible that unforeseen events may cause this Order or its timetables to be modified in the future.

The Board fully realizes that Army cannot commit Congress to an appropriation of funds for the construction of confined disposal sites. The Board, though, may condition variances on the implementation of a compliance plan. It is up to the Army to resolve any difficulties in carrying out that plan. Army also asserts that it cannot cooperate "fully" with the IDOT due to a differing legal opinion concerning the procurement of land intended for confined disposal sites. The only legal interpretations that the Board could order Army to accept would be interpretations by the Board itself, and this Opinion does not address the propriety of IDOT's position. However, full cooperation does not mean blind acceptance of all IDOT positions. Yet, it is the Board's belief that cooperation with IDOT would be fruitful for Army in achieving compliance.

The previous variance, granted in PCB 84-86 conditioned the variance on dredging operations which could violate water quality standards that were conducted at twenty-five (25) sites between river mile 80.2 and 230.2. The Board's Order in PCB 84-86 incorporated by reference the specific locations of those sites as described in Army's Amended Petition, Attachment #1 which was filed in PCB 83-25 on May 6, 1983. The Board will again incorporate by reference Attachment #1 to Army's Amended Petition in PCB 83-25 since it was previously incorporated in the Board's Order in PCB 84-86. The four pages listing the sites will be attached to the Order accompanying this Opinion.

With regard to the methodology that must be utilized during elutriate testing, the Board agrees with the Agency and will require a 30 minute mixing period followed by a zero (0)-hour

settling period. Similarly, the Board will accept the Agency's recommendations with regard to the types of analysis conducted on sediment as well as water samples. In addition, any parameters which the Army recommended testing for but which the Agency failed to address will also be included as part of a sample analysis (e.g. total PCB in a water quality monitoring for all dredging events). The location and frequency of samples as requested by the Agency will also be adopted as conditions to the variance. In general, the Agency's recommendations seek to maintain the conditions of the previous variance. Army has not sufficiently demonstrated, in accordance with its own requests, the necessity for modifying the conditions of the previous variance. Certain modification requests by the Army have been agreed to by the Agency, in those instances, the Board has accepted the modifications.

In reaching its conclusion in this matter, the Board makes no finding as to the actual economic efficiency of water transportation vis a vis other modes. The Board also notes that this variance is based on the water quality considerations in the record. The record gives little indication of impact of various dredging and disposal alternatives on other environmental concerns such as backwater and side channel habitat, sediment deposition, and long term impacts. It is possible that some other method of addressing the dredge disposal problem could better address the long term needs of the river system. These broader areas should be addressed in any potential rule change proceeding. There has also been little consideration of the appropriate depth or frequency of dredging. The Board takes no position in this matter beyond finding that granting the variance with the stated conditions is appropriate at this time.

The Board finds that a denial of a variance would impose an arbitrary or unreasonable hardship. The Board hereby grants Army a variance subject to conditions.

This Opinion constitutes the Board's findings of fact and conclusions of law in this matter.

ORDER

The Board hereby grants the Department of Army, Rock Island District, Corps of Engineers (Army) variance from 35 Ill. Adm. Code 304.105, Violation of Water Quality Standards, as it applies to the following Sections: 302.203, Unnatural Sludge; 302.206, Dissolved Oxygen; 302.208, Chemical Constituents only to the extent it concerns the standards for total lead, total Cadmium, and total hexavalent Chromium; 302.212, Ammonia Nitrogen and Un-ionized Ammonia.

1. This variance will expire on September 4, 1992, or upon the date on which Army achieves compliance with applicable water quality standards.

2. This variance will apply only to violations of water quality standards that may occur as a result of discharge of dredged material coming from maintenance dredging of sediments not meeting Illinois EPA 401 certification # C-157-82, and only within the 25 sites on the Illinois River Waterways between river miles 80.2 and 230.2, as specified in Attachment No. 1 to the Amended Petition for Variance filed on May 6, 1983, in PCB 83-25 which is incorporated into this Order. The four pages listing the sites are also attached to the Order. For purposes of this Order dredging activities of this type, shall be known as Paragraph No. 2 dredging events.
3. Prior to beginning any dredging event, Army shall obtain sediment core samples at locations and depths within the reach of the proposed dredge cut which are representative of that cut, for the purposes of determining whether such cut is a Paragraph No. 2 dredging event based upon an elutriate test performed in accordance with Paragraph 10. Sampling and analysis of the sediments shall include analysis for parameters listed in Paragraph 9(d). This requirement will be fulfilled if the site has previously been sampled as pursuant to Paragraph 9(a) within the 12 months prior to the dredging event.
4. Army shall conduct a Paragraph No. 2 dredging event only where necessary to ensure safe navigation, and the length, width and depth of any such event shall be reduced as much as feasible, consistent with providing safe navigation.
5. For any Paragraph No. 2 dredging event, Army shall consider and evaluate the use of mechanical dredging with backline disposal, as opposed to hydraulic dredging, for any such event under which less than 50,000 cubic yards will be dredged.
6. For any Paragraph No. 2 dredging event, Army shall use all reasonable efforts, other than upland confined disposal, to reduce the volume and character of discharges which might cause water quality violations. Open water disposal is prohibited.
7. Petitioner shall file with the Board a Petition for site-specific relief from the above water quality standards on or before July 1, 1988. Failure to file the petition will result in immediate termination of this variance. By December 1, 1990, the Army shall submit to the Agency plans and specifications for achieving compliance with the applicable regulations.

8. In advance of any necessary Paragraph No. 2 dredging event, Army shall notify the Agency of the day that the dredging project is scheduled to begin.
9. Army shall conduct sampling and testing as follows:
 - a) On an annual basis, a survey of existing sediment quality at the 11 sites identified in Attachment #1 to the Amended Petition for Variance in PCB 83-25 with a historical dredging frequency average of once every ten years or less. No less than three sediment core samples shall be taken from each of the sites in the areas and to the depths most likely to be dredged; the actual number of core samples to be obtained shall be determined by the Army and the Agency based on the size and shape of the area to be dredged; sediment samples shall be analyzed for grain size, and an elutriate test, performed in accordance with Paragraph 10, shall be employed to analyze for parameters listed in Paragraph 9(d).
 - b) The sampling and testing requirements of Paragraph 3 of this Order.
 - c) During and dredging project, whether a Paragraph No. 2 dredging event or not, water quality impacts and discharge character shall be monitored as follows:
 - 1) Army shall sample the following parameters at all sampling points listed under Paragraph 9(c)(4): specific conductance; turbidity, oil and grease; dissolved oxygen; total suspended solids; total dissolved solids; volatile suspended solids; total ammonia nitrogen and N; pH; water temperature; lead (total); zinc (total); arsenic (total); barium (total); cadmium (total); chromium (total hexavalent and total trivalent); copper (total); mercury (total); nickel (total); selenium (total); and total polychlorinated biphenyl.
 - 2) Sampling at the sampling points listed in Paragraph 9(c)(4) shall be at surface and mid-depth elevations between mid-channel and the bank on which disposal occurs, or at point representative of the discharge. Each sample shall consist of three aliquots collected over an eight hour period.

- 3) Sampling at the sampling point listed in Paragraph 9(c)(4) shall be done:
 - A) On two consecutive days per week if a 12-inch dredge is used;
 - B) Daily, but not to exceed five consecutive days per week, if a 20-inch dredge is used;
 - C) For use of any other size dredge, sampling shall be performed at a frequency in proportion to the amount of the discharge, but not less than two consecutive days per week nor more than five consecutive days per week.
- 4) Sampling shall be done at the following points:
 - A) At a point upstream of the influence of the dredging, but no more than one-half mile;
 - B) At a point within tributaries entering the dredge cut, if any, upstream of backwater effects but as close to the confluence as possible;
 - C) At three points downstream of discharge: 1) at half the distance to the periphery of the "mixing zone", 2) at the periphery of the "mixing zone", and 3) at twice the distance to the periphery of the "mixing zone". The "mixing zone" shall be defined as an area equal to 25 percent of the cross-sectional area of the stream or the area of a circle with a radius of 600 feet, whichever is less; and
 - D) At three points representative of the discharge of dredged material.
- d) Sediment samples taken under Paragraph 9 shall be analyzed for the following parameters with the results of all chemical analyses being expressed on a dry weight basis: grain size (based on a U.S. #230 sieve), oil and grease, total volatile solids, ammonia nitrogen, five-day biochemical oxygen demand, total polychlorinated biphenyl, arsenic, barium, cadmium, chromium, copper, mercury, nickel, lead, selenium, and zinc.

- 10) All sampling and analytical methods to be employed during the variance period shall follow procedures established by Standard Methods for the Examination of Water and Wastewater, 16th Edition and Chemistry Laboratory Manual for Bottom Sediments and Elutriate Testing, March 1979. In addition to the above requirements the elutriate test shall consist of a 30-minute mixing period with a zero (0)-hour settling period. Army in its discretion may also analyze additional samples utilizing a longer settling period. Both sampling and laboratory analyses shall provide for replicate testing. Field analyses shall be performed by trained personnel under direct supervision; laboratory analyses shall be performed by Agency certified laboratories.
- 11) By February 1, 1988, and annually thereafter for the duration of the variance, Army shall submit to the Agency the results of sampling under Paragraphs 3 and 9, the results of any evaluation under Paragraph 5, and the steps taken to comply with Paragraph 7.
- 12) Within forty-five days of the date of the Board's Order, Army shall submit the following Certification of Acceptance to:

DWPC/Compliance Assurance Section.
 Illinois Environmental Protection Agency
 2200 Churchill Road
 P.O. Box 19276
 Springfield, IL 62794-9276

CERTIFICATION

I, (We), _____, having read and fully understanding the Order in PCB 87-38, hereby accept that Order and agree to be bound by all of its terms and conditions.

 Petitioner

 Authorized Agent

 Title

Date

IT IS SO ORDERED.

J.D. Dumelle concurred.

Section 41 of the Environmental Protection Act, Ill. Rev. Stat. 1985 ch. 111 1/2 par. 1041, provides for appeal of final Orders of the Board within 35 days. The Rules of the Supreme Court of Illinois establish filing requirements.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 17th day of September, 1987, by a vote of 6-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

LEGEND FOR DREDGING SUMMARY AND CHARTS
HISTORIC PERIOD OF SUMMARY 1953-1982

Summary of Dredging Locations:

Column A Map Key. Number assigned to dredge area on maps.

Column B River Mile of maintenance dredging areas, period of record, measured in miles above the confluence of Illinois and Mississippi Rivers.

Column C Local Site Name(s). Name used by Corps personnel, towboat pilots, etc. to identify area.

Column D Average Volume per Job. Total volume of material dredged during the historic period divided by the number of times dredged stated in cubic yards.

Column E Average Volume per Year. Total volume of material dredged during the historic period divided by the number of years in the historic period, stated in cubic yards.

Column F Frequency of Dredging. Historical frequency average for probability of being dredged in a given year expressed as 1-5 = once every 5 years.

Column G Year Last Dredged. The latest year in the historic period dredging was accomplished.

Column H Sediment Analysis. States the years that sediment analysis was performed at the site. If none is indicated, no known sediment analysis work has been done.

Charts

Symbol Description:

Indicates approximate reach of channel which has had dredging requirements during the historical period. Symbol placement does not indicate centerline or width of dredge cut, only lineal length.

SUMMARY OF DREDGING DATA
ILLINOIS RIVER MILE 80.0 TO 230.0
ROCK ISLAND DISTRICT 9-FOOT CHANNEL PROJECT

1953-1982

| A Map Key | B River Mile | C Local Site Name(s) and County(s) | D Avg. Vol. Per Job Cubic Yards | E Avg. Vol. Per Year Cubic Yards | F Frequency of Dredging Probability | G Year Last Dredged | H Sediment Analysis Year(s) | |
|-----------------|--------------------|---|---|---|--|------------------------------|--------------------------------------|------|
| 1 | 80.0-81.0 | LaGrange Daymark Brown & Cass Counties | 13,000 | 400 | 1-30 | 1958 | | |
| 2 | 88.5-89.5 | Mouth of Sangamon River Cass & Schuyler Counties | Anticipated Site-No Activity during Summary Period 1949 | | | | | 1949 |
| 3 | 94.0-95.2 | Sugar Island Cass & Schuyler Counties | 26,500 | 800 | 1-30 | 1962 | | |
| 4 | 97.0-98.0 | Browning Landing Schuyler & Mason Counties | 42,000 | 2,800 | 1-15 | 1963 | | |
| 5 | 110.0-113.0 | Grand Is. Fulton & Mason Counties | 410,700 | 13,700 | 1-30 | 1962 | | |
| 6 | 113.0-115.0 | Matanzas Bay Fulton & Mason Counties | 217,600 | 7,300 | 1-30 | 1953 | | |
| 7 | 120.0-123.0 | Quiver Is. Fulton & Mason Counties | 165,300 | 33,100 | 1-5 | 1977 | 1981 | |
| 8 | 125.5-126.1 | Big Sister Creek Fulton & Mason Counties | 22,900 | 800 | 1-30 | 1962 | | |

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| A | B | C | D | E | F | G | H |
|----|-------------|---|---------|--------|------|------|----------------|
| 9 | 132.5-134.5 | Senate Island Fulton & Tazewell Counties | 100,600 | 6,700 | 1-15 | 1972 | |
| 10 | 136.0-137.5 | Copperas Creek Peoria & Tazewell Counties | 100,100 | 16,600 | 1-6 | 1979 | 1979, '81 |
| 11 | 143.0-146.8 | Kingston Landing Peoria & Tazewell Counties | 112,900 | 11,300 | 1-10 | 1982 | |
| 12 | 147.0-148.0 | Mackinaw River Peoria & Tazewell Counties | 117,800 | 43,200 | 1-3 | 1982 | 1979, '81, '82 |
| 13 | 148.0-152.0 | LaMarsh Cr. - Pekin Bend Peoria & Tazewell Counties | 63,200 | 12,600 | 1-5 | 1979 | 1979, '81 |
| 14 | 154.0-156.6 | Lick Creek Peoria & Tazewell Counties | 34,700 | 11,600 | 1-3 | 1982 | 1981, '82 |
| 15 | 156.6-157.7 | Below Peoria Lock Peoria & Tazewell Counties | 41,600 | 8,300 | 1-5 | 1982 | 1982 |
| 16 | 157.9-158.1 | Above Peoria Lock Peoria & Tazewell Counties | 15,300 | 1,500 | 1-10 | 1979 | |
| 17 | 159.0-160.0 | Kickapoo Creek Peoria & Tazewell Counties | 76,600 | 5,100 | 1-15 | 1962 | 1977 |
| 18 | 161.0-163.0 | Peoria Bridges - Farm Creek Peoria & Tazewell Counties | 38,800 | 3,800 | 1-3 | 1979 | 1979, '81 |
| 19 | 166.0-168.4 | Ten Mile Creek Peoria & Woodford Counties | 41,200 | 1,400 | 1-30 | 1969 | 1981 |
| 20 | 172.5-175.0 | Blue Creek Peoria & Woodford Counties | 126,000 | 4,200 | 1-30 | 1959 | |

| A | B | C | D | E | F | G | H | |
|----|-------------|--|--|--------|------|------|------|--|
| 21 | 175.0-178.0 | Rome Light Peoria & Woodford Counties | 309,532 | 10,300 | 1-30 | 1955 | | |
| 22 | 180.8-181.0 | Senachwine Creek Peoria & Woodford Counties | 49,400 | 6,600 | 1-7 | 1973 | 1981 | |
| 23 | 196.0-197.0 | Sandy Creek Marshall County | Anticipated Site-No Activity during Summary Period | | | | 1948 | |
| 24 | 218.5-220.6 | Spring Cr. - Huse Slough LaSalle County | 70,200 | 9,400 | 1-7 | 1971 | 1981 | |
| 25 | 224.0-227.0 | LaSalle Bend LaSalle County | Anticipated Site-No Activity during Summary Period | | | | 1952 | |