

ILLINOIS POLLUTION CONTROL BOARD

July 10, 1997

FOX WATERWAY AGENCY,)	
)	
Petitioner,)	
)	
v.)	PCB 97-151
)	(Variance - Water)
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY,)	
)	
Respondent.)	

ROY M. HARSCH OF GARDNER, CARTON & DOUGLAS APPEARED ON BEHALF OF PETITIONER;

MARGARET P. HOWARD OF IEPA APPEARED ON BEHALF OF RESPONDENT.

OPINION AND ORDER OF THE BOARD (by M. McFawn):

The Fox Waterway Agency (FWA) filed a petition for variance on March 3, 1997, seeking a variance from various water effluent standards as a result of ongoing and proposed dredging operations in the Fox Chain of Lakes area. Specifically, the FWA seeks variance from 35 Ill. Adm. Code Section 304.124 with respect to the maximum allowable total suspended solids (TSS); Section 304.105 with respect to the water quality standards for TSS, phosphorus and unionized ammonia; Section 304.123 with respect to the effluent limit for phosphorus; and Section 304.106 with respect to the existence of settleable solids and turbidity due to dredging operations in the FWA watershed territory. The primary regulation of concern to the FWA specifies that TSS in effluent may not exceed 15.0 milligrams per liter (mg/L). The FWA proposes a variance to permit the effluent from its various dredging handling and treatment operations to reach a maximum TSS of 100 mg/L. The respondent, Illinois Environmental Protection Agency (Agency), recommends that the Board grant the variance the FWA seeks, with but one difference. The Agency recommends that the effluent limitation for TSS be set on a site- specific basis versus the blanket 100 mg/L limitation the FWA seeks.

The FWA seeks variance from the applicable effluent regulations for the effluent from (1) the Ackerman Island confined disposal site which discharges into Fox Lake, and two proposed confined disposal sites (2) the geotube development project, to be placed initially in Grass Lake, and (3) areas under the FWA's jurisdiction where the FWA proposes to use for the first time a mechanical dewatering system for dredging. The variance petition includes two descriptions: (1) the ongoing dredging projects and dredge material handling operations currently undertaken by the FWA at Ackerman Island, and (2) a proposed project for dredge material handling utilizing new technology involving fabric-based geotextile tube ("geotube")

storage. The variance petition provides no details describing the proposed mechanical dewatering system which the FWA plans to test, but this deficiency was corrected at hearing.

The FWA requests that the variance apply to its operations in the entire area under its jurisdiction, which includes several interconnected lakes, natural and manmade channels, and contiguous riverways stretching from the Wisconsin border to the Village of Algonquin, Illinois (hereinafter referred to as "Fox Chain of Lakes"). The critical issue in this variance is the request by the FWA for a single TSS limit of 100 mg/L applicable to its discharge from various dredging projects in the Fox Chain of Lakes. Information addressing the variance criteria, including the geographic location of the FWA dredging activities, is set forth in the petition and the Agency's recommendation filed on April 4, 1997. In its recommendation, the Agency recommended that the variance sought by the FWA be granted with two exceptions. First, the Agency recommended that the TSS limitation for the effluent be a site-specific limitation instead of the 100 mg/L sought by the FWA. Second, the Agency recommended that the Board deny the variance sought concerning the mechanical dewatering project due to lack of information in the petition. The FWA and the Agency presented additional information at hearing, in submittals responding to a post-hearing information order issued by the hearing officer, as well as in their post-hearing briefs.

The FWA seeks to obtain the variance for a period of five years from the date of variance being granted. The FWA states that during that time it will perform each of the three proposed projects gathering the information necessary to petition for permanent relief in the form of an adjusted standard. The FWA estimates that during the first 2 ½ years of the variance, it will conduct the necessary experiments to obtain the information necessary to determine the adjusted standard it should seek. The FWA plans to use the remainder of the variance's term to petition for the adjusted standard and obtain the Agency's support and the Board's decision on such petition.

The Board's responsibility in this matter arises from the Illinois Environmental Protection Act (Act) 415 ILCS 5/1 *et seq.* (1996). The Board is charged therein with the responsibility of granting variance from Board regulations whenever it is found that immediate compliance with the regulations would impose an arbitrary or unreasonable hardship upon the petitioner 415 ILCS 5/35(a). The Agency is charged with, among other things, investigating each variance petition and making a recommendation to the Board as to the disposition of the petition. 415 ILCS 5/27(a)(1996). The Agency is also required to appear in hearings on variance petitions. 415 ILCS 5/4(f)(1996).

For the reasons set forth below, the Board finds that the FWA has presented adequate proof that immediate compliance with the Board's water pollution effluent standards from which it seeks variance would impose an arbitrary or unreasonable hardship. Accordingly, the Board grants the petitioner's variance petition with respect to Sections 304.105, 304.123, and 304.106 for the entire geographic area under the jurisdiction of the FWA for effluents from its dredging operations. The Board also grants variance from the 15 mg/L TSS limitation found at Section 304.124. However, as a condition to this variance, the Board imposes the site-

specific TSS limits recommended by the Agency concerning the confined disposal facilities and the geotube projects. As for the last project, the mechanical dewatering system test, the Board will impose the two conditions the Agency recommends so that adequate data is collected to demonstrate the impact to water quality after the test is run. The variance shall become effective beginning on the date of this opinion and subject to the conditions set forth in the attached order.

PROCEDURAL HISTORY

The Agency filed its recommendation in this matter on April 4, 1997. A Motion for Extension of Time To File Response to Agency Recommendation was filed by the FWA on April 14, 1997. The hearing officer granted the motion, and the FWA's response to the Agency recommendation was filed on April 21, 1997. The FWA submitted a short waiver of the Board's statutory decision due date, which accommodated the notice of hearing for May 6, 1997.

Pursuant to 35 Ill. Adm. Code 104.160, a hearing was held before Board hearing officer June Edverson on May 6, 1997, at the Lake Zurich Village Hall. Board Member Marili McFawn and Technical Support Staff member Anand Rao were in attendance. No members of the public were present. Several witnesses presented testimony: Karen C. Kabbes, P.E., then-Executive Director, Fox Waterway Agency; Linda L. Huff, P.E., President, Huff & Huff Environmental Consultants, Inc.; Michael Hodges, Business Development Manager, The Industrial Company, Wyoming, Inc., Denver; Bruce J. Yurdin, Manager, Watershed Unit, Permits Section, Water Pollution Control, IEPA and Robert G. Mosher, Supervisor, Standards & Monitoring Support Unit, Planning Section, Bureau of Water, IEPA. The hearing officer identified no issues of witness credibility.

After hearing, the hearing officer issued a Post-Hearing Information Order and an agreed Briefing Schedule. Both parties filed timely Responses to the Post-Hearing Information Order, and complied with the briefing schedule. The Record of the proceeding was closed on June 23, 1997. The FWA filed a second waiver extending the decision due date until July 25, 1997, to accommodate the briefing schedule.

STATUTORY FRAMEWORK

The Board's jurisdiction and authority in this matter arise from the Act. The Board is charged there with the responsibility of granting variance from Board regulations whenever it is found, upon presentation of adequate proof, that immediate compliance with the regulations would impose an arbitrary or unreasonable hardship upon petitioner. 415 ILCS 5/35(a). The purpose of a variance has been elaborated upon many times by the Board and the courts. In Monsanto Company v. Pollution Control Board, 67 Ill.2d 276, 367 N.E.2d 684, 688 (1977), the Supreme Court, in determining whether variances can be permanent, stated that the Act's ultimate goal is for all polluters to be in compliance and that "[t]he variance provisions afford some flexibility in regulating speed of compliance, but a total exemption from the statute

would free a polluter from the task of developing more effective pollution-prevention technology". The Board, in following Monsanto, and other subsequent cases, has stated that "[a] further feature of a variance is that it is, by its nature a temporary reprieve from compliance with the Board's regulations, and compliance is to be sought regardless of the hardship which the task of eventual compliance presents an individual polluter." American River Transportation v. Illinois Environmental Protection Agency (August 24, 1995), PCB 95-146.

SUMMARY OF PETITION AND RECOMMENDATION

Petitioner, the FWA, is a special purpose unit of local government created to maintain and improve the Fox Waterway System from the Wisconsin state line to Algonquin, Illinois 615 ILCS 90/1 *et seq.* (1996). The FWA, governed by an elected board of seven officials, is charged, by statute, with the duty to:

...implement reasonable programs...to improve and maintain the Fox Chain of Lakes – Fox River recreational waterway...to improve the recreational uses of the waterway, prevent pollution and otherwise improve the quality of the waterway. 615 ILCS 90/7.1 (1996).

To fulfill this duty, the FWA has an ongoing dredging program which uses a single, confined, state-owned disposal site on Ackerman Island. The FWA petition involves three projects that the FWA wants to expand or implement to enhance its dredging program. Each project is discussed individually below as presented by petitioner and as recommended by the Agency. The environmental impacts of each project are also discussed, as are the Board's conclusions concerning the same.

Confined Disposal Sites

The first project presented in the petition is the continued use of the Ackerman Island disposal site which discharges into Fox Lake. Petitioner characterizes this operation as a confined disposal operation. The FWA currently has an Illinois EPA permit, No. 1993-EA-3060, to operate the Ackerman Island Sediment Disposal Facility. Petition, Attachment 7. That permit allows the FWA to place up to 22,149 cubic yards of hydraulically dredged material from the Fox Chain of Lakes into the Ackerman Island disposal facility. Pursuant to that permit, the FWA is required to monitor the effluent on a weekly basis for TSS, phosphorus, ammonia nitrogen (as N), pH and temperature. Those monitoring results must be submitted to the Agency monthly. Pursuant to the permit, the TSS in the effluent is limited to 15 mg/L, and the FWA must manage the facility so that water quality standards are maintained.

The FWA currently removes bottom materials from the river, lakes and channels using either a hydraulic dredge or an amphibious backhoe leased from the State. The hydraulic dredge removes the material by essentially cutting and vacuuming the bottom of the waterway

and then pumping the resulting sediment-water mixture to a dredge containment and dewatering site, i.e., the confined disposal site. The FWA claims that it has not used the Ackerman Island confined disposal site since 1994 because it became filled. Prior to that time, in 1993 and 1994, the effluent TSS from Ackerman Island averaged 42 mg/L with a range of 10 to 101 mg/L. Petition at Attachment 1. Recently, the FWA expended approximately \$200,000 to excavate the sediment accumulated there, so that it is now available for additional disposal.

The State has recently acquired land for two other confined disposal sites: one known as Island Lake, and the other known as Grass Lake. The capital cost of constructing the proposed Island Lake site is \$1.5 million. The FWA requests that the variance include relief from the four effluent related water regulations for these proposed sites, as well as the Ackerman Island site. Specifically, the FWA requests that the effluent limitation for TSS in the effluent from the confined disposal operation be set at 100 mg/L for all three sites. Recommendation at Attachment A; Petitioner Ex. 4.

The Agency acknowledges that the FWA dredging program is necessary and has an overall positive environmental impact. The Agency, therefore, recommends that the Board grant variance from Section 304.105, as it applies to un-ionized ammonia nitrogen and phosphorus, Section 304.123(b) as it applies to phosphorus, Section 304.106 which prohibits offensive discharges, including settleable solids, and requires that turbidity be reduced to below obvious levels. However, the Agency recommends TSS limits different from those requested by the FWA. The Agency recommends that the TSS limit for Ackerman Island be set at 80 mg/L; for Island Lake at 58 mg/L; and for Grass Lake at 100 mg/L.

In support of its recommendation, the Agency relies upon the following three facts:

1. Background levels for TSS within the Fox Chain of Lakes are well below 100 mg/L, with levels in Grass Lake being marginally higher than the other lakes;
 2. TSS discharged at 80 mg/L is more protective of aquatic life than TSS discharged at 100 mg/L; and
 3. Historical data provided by the FWA shows that effluent limits well below 80 mg/L can be achieved at the Ackerman Island confined disposal facility.
- Recommendation at p.5

The Agency claims that the problem the FWA faces in achieving TSS levels in the effluent from confined disposal sites is due to the lack of space and time to allow adequate settling and draining. The lower the TSS limit, the more time the dredged material must settle to achieve the applicable effluent limit. The Agency contends that if the FWA had more confined disposal sites, there would be more space and time for adequate settling to take place.

The Geotube Project

The second project proposed in the petition is the use of geotextile tubes (geotubes) placed in the water and filled with dredged material. The geotubes, as they are filled, will be left in place eventually forming an area that the FWA intends to develop as a wetland. In cooperation with the U.S. Army Corps of Engineers and the Department of Natural Resources, the FWA desires to create some new wetland areas to replace some of those which have been lost over the years. The FWA will use the geotube to be filled with dredged material and form a perimeter of 10 acres which would eventually be filled with more dredged material to form an island. Vegetation would provide permanent stabilization of the new wetland by spreading its roots through the geotube and sediment. Petition at 6-7.

According to the FWA, Nippersink, Grass and Pistakee Lakes once contained large areas of wetlands. Those wetlands helped trap silt and were home to fish and game birds. Erosion due to boat, wind and water level fluctuations has caused many of the wetlands to disappear, leaving shallow areas not generally usable for boating. The FWA intended to build the first geotube wetland project on Nippersink Lake.¹ The State of Illinois has earmarked approximately \$400,000 to fund the work. Should the project prove successful, the FWA intends to build similar wetland areas in Pistakee and Grass Lakes. Petition at 7.

The FWA presently has an Illinois EPA operating permit, No. 1996-EA-5493, which allows the installation of two geotubes in Nippersink Lake and Pistakee Lake. Petition at Attachment 7. According to the permit, the geotubes are approximately 30 feet in circumference and are constructed of an outer shell of woven polyethylene liner. The geotubes will be filled by hydraulic dredge and by mechanical excavator with a slurry pump. In the permit, among other conditions, the FWA is required to monitor the effluent discharged from any outlet ports in the geotubes for TSS, ammonia nitrogen, pH and temperature on a weekly basis. The sampling results and locations are to be reported to the Agency on a monthly basis. The geotube area is also required to be operated in such a way that satisfactory detention is provided to maintain a TSS effluent concentration of 15 mg/L.

Based upon test results to date the FWA does not believe that it is feasible to proceed with the geotube project under the current permit. The geotube filled with dredged material in Pistakee Lake is approximately 30 feet in circumference and is made of an outer shell with an interior liner. It took 14 days to fill 140 feet of tubing. The FWA figures at that rate the 7,000 foot tube needed to form the perimeter of the proposed wetland disposal area would take nearly two years to fill—an unreasonable length of time. In addition to seeking the variance, the FWA is experimenting with various design options. Petition at 9.

The Agency's recommendation concerning this second project is much the same as its

¹ Due to community opposition, the geotube will probably not be installed in Nippersink Lake. (Petition at 8)

recommendation concerning the confined disposal project. The Agency supports continued dredging by the FWA and recommends relief from Section 304.105, Section 304.123(b) and Section 304.106. The Agency also recommends variance from Section 304.124(a), but advocates effluent limitations more stringent than the 100 mg/L the petitioner seeks. Based primarily upon background levels of TSS, the Agency recommends that the TSS in the effluent discharged be limited to 100 mg/L in Grass Lake; to 70 mg/L in Nippersink Lake; to 80 mg/L in Pistakee and Fox Lakes.

Mechanical Dewatering Project

The third project presented in the petition is the proposed testing of a mechanical dewatering system which would allow the FWA to undertake hydraulic dredging and transfer the solids to truck and then ship the material to disposal sites other than its own Ackerman Island. The FWA explained that this is to be a one-time test program utilizing approximately 10,000 cubic yards of dredged material. The purpose of this project is the same as confined disposal: to concentrate the solids for use or disposal and to return the water to the Fox River system. The purpose of the test is to determine an appropriate size for the full-scale equipment, to develop cost information, and to determine the technical feasibility and economic reasonableness of additional add-on controls to this mechanism. The FWA hopes that the mechanical dewatering technology can be used in the future to reduce the costs of future dredging projects and enable dredging of otherwise inaccessible areas. In its petition, the FWA did not identify the proposed dredging site or the effluent limitations it seeks. Rather, the FWA did state that the TSS levels in the effluent absent controls could be as high as 1 gram per liter. Petition at 8-9.

Initially the Agency recommended that this request be denied due to insufficient information in the Petition. The Agency has since revised its recommendation in favor of variance relief from the applicable sections. (Response to Post-Hearing Information Order.) The Agency's favorable recommendation, however, is subject to the imposition of the following two requirements. First, the FWA should be required to installed an impermeable barrier such as a silt curtain prior to dredging so that the work area is isolated from the adjoining waters of the State. Second, the FWA should not be allowed to remove the impermeable barrier until "TSS monitoring at representative locations indicates that the post-project water in the channel is essentially similar to the water on the lake or river side of the barrier." Agency Response to Post-Hearing Information Order at 3.

In its post-hearing brief, the FWA agreed with the conditions proposed by the Agency, but expressed concern about their interpretation and language. First, the FWA was concerned about the term "impermeable", and requested that it be replaced with the phrase "low permeability." Second, the FWA was concerned about the terms "TSS monitoring" and the phrase "essentially similar." The FWA believes that the monitoring should consist of a visual examination only versus laboratory analysis. Therefore, the FWA requested that the term "essentially similar to" be replaced with "not visibly more turbid than." The Agency is not in agreement, especially with the second substitution that the FWA requests. In its post-hearing

brief, the Agency claimed that such an interpretation by the FWA indicates that it is not willing to develop the water quality information which the mechanical dewatering experiment was intended to generate to support possibly permanent relief concerning this project. The Agency argued that if the FWA did not intend to demonstrate and provide the necessary information, variance should not be granted for this project. Agency Brief at 9-10. In its reply brief, the FWA did not respond to the Agency's position about actual versus visual monitoring for TSS levels in the "post-project water."

ENVIRONMENTAL IMPACT

Each of the three projects proposed by the FWA is to accommodate dredging in the Fox Chain of Lakes areas over which the FWA has jurisdiction. The FWA and the Agency agree that the dredging is necessary and will have overall environmental benefits to the area's environment. Petition at; Agency Recommendation at 3. As pointed out by the FWA, common to each of the three projects covered by the variance request is the material discharged. The material discharged will originate from dredged material, i.e., sediment removed from the bottoms of rivers, channels and lakes within the relevant Fox waterway area. The FWA has no real control over the types of contaminants in the dredged materials. However, given the non-industrial character of the area, unnatural materials should not have significantly accumulated in the sediment, and available sediment sampling supports that conclusion. Petition at 9 and Attachment 3.

In its operating permits issued to FWA to date, the Agency has only identified total phosphorus, and ammonia nitrogen and TSS as contaminants of concern and only required monitoring for these contaminants. Based upon historical sampling results, the FWA has not been able to meet the TSS limit of 15 mg/L consistently, and historical ammonia and phosphorus values indicate that the effluent could cause or contribute to water quality exceedences. Petition at Attachments 1 and 4. Although no such data is available for the proposed geotube/wetland project or the mechanical dewatering project, the FWA anticipates similar results from the former, and absent additional controls even higher concentrations from the testing proposed for the mechanical dewatering system. Petition at 10. In its recommendation, the Agency concludes that under the circumstances in the Fox Chain of Lakes waterway, the environmental benefits of the FWA proposed dredging program outweigh the minimal environmental impact of granting the variance for phosphorus and ammonia nitrogen for the first two projects. Recommendation at 4. The Agency expanded its favorable recommendation for these two contaminants to the third project, the mechanical dewatering system, during hearing and in its post-hearing brief. Transcript at 66-67 and 97-98; Agency Brief at 2.

The Agency also agrees that the enhanced dredging program requires variance from the TSS limit of 15 mg/L and the environmental benefits of the dredging program outweigh the environmental detriments. However, the Agency disagrees with the FWA about the TSS limitation necessary for the dredging to take place during the variance without threatening or harming aquatic life on a short term basis. The Agency believes that the environmental

consequences of dredging must be mitigated. Given that the material discharged is common to all three projects, the Agency further believes that the environmental consequence can and must be mitigated for three projects. The Agency states that it is proposing effluent limits based primarily upon available background TSS data as opposed to the “blanket” limit of 100 mg/L requested by the FWA in an attempt to mitigate the short term detrimental impacts caused by the dredging operations. Recommendation at 4-5; Agency Brief at 3-4.

The FWA Seeks 100 mg/L TSS Limit

The FWA seeks a single TSS limit of 100 mg/L that would apply to its discharges from various projects in the Fox Chain of Lakes. The FWA justifies the proposed TSS limit with the findings of a Maryland Department of Health and Mental Hygiene study entitled “Turbidity: A Literature Review of its Impacts on Aquatic Resources.” Petition Attachment at 6. The FWA contends that according to the Maryland study effluent discharges containing less than 100 mg/L TSS would not be expected to cause any harmful instream impact, regardless of the available dilution. Petition at 15. The FWA also supports its request with a study conducted by the Northeastern Illinois Planning Commission (NIPC) entitled “A Review of Water Quality Regulations Pertaining to Dredging Activities”. Petition Attachment at 5.

The FWA states that, at least on an interim basis, its discharges should not be limited to levels based upon background water quality. The FWA asserts that the methodology used by the Agency in developing the TSS limits has a few shortcomings. Petition Brief at 6. First, the FWA notes that the water quality data is limited and that the available data is variable. The FWA states that the Agency data, which was taken on weekdays when there is little boat traffic, shows significantly lower TSS levels than the data collected by the Army Corp. In this regard, the FWA contends that heavy boat traffic is a reality in the Fox Chain of Lakes, and its impact on sediment resuspension must be considered. Next, the FWA argues that it is unnecessary to limit the TSS discharge levels to background unless that limit is necessary to avoid an adverse impact upon the aquatic community. Finally, the FWA states that limiting effluent discharges to background concentrations ignores the cost of control. The FWA contends that given the environmental benefits of dredging, it is not reasonable to impose significant cost.

The FWA states that one of the major purposes of the variance is to develop information necessary to support permanent relief. The FWA notes that the reliance on limited data in developing the interim limits raises the question: should regulations be adopted to avoid any potential adverse impact, or should the regulation be avoided until a problem is demonstrated in order to avoid unnecessary expenditures. Petition Brief at 8. In this regard, the FWA believes that the Agency has taken the conservative position despite some factors that favor allowing the FWA more flexibility. According to the FWA, these factors include the following: the overall environmental benefit associated with dredging; statutory mandates for the FWA to improve the environmental quality of Fox Chain of Lakes; the variance represents a limited term experiment to develop support for appropriate permanent standards; and other states provide for greater flexibility than Illinois.

IEPA Recommends Site-Specific TSS Limits

The Agency believes that variance relief should be granted within environmentally tolerable limits and should not be driven strictly by economics. Agency Brief at 2. The Agency states that even though dredging has an overall environmental benefit, it can have short term detrimental impacts which must be mitigated. In this regard, the Agency contends that site-specific limits, rather than a single “blanket” limit for the entire Fox Chain of Lakes waterway, are important to mitigate the detrimental effects. In light of this, the Agency has proposed site specific TSS limits which range from 58 to 100 mg/L.

The Agency states that the recommended TSS limits are based on the ambient water quality and the monitoring data included in the Army Corp of Engineers’ Recreational Boating Impact Study (Petition Attachment 2) provided by the FWA. Agency Brief at 7. Further, the Agency asserts that the manner in which it determined the TSS limits is consistent with the recommendations of the NIPC Study (Pet. Attachment 5) provided by the FWA. As suggested by the NIPC study, the Agency contends that it determined the TSS limits by using its best professional judgment and by considering factors such as the background levels of TSS at each of the sites, the continuous nature of dredging projects and the overall benefits of dredging.

With regards to the Maryland study cited by the FWA, the Agency states that study focused on impacts of TSS on estuaries (salt water-fresh water intermingling type environments). In this regard, the Agency notes that one of the authors of the study, Mr. Andrew Der, specifically states that the study does not apply to fresh water lakes and that the high TSS limits utilized in Maryland would not be a very good limit for freshwater systems. Agency Brief at 8. Further, the Agency asserts that the Maryland study supports its recommended limits more so than supporting the FWA’s requested limit of 100 mg/L.

The Agency’s recommendation for site-specific effluent limits is based upon three premises. First, the background levels for TSS in the Chain of Lakes waterway are well below 100 mg/L. Since the background levels are somewhat higher in Grass Lake, the Agency recommends a 100 mg/L effluent limit for the projects discharging there. Recommendation at 6. Second, the Agency argues that TSS discharged at 80 mg/L is more protective of aquatic life than TSS discharged at 100 mg/L, citing The Maryland Turbidity Report attached to the FWA’s petition. Recommendation at 6-9. The Agency claims that the effluent limit of 100 mg/L for TSS appears to be the limit at which adverse impacts to aquatic life are definitely documented in the Turbidity Report. Recommendation at 9. Third, the Agency claims that historical data the FWA provided shows that effluent limits well below 80 mg/L can be achieved at the Ackerman Island site. Recommendation at 9, and Attachment A. The Agency acknowledges that the FWA claimed that such limits could not be met if the settling times were altered. However, the Agency argues that settling times should not be decreased to a point where aquatic life is adversely impacted if the same can be reasonably avoided. Recommendation at p.9.

Therefore, the Agency concludes that the disagreement is really premised upon cost.

Regarding the issue of cost, the Agency notes that the FWA did not provide any cost information to determine the cost savings between meeting the limit proposed by the FWA and the limits recommended by the Agency. Agency Brief at 5.

The Agency developed its site-specific effluent limitations by taking data from the Recreational Boating Impact Study performed by the U.S. Army Corps of Engineers (Petition, Attachment 2), and added available ambient water quality data (Recommendation, Attachment B and Agency Hearing Ex.1.) The Agency questioned whether the Recreation Boating Study is applicable to assessing the impact of dredging on the Chain of Lakes waterway. It does not believe that it should be the sole authority for determining TSS effluent limitations. On the other hand, the Agency recognized that using only the available ambient water quality data, much more stringent limitations would have resulted. The Agency explained that it combined the two data bases in order to recommend interim TSS effluent limitations that would allow the dredging operations to take place and the overall benefits of dredging to be achieved. Agency Brief at 4-5.

COMPLIANCE PLAN

In support of its variance request, the FWA proposed a three phased compliance plan aimed primarily at obtaining an adjusted standard from the Board to make permanent the relief it believes necessary to carry out its dredging operations. During phase one, the FWA intends to investigate whether “economically reasonable compliance options exist” and to work cooperatively with the Agency to develop the information necessary to prepare an adjusted standard petition. In particular, the FWA intends to characterize “background” TSS levels in the various areas it will discharge, so that such information can be used to develop the appropriate regulatory limits. The FWA also intends to optimize the geotube filling and treatment capabilities and to test and modify the mechanical dewatering system. The FWA anticipates that it will need two dredging seasons to collect this information. During phase two, the FWA will prepare and seek an adjusted standard from the Board. The FWA anticipates that this phase will last approximately 18 months. The FWA believes that both phases will take four years to complete. Phase three will only be implemented if the FWA does not obtain the adjusted standard. In that case, the FWA agrees that it will either cease dredging operations or arrange for disposal of dredged materials in compliance with the law. The FWA requests an additional year to implement phase three in the event the adjusted standard is denied. In total, the FWA requests a five year variance. Petition at 10-11.

The Agency recommends that FWA be granted a five year variance with a condition that the FWA be required to submit a petition for an adjusted standard to the Board within 30 months of the date the variance is granted. Recommendation at 11.

ARBITRARY OR UNREASONABLE HARDSHIP

The FWA states that denial of its variance petition would pose an arbitrary or unreasonable hardship because it would be unable to proceed in an efficient manner with dredging activities designed, in the long term, to assure that the waters of the watershed under its jurisdiction are of a high environmental quality. Specifically, petitioner claims that the only treatment options are to build a wastewater treatment facility or to transport the dredged material to an off-site facility. Petition at 17-19. The FWA claims that both options are prohibitively expensive. The FWA relies heavily upon its belief, and the Agency's, that the environmental benefits gained by the dredging operations outweigh the environmental detriments posed by such operations. As stated at the outset, variance will be granted from the necessary, applicable regulations so that the FWA can carry out the described dredging projects. We note that the FWA does not specifically address in its petition how site-specific TSS effluent limits would impose an arbitrary or unreasonable hardship.

CONSISTENCY WITH FEDERAL LAW

The FWA states that it is unaware of any federal laws which would preclude the granting of the requested relief. Petition at 20. The Agency states that there are no federal laws which would preclude the grant of variance. Recommendation at 11. The Board accepts the representations by both petitioner and Agency.

ANALYSIS

Since both the FWA and the Agency agree that a variance from the TSS effluent standard of 15 mg/L (Section 304.124) is necessary for implementation of the dredging program, the issue that must be resolved concerns at what level the TSS limit must be set for the discharges from the FWA dredging activities in the Chain of Lakes. The following table summarizes the relief requested by the FWA pertaining to TSS, and the TSS limits recommended by the Agency for the various dredging locations:

Project	Site	TSS Limitations (mg/L)		
		Section 304.124	FWA's Request	Agency's Recommendation
Confined Disposal	Ackerman Island (Fox Lake)	15	100	80
	R15 (Fox River)	15	100	58
	L10 (Grass Lake)	15	100	100
Geotubes	Grass Lake	15	100	100
	Fox Lake	15	100	80
	Nippersink Lake	15	100	70
	Pistakee Lake	15	100	80

The FWA has proposed a single "blanket" effluent TSS limit for each of its project, while

the Agency has recommended site-specific effluent limits. In order to determine the appropriate effluent TSS limits we need to address three issues: (i) whether the TSS limit is protective of the aquatic life; (ii) whether it is technically feasible to comply with the TSS limit; and (iii) whether the additional cost, if any, associated with complying with the TSS limit is reasonable. These issues are discussed below.

Protection of Aquatic Life

The FWA correctly notes that the Board has not adopted a water quality standard for TSS. However, the Board has adopted an effluent TSS standard of 15 mg/L at Section 304.124 that applies to nondeoxygenating waste effluents. In adopting this standard, the Board recognized that it is necessary to control the level of suspended solids to prevent excessive turbidity and harmful bottom deposits for the protection of aquatic life. Turbidity is known to affect certain finfish and shellfish resources, and also affect depths to which light may penetrate and initiate photosynthetic activity in water. Petition, Attachment 6 at 1. Hence reduction of turbidity is an important goal in water quality protection. Since TSS is one of the main factors affecting turbidity, control of effluent TSS has a direct bearing on aquatic life protection.

In support of its request, the FWA provided two studies (Maryland's Turbidity Report and NIPC) concerning the issue of TSS and aquatic life protection. While the Maryland study was primarily conducted to evaluate the impact of turbidity on estuaries, the findings of the study provide some information concerning the issue of aquatic life protection. The study concludes that the preferred range of turbidity for fisheries management is 25 to 80 mg/L suspended solids. Petition Attachment 6 at 10. NIPC performed a review of the current Illinois water quality regulations pertaining to dredging activities. In particular, the NIPC study focused on the appropriateness of the current TSS effluent standard of 15 mg/L applied to discharges from dredging activities. The study recommends a number of alternative approaches to address water quality issues associated with dredging activities that include: (i) modifying the effluent TSS standards in the range of 30 to 100 mg/L; (ii) assessing the appropriateness of turbidity-based effluent standards; and (iii) expanding IEPA's ability to employ best professional judgment in permitting decision for dredging activities.

The information in the record suggest that concentration of suspended solids less than 25 mg/L does not have any harmful effects on fisheries, and it should be possible to maintain good or moderate fisheries in waters that normally contains 25 to 100 mg/L. From both studies it appears that adverse impacts may result above a TSS level of 100 mg/L. The water quality data pertaining to the Fox Chain of Lakes waterway indicate that the ambient TSS levels in all the four lakes (Grass, Fox, Nippersink and Pistakee) and Fox River are within 100 mg/L. In light of this, the effluent TSS limits should be set at levels at which the existing water quality (TSS) is not significantly altered. In this regard, the TSS limits recommended by the Agency ensures that the existing water quality is maintained in the waterway, while the single TSS limit proposed by the FWA may alter the existing water quality. Whether or not such alteration is significant depends upon a number of factors such as the discharge flow rate, TSS concentration, flow rate of receiving water body, etc. These factors can be controlled, monitored and studied during the term

of the variance.

Technical Feasibility

The FWA requests relief from discharges from two types of sites: (i) confined disposal sites; and (ii) geotube sites. The confined disposal facilities essential function as settling basins used for draining the dredge material. The effluent monitoring data from the existing confined disposal site at Ackerman Island (Fox Lake) indicate that TSS levels during a 12-month period ranged from 10 - 101 mg/L. Pet. Attachment at 1. Out of 21 data points only 3 values exceeded a TSS level of 80 mg/L. In light of this it is reasonable to expect the confined disposal facility to meet the Agency recommended TSS level of 80 mg/L with minimum operational changes. With regard to the planned confined disposal facilities discharging to Fox River and Grass Lake, the facilities could be designed to comply with the applicable effluent TSS limits.

Regarding the Geotubes, Ms. Karen Kabbes of the FWA stated that the tubes are designed to meet 15 mg/L TSS. Transcript at 100. However, Ms. Kabbes said that the problem they faced was to do with filling the tubes. She stated that it was very inefficient and costly since the liners become clogged very quickly with sediments allowing very little water to flow through the tube liner. Transcript at 69. Ms. Kabbes stated that the proposed TSS limit of 100 mg/L would allow the FWA to fill the tubes more effectively with lesser cost by relining the tube to make it more efficient. These statements suggest that geotubes could be constructed to comply with TSS limits of 70 or 80 mg/L instead of 100 mg/L.

Economic Reasonableness

The record does not contain economic information to draw any conclusions as to what would be the incremental cost of complying with the TSS limits recommended by the Agency instead of the TSS level requested by the FWA.

CONCLUSION

Based upon the record before us, the Board finds that to require compliance with the regulations at issue would impose arbitrary or unreasonable hardship on the FWA. Both petitioner and the Agency agree that the benefits of dredging outweigh the short term environmental impacts. We agree that based upon the information in the record, the variance from Section 304.105 (ammonia nitrogen/unionized ammonia and phosphorus); Section 304.106 (solids and turbidity); Section 304.123(b) (phosphorus); and Section 304.124 (TSS) is warranted. This variance will allow the FWA to undertake the three projects it plans to efficiently dredge in the Fox Chain of Lakes and thereafter treat and dispose of the dredged material. It will also enable the FWA to be in compliance during the term of the variance at the existing confined disposal facility at Ackerman Island.

We agree with the parties that the issue outstanding, once variance is deemed

warranted, is the appropriate level of TSS in the effluent from the confined disposal facilities and the geotubes. We also agree with the Agency that the burden is on the FWA in a variance proceeding to justify to the Board the relief it requires on an interim basis, not just the need for the relief. As stated before, the parties disagree about the extent of the relief, not the need for variance. Both the petitioner and the Agency characterize the contested issue in terms of cost. The FWA believes the “regulation” should be avoided until a problem is demonstrated in order to avoid unnecessary expenditures. The Agency claims that the FWA has not met its burden because it has not provided information about the cost of complying with the blanket TSS effluent limit versus the site-specific limits proposed by the Agency. The FWA acknowledges that it has not provided any such data.

We have examined the evidence provided by both the FWA and the Agency, not just in support of the variance, but also so that we can determine the appropriate TSS effluent limitation to substitute for the 15 mg/L found at Section 304.124. We find that the record contains a great deal of information about the need for variance from the 15 mg/L effluent limitation, but only minimal support for substituting it with the 100 mg/L TSS effluent limit which the FWA desires. However, the evidence from Ackerman Island supports the TSS effluent limitation IEPA recommends for confined disposal facilities. The FWA has not provided any evidence that the confined disposal facilities or the geotube/wetland facilities cannot be designed to meet the site-specific effluent limits proposed by the Agency. The FWA also has not provided any evidence about the cost of so designing or operating the existing or proposed facilities to meet either the 100 mg/L limit or those recommended by the Agency.

On the other hand, the Agency has demonstrated that the evidence supports the site-specific effluent limits it recommends. The evidence provided by the FWA shows that the Ackerman Island facility can consistently meet the recommended effluent limit of 80 mg/L. This also demonstrates that other such confined disposal facilities can be designed to meet the recommended effluent limits. There is nothing in the record that suggests that the geotubes cannot be designed to meet the site-specific effluent limits versus the 100 mg/L limitation. Furthermore, the effluent limits recommended by the Agency are premised upon environmental conditions and consequences. The studies presented by the FWA indicate that 100 mg/L is the upper end of the range where TSS affects aquatic life. Yet, the FWA has provided no evidence that it can only achieve this upper limit. For these reasons, we will condition the variance from Section 304.124 with the site-specific effluent limitations recommended by the Agency.

We note that we are granting this petition although the compliance plan is not ultimate compliance with the existing regulations, but rather the FWA plans to seek an adjusted standard. To do so, the FWA has committed to generate, collect and study the information necessary to support permanent relief in the form of an adjusted standard. We believe that the TSS effluent limitations imposed today as conditions to the variance will promote dredging operations by the FWA over the course of the variance so that information gathered consists of data that will fully demonstrate the most appropriate permanent TSS effluent limits. In that way, the FWA will be able not only to continue its dredging operations, but also to fulfill its

other statutory obligations to prevent pollution and otherwise improve the quality of the Fox Chain of Lakes waterway.

ORDER

1. Variance is granted from 35 Ill. Adm. Code 304.105 as it applies to un-ionized ammonia nitrogen and phosphorus.
2. Variance is granted from 35 Ill. Adm. Code 304.106 as it applies to solids and turbidity and 304.123(b) as it applies to phosphorus.
3. Variance is granted variance from 35 Ill. Adm. Code 304.124 which prohibits the concentration of TSS in an effluent to exceed 15 mg/L.
4. During the term of this variance, the TSS limit (monthly average) for the effluent from discharges from the FWA dredging activities in the Chain of Lakes is as follows:

<u>Project</u>	<u>Site</u>	TSS Limitations (mg/L)
Confined Disposal	Ackerman Island (Fox Lake)	80
	R15 (Fox River)	58
	L10 (Grass Lake)	100
Geotubes	Grass Lake	100
	Fox Lake	80
	Nippersink Lake	70
	Pistakee Lake	80

5. No numerical effluent limit is applied to the testing by the FWA of the mechanical dewatering system. However, prior to dredging with that system, the FWA shall:
 - a. install an impermeable barrier, e.g. a silt curtain, which completely crosses the mouth of the channel to be dredged so that the work area is isolated from the adjoining waters of the State, i.e., the Fox River or the Chain of Lakes; and
 - b. not remove the barrier until monitoring for TSS at representative locations inside the channel that the water is at levels comparable to the TSS levels in the adjoining waters of the State.

6. The term of this variance is for five years commencing on the date of this order or until an adjusted standard is granted, whichever occurs first.

IT IS SO ORDERED.

Board Member Kathleen M. Hennessey abstained.

If the Fox Waterway Agency chooses to accept this variance subject to the above order, within forty-five days of the granting of the variance, Fox Waterway Agency must execute and forward the attached certificate of acceptance and agreement to:

Margaret P. Howard
Illinois Environmental Protection Agency
Division of Legal Counsel
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

Once executed and received, that certificate of acceptance and agreement shall bind Fox Waterway Agency to all terms and conditions of the granted variance. The 45-day period shall be held in abeyance during any period that this matter is appealed. Failure to execute and forward the certificate within 45 days renders this variance void. The form of the certificate is as follows:

CERTIFICATION

I (We), _____, hereby accept and agree to be bound by all the terms of the Order of the Pollution Control Board in PCB 97-151, July 10, 1997.

Petitioner

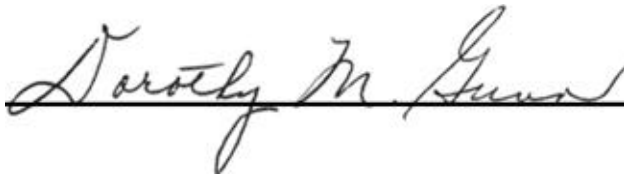
Authorized Agent

Title

Date

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1996)) provides for the appeal of final Board orders to the Illinois Appellate Court within 35 days of the date of service of this order. Illinois Supreme Court Rule 335 establishes such filing requirements. See 145 Ill. 2d R. 335; see also 35 Ill. Adm. Code 101.246, Motions for Reconsideration.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 10th day of July 1997, by a vote of 5-0.

A handwritten signature in cursive script, reading "Dorothy M. Gunn", written over a solid horizontal line.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board