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Supreme Court, U. S.  
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IN THE

**Supreme Court of the United States**

OCTOBER TERM, 1971

**No. 50 Original**

STATE OF VERMONT, a sovereign state,  
Montpelier, Vermont,

*Plaintiff,*

—v.—

STATE OF NEW YORK, a sovereign state,  
Albany, New York

and

INTERNATIONAL PAPER COMPANY, a corporation existing  
under the laws of the State of New York, located at  
New York, New York,

*Defendants.*

**ANSWER OF DEFENDANT INTERNATIONAL  
PAPER COMPANY**

TAGGART WHIPPLE

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One Chase Manhattan Plaza

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DAVIS POLK & WARDWELL

*Of Counsel*

June 19, 1972



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*Defendants.*

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**ANSWER OF DEFENDANT INTERNATIONAL  
PAPER COMPANY**

Defendant International Paper Company, by its attorneys Davis Polk & Wardwell, for its answer to the complaint herein:

I. Admits the averments of Paragraph I that plaintiff is a sovereign State of the United States and purportedly brings this action for itself, and in its quasi-sovereign capacity, and as *parens patriae* for its citizens and inhabitants.

II. Admits the averments of Paragraph II.

III. Admits the averments of Paragraph III.

IV. Admits the averments of Paragraph IV.

V. Admits the averments of Paragraph V.

VI. Admits the averments of Paragraph VI.

VII. Admits the averments of Paragraph VII.

VIII. Is without knowledge or information sufficient to form a belief as to the truth of the averments of Paragraph VIII.

IX. Is without knowledge or information sufficient to form a belief as to the truth of the averments of Paragraph IX.

X. Denies the averments of Paragraph X.

XI. Denies the averments of Paragraph XI.

XII. Denies the averments of Paragraph XII except admits that in 1925 defendant International Paper Company acquired a pulp and paper making plant (the "Ticonderoga mill") in the Village of Ticonderoga, New York, adjacent to Ticonderoga Creek, which flows from Lake George in the State of New York into Lake Champlain, from a firm which had operated the Ticonderoga mill since 1882. Defendant International Paper Company operated the Ticonderoga mill from 1925 until on or about December 1, 1970 when it shut down the pulp mill and one large

paper machine. The remaining paper machines were permanently shut down on or about April 17, 1971 when the Ticonderoga mill was permanently closed. For ecological and other reasons, defendant International Paper Company decided in 1967 to construct a new mill near Crown Point, New York, a few miles north of the Village of Ticonderoga. The new mill, which cost more than \$76 million, opened on or about December 15, 1970 and will continue defendant International Paper Company's position as the principal economic support of the economy of the Ticonderoga area.

XIII. Denies the averments of Paragraph XIII except admits that while defendant International Paper Company's Ticonderoga mill operated during the period 1925 to on or about December 1, 1970, it discharged inert wood fibers, chips, bark and similar material, together with waste water and various chemicals used in the pulp and paper making process, and domestic sewage into the area of Ticonderoga Creek adjacent to the Ticonderoga mill. When the pulp mill and one large paper machine were shut down on or about December 1, 1970 approximately 70% of the discharges from the Ticonderoga mill ceased, including all discharges of chips, bark and pulp-making chemicals, and discharges of paper-making chemicals were significantly reduced. All discharges were permanently discontinued when the Ticonderoga mill was permanently shut down on or about April 17, 1971.

XIV. Denies the averments of Paragraph XIV except admits that during the period 1925 to on or about April 17, 1971 there were certain discharges from the Ticonderoga mill as admitted in Paragraph XIII hereof.

XV. Denies the averments of Paragraph XV and avers that on or about December 1, 1970 defendant International Paper Company shut down the pulp mill and one large paper machine, thus reducing discharges from the Ticonderoga mill by approximately 70%. On or about April 17, 1971 the remaining paper machines were shut down, the Ticonderoga mill was permanently closed and all discharges were permanently discontinued.

XVI. Is without knowledge or information sufficient to form a belief as to the truth of the averments of Paragraph XVI.

XVII. Denies the averments of Paragraph XVII except is without knowledge or information sufficient to form a belief as to the truth of the averments with respect to what defendant State of New York "knew, or should have known".

XVIII. Denies the averments of Paragraph XVIII and avers that whatever sludge has accumulated in Ticonderoga Creek and in the adjacent area of Lake Champlain is the proximate result of a number of causes, including natural erosion and silting; discharges into Ticonderoga Creek by a variety of lumber and pulp manufacturers since long before defendant International Paper Company acquired the Ticonderoga mill in 1925; discharges from defendant International Paper Company's now-closed Ticonderoga mill; discharges from other industrial operations, including those of American Graphite Company, a subsidiary of Joseph Dixon Crucible Co., which discharged graphite and related waste materials from its graphite refining plant into Ticonderoga Creek from 1863 to 1968; discharges

into Lake Champlain or the streams and tributaries thereof of domestic and municipal sewage from the Village of Ticonderoga and other settled areas in New York and Vermont and discharges from industrial and agricultural activities conducted in New York and Vermont.

XIX. Denies the averments of Paragraph XIX.

XX. Denies the averments of Paragraph XX.

XXI. Denies the averments of Paragraph XXI.

XXII. Denies the averments of Paragraph XXII and avers that on or about April 17, 1971 the Ticonderoga mill was permanently closed and all discharges were permanently discontinued, and further avers that:

Conferences and related proceedings were held in 1968, 1969 and 1970 under the aegis of the Federal Government in which Federal, New England Interstate Water Pollution Control Commission, Vermont and New York officials discussed possible ways of dealing with the scientifically complex problem of the sludge complained of in this action by the State of Vermont. At these conferences testimony was taken and reports of the United States Corps of Engineers, the New York State Department of Health and other agencies experienced in the field of water pollution abatement were considered. The State of Vermont participated fully in the June 1970 conference, which terminated in an agreement, *inter alia*, to abate the interstate pollution caused by the sludge. The method of abatement was left open and was the subject of a study conducted by the New York State Department of Environmental Conservation and defendant International Paper Company with representatives of the Vermont State Department of Water Resources, the Fed-

eral Water Quality Administration and the New England Interstate Water Pollution Control Commission present as observers. The study sought to determine the environmental impact of removal of the sludge upon the water quality of Lake Champlain. As a result of tests that were conducted as part of this study it was concluded that removal of the sludge could have a detrimental impact on the total ecology of the southern end of Lake Champlain by seriously reducing the oxygen content of the water. A copy of the Report of the New York State Department of Environmental Conservation dated November 6, 1970 (without the accompanying charts) is set forth in Appendix A hereto and made a part hereof.

As a result of this study the New York State Department of Environmental Conservation recommended that a further study be conducted to determine the ecological impact of removal of the sludge as opposed to covering over the sludge or leaving it undisturbed. The State of New York and defendant International Paper Company entered into a contract with the licensed engineering consulting firm of Quirk, Lawler & Matusky of Tappan, New York on or about March 26, 1971 to conduct independently such a study. Quirk, Lawler & Matusky conducted their study during the summer of 1971 in the Ticonderoga Bay area (where Ticonderoga Creek enters Lake Champlain) and presented their findings in a report entitled "Evaluation of the Bottom Deposits in Ticonderoga Bay, Lake Champlain, New York". A copy of the "Summary of Findings, Conclusions, and Recommendations" of the Quirk, Lawler & Matusky report is set forth in Appendix B hereto and made a part hereof. The State of Vermont was invited to participate in the study but it refused to do so.



Quirk, Lawler & Matusky concluded that the sludge in Ticonderoga Bay area of Lake Champlain should not be disturbed and that neither covering nor dredging would improve the dissolved oxygen concentrations existing in the area or the ecological community developing in the associated marshland.

By letter dated January 27, 1972, a copy of which (without the accompanying enclosures) is set forth in Appendix C hereto and made a part hereof, the New York State Commissioner of Environmental Conservation, Henry L. Diamond, transmitted a copy of the Quirk, Lawler & Matusky report to William Ruckelshaus, Administrator of the United States Environmental Protection Agency. In this letter Mr. Diamond also enclosed copies of a report of the Division of Pure Waters of the New York State Department of Environmental Conservation entitled "Water Quality Surveillance, Ticonderoga Bay, Lake Champlain Basin, September 1971" and an "Evaluation of Potential Disposal Sites for Ticonderoga Creek—Lake Champlain Sludge Deposits" prepared by the Division of Fish and Wild Life of the New York State Department of Environmental Conservation, copies of which are set forth in Appendices D and E hereto respectively and made a part hereof (the former without the accompanying charts). Both reports found marked improvement during the summer of 1971 in the water quality and ecology in the area of Lake Champlain adjacent to Ticonderoga Creek.

In his letter Mr. Diamond concluded that the sludge was not contributing to the contravention of interstate water quality standards and that any attempt to move it "will have a deleterious effect on the lake that will last for an indefinite period and that placing the dredged material on

land will cause irreparable damage to the land while the [sludge] beds show signs of stabilizing and become a productive bottom for aquatic organisms”.

XXIII. Denies the averments of Paragraph XXIII.

XXIV. Denies the averments of Paragraph XXIV and avers that the Quirk, Lawler & Matusky study found that the dissolved oxygen level in the Ticonderoga Bay area during the summer of 1971 when tests were conducted was at all times greater than 6 mg/l, which is substantially above the established water quality standards of both New York and Vermont for dissolved oxygen. Further avers that the New York State Department of Environmental Conservation September 1971 report on “Water Quality Surveillance, Ticonderoga Bay, Lake Champlain Basin”, Appendix D hereto, demonstrated that the sludge did not prevent the maintenance of a dissolved oxygen concentration of 6.2 mg/l or higher at the New York-Vermont State Line, which is well in excess of the established water quality standards of 4.0 mg/l of both New York and Vermont for dissolved oxygen.

XXV. Denies the averments of Paragraph XXV and avers that neither Quirk, Lawler & Matusky nor the Division of Fish and Wild Life of the New York State Department of Environmental Conservation observed any floating mats of sludge during the summer of 1971 while they were conducting their respective studies.

XXVI. Denies the averments of Paragraph XXVI.

XXVII. Denies the averments of Paragraph XXVII.

XXVIII. Denies the averments of Paragraph XXVIII.

XXIX. Denies the averments of Paragraph XXIX and avers that on or about December 1, 1970 approximately 70% of the discharges from the Ticonderoga mill ceased, including all discharges of chips, bark and pulp-making chemicals, and discharges of paper-making chemicals were significantly reduced. On or about April 17, 1971 all discharges from the mill were permanently discontinued.

XXX. Denies the averments of Paragraph XXX.

XXXI. Denies the averments of Paragraph XXXI.

XXXII. Denies the averments of Paragraph XXXII.

XXXIII. Denies the averments of Paragraph XXXIII.

XXXIV. Denies the averments of Paragraph XXXIV.

XXXV. Denies the averments of Paragraph XXXV.

*First Affirmative Defense*

Plaintiff cannot be heard to complain of discharges from defendant International Paper Company's Ticonderoga mill contributing to the creation of the sludge bed. The discharges from the Ticonderoga mill during the period that defendant International Paper Company owned and operated it were necessitated by legitimate industrial operations, long thought to be a reasonable riparian use and constituting a substantial economic benefit to the surrounding communities both in New York and Vermont.

*Second Affirmative Defense*

The extraordinary remedy of mandatory injunction does not lie because the sludge bed is composed of non-toxic, inert materials which are not harmful to fish and wildlife. The sludge bed can be removed only at a cost of millions of dollars and at the risk of disturbing the ecological balance in the surrounding area of Lake Champlain and as a result thereof destroying substantially all oxygen consuming aquatic life in the surrounding area of Lake Champlain.

*Third Affirmative Defense*

Plaintiff's demand for an injunction against any further discharges by defendant International Paper Company from its Ticonderoga mill is moot because the mill was completely and permanently shut down on or about April 17, 1971.

*Fourth Affirmative Defense*

Plaintiff fails to state a claim against defendant International Paper Company upon which relief can be granted.

*Fifth Affirmative Defense*

Plaintiff lacks standing to seek damages as *parens patriae*.

*Sixth Affirmative Defense*

The cause of action alleged against defendant International Paper Company is barred, in whole or in part, by the applicable statute of limitations.

*Seventh Affirmative Defense*

The cause of action alleged against defendant International Paper Company is barred, in whole or in part, by plaintiff's laches.

*Eighth Affirmative Defense*

The cause of action alleged against defendant International Paper Company is barred, in whole or in part, by the unclean hands of plaintiff and its citizens and residents.

*Ninth Affirmative Defense*

Plaintiff has failed to join as parties defendant persons needed for the just adjudication of this action as required by Rule 19 of the Federal Rules of Civil Procedure.

WHEREFORE, defendant International Paper Company demands judgment dismissing the complaint herein, together with the costs and disbursements of this action.

Dated: New York, New York

June 19, 1972

TAGGART WHIPPLE

*Attorney for Defendant*

*International Paper Company*

One Chase Manhattan Plaza

New York, New York 10005

Telephone: 212-422-3400

DAVIS POLK & WARDWELL

*Of Counsel*



## APPENDICES

- Appendix A—Report of the New York State Department of Environmental Conservation dated November 6, 1970 ..... 1a
- Appendix B—Summary of Findings, Conclusions, and Recommendations [in “Evaluation of the Bottom Deposits in Ticonderoga Bay, Lake Champlain, New York” by Quirk, Lawler & Matusky dated December, 1971] ..... 3a
- Appendix C—Letter of Henry L. Diamond, Commissioner of the New York State Department of Environmental Conservation dated January 27, 1972 ..... 9a
- Appendix D—Report of the Division of Pure Waters of the New York State Department of Environmental Conservation entitled “Water Quality Surveillance, Ticonderoga Bay, Lake Champlain Basin, September 1971” ..... 14a
- Appendix E—Report of the Division of Fish and Wildlife of the New York State Department of Environmental Conservation entitled “Evaluation of Potential Disposal Sites For Ticonderoga Creek—Lake Champlain Sludge Deposits” ..... 20a





## APPENDIX A

November 6, 1970

Dear Sirs:

As you know, on October 5th, we conducted a joint study on the effects of dredging sludge from Lake Champlain at Ticonderoga. The laboratory results from this study are attached along with an interpretation of these results which was jointly made by the staff of the International Paper Company and this Department.

If you have any comments on the laboratory data or the interpretation or would like to discuss them, please let me know.

Sincerely yours,

Paul W. Eastman, P.E.

Director, Division of Pure Waters

Enclosures

Mr. A. E. Peloquin  
Executive Secretary  
New Eng. Inter. Water Poll. Control Comm.  
73 Tremont Street  
Boston, Massachusetts 02108

Mr. Martin Johnson  
Commissioner  
Department of Water Resources  
State of Vermont  
Montpelier, Vermont 05602

Mr. Lester Klashman  
Regional Director  
FWQA, U.S. Dept. of the Interior  
JFK Federal Office Building  
Boston, Massachusetts 02203

cc: Mr. Metzler

bcc: Mary Spargo

PWE/po

## Environmental Conservation

November 6, 1970

The pilot dredging project conducted on October 5, 1970 in Ticonderoga Bay of Lake Champlain revealed that the physical disturbance of the lake, the return of excess water from dredging and subsequent leaching would not result in chemical toxicity to fish life.

Determinations for mercury indicated that the levels in the removal area were similar to the background values to the entire Lake Champlain area as reported by earlier authoritative investigations.

The dissolved oxygen levels in the waters of Ticonderoga Bay dropped sharply to near zero in the area dredged during the removal process. The excess water from the lagooning of the material was found to have a high biochemical oxygen demand, oxygen uptake rate and nitrogen concentration. The impact of this return water on the water quality of Lake Champlain would have a detrimental effect on the total ecology of the southern end of the lake by seriously reducing the oxygen content.

The completed pilot project has indicated critical information that must be acquired before a sensible ecological decision can be made. Plans are now being completed for the additional and necessary activity which must be conducted after the old Ticonderoga mill shuts down and during the summer months when oxygen content in the lake is most critical.

New York State and International Paper Company representatives are meeting in Albany on Tuesday, November 10, to finalize the project.

## APPENDIX B

### SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

[in "Evaluation of the Bottom Deposits in Ticonderoga Bay, Lake Champlain, New York" by Quirk, Lawler & Matusky dated December, 1971]

Between July 7 and October 4, 1971, studies were carried out in the Ticonderoga Bay area (where Ticonderoga Creek enters Lake Champlain) to determine if the bottom deposits in that area should be left undisturbed, covered, or dredged. A combination of field benthic oxygen uptake studies and fish toxicity tests provided the basic information necessary to determine which of the three alternatives should be undertaken. Those findings which led to the conclusions and recommendations herein presented are summarized below:

1. The dissolved oxygen concentrations measured in the Ticonderoga Bay area during the summer months of 1971 were all greater than 6 mg/l. The average concentration of all samples collected one foot from the surface was 8.3 mg/l. The average of those samples collected one foot from the bottom was 8.5 mg/l. These results are consistent with measurements recorded during independent surveys by the State of New York and International Paper Company during the same period.
2. The five-day biological demand concentrations measured in the Ticonderoga Bay area during the study period were all less than 5 mg/l. The average concentration for all samples collected one foot from

the surface was 2.1 mg/l. The average of those samples collected one foot from the bottom was 2.6 mg/l.

3. Floating sludge mats reported during years prior to 1971 were not observed.
4. Gasification in the form of small bubbles on the water surface was observed.
5. A faint odor characteristic of hydrogen sulfide was detected on calm days.
6. The major component of the gas was found to be methane.
7. The total organic carbon concentration of filtered extracts from the sludge in the study area averaged approximately 230 mg/l. The corresponding concentration for deposits remaining after dredging was 110 mg/l.
8. The nitrogen and phosphorus concentrations for the filtered extracts from the sludge in the study area and equivalent concentrations measured in the benthic oxygen uptake studies were greater than those concentrations measured for the overlying waters in the Ticonderoga Bay area.
9. At a 99% level of significance, there was no significant difference in the benthic oxygen uptake rates for the existing (undisturbed) deposits at stations 21, 36A, and 40A and the South Control. These rates were significantly less than that determined for deposits at the North Control.
10. At a 99% level of significance, there is no significant difference in benthic oxygen uptake rates for all

systems studied at station 36A. The comparison at this station was between the undisturbed deposit and all forms of covering.

11. At a 99% level of significance, the results of the benthic oxygen uptake studies at station 21 indicate that there would be a slight reduction in rate if the present deposit were covered with more than a 6-inch layer of sand and a slight increase if it were dredged or covered with a 2-inch layer of sand.
12. The procedures used in the dredging operation in this controlled study are considered to be less disruptive to the environment and more efficient than those procedures which would be utilized in a full-scale dredging operation.
13. All fish used in the fish toxicity tests survived for a minimum of 96 hours.
14. With the exception of the 100% leachate study, stress was not exhibited by any fish for the entire study period. The stress manifested by the fish in the 100% leachate study resulted from an initial dissolved oxygen concentration of 0 mg/l. This stress was eliminated by immediate aeration to 7.8 mg/l.
15. The dissolved oxygen concentration in the 100% leachate fish toxicity study dropped steadily from a high of 7.8 mg/l in the 10th hour to a low of 0.5 mg/l in the 96th hour.
16. The dissolved oxygen concentration in the area of Ticonderoga Bay in the main stream of Lake Champlain is expected to meet established standards during low water lake levels.

17. The average dissolved oxygen concentration in the cove area around station 21 is expected to meet established standards during all lake levels if the flow in Ticonderoga Creek can be maintained above 27 cfs. The minimum monthly average flow observed since 1955 was 41.6 cfs. The minimum single day's flow since 1955 was 18 cfs. All other single day flows exceeded 31 cfs.

As a result of these findings, the conclusions and recommendations listed below should serve as the basis for a final decision on whether or not the bottom deposits in the Ticonderoga Bay area should be left undisturbed, covered, or dredged.

1. The results of the fish toxicity tests indicate that those materials "squeezed" out during a 12-inch sand covering operation, remaining in the Bay after dredging, or returning from a sludge spoils area are not toxic to fish. As a result, recommendations on covering or dredging can be made from other considerations. This does not mean that the actual field covering or dredging operations would not, in themselves, be harmful to fish. Neither does this mean that covering or dredging will not have a long-term impact by seriously disrupting the food chain that is presently established in the area.
2. A full-scale dredging operation would release organic carbon, nitrogen, and phosphorus to the overlying waters. In addition, the initial leachate returning from a sludge spoils area has an appreciable oxygen demand. This phenomenon was observed during the 100% leachate study in the fish toxicity tests. The magnitude of the impact of these

materials on the Ticonderoga Bay area cannot be determined at this time. The addition of these nutrients, however, could create undesirable conditions such as those associated with algae blooms.

3. Much of the bottom deposits in the Ticonderoga Bay area are light and feathery. Disturbances caused by covering or dredging would increase the turbidity in the entire area. The suspended materials would increase the oxygen demand in the overlying water during the period either activity is taking place. The resulting effect on the ecological community could be significant.
4. Comparison of the benthic oxygen uptake rates determined for the various covering techniques (net, 2-inch sand, 12-inch sand, and 24-inch sand) and dredging with the rates for the existing bottoms indicates that there would be no advantage to either covering or dredging.
5. The benthic oxygen uptake rates determined for the existing bottom deposits in the Ticonderoga Bay area are the same as or less than rates determined for other areas in Lake Champlain. On this basis alone, there would be no reason to dredge or cover the bottom deposits in the Ticonderoga Bay area without considering similar actions for all of Lake Champlain.
6. The dissolved oxygen concentration in the critical area of Ticonderoga Bay (cove surrounding station 21) can be maintained above 4 mg/l on the average with the existing benthic oxygen demand if the daily flow in Ticonderoga Creek is greater than 27 cfs

during the warm summer months. Additional analysis will be required to determine if Ticonderoga Creek need be rerouted to insure mixing in the cove area. This should not be necessary. In fact, careful regulation of the Lake George water level should insure that the dissolved oxygen concentrations meet established standards in the cove. As far as the area of Ticonderoga Bay outside of the cove is concerned, natural reaeration alone should provide sufficient oxygen for standards to be met.

7. The low dissolved oxygen concentrations, high five-day biological oxygen demand concentrations, vigorous gasification, and floating sludge mats observed in past years in the Ticonderoga Bay area were absent during the summer months of 1971. Careful analysis of all available information indicates that such objectionable conditions will continue to be absent during future years even after considering the worst possible conditions: low water levels in Lake Champlain coupled with low flows in Ticonderoga Creek. Covering or dredging would not improve this situation. In fact, the environmental impact on the Ticonderoga Bay area of covering or dredging is far less certain than the impact of leaving the present bottom deposits undisturbed.

In summary, it is our considered opinion that the bottom deposits in Ticonderoga Bay should be left undisturbed. Neither covering nor dredging will improve on either the dissolved oxygen concentrations expected in the area or the ecological community that appears to be developing in the associated marshland.



## APPENDIX C

STATE OF NEW YORK  
DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION  
ALBANY

HENRY L. DIAMOND  
Commissioner

January 27, 1972

Dear Bill:

This is to bring you up to date on the progress we have made in abating polluttional discharges and discovering the best method of handling sludge deposits in Lake Champlain in accordance with New York State's commitment to the Federal Enforcement Conferees.

We have exceeded the goals we set forth in our letter to you of December 15, 1970. The International Paper Company plant in the Village of Ticonderoga has ceased to be an active pollutant of the lake and all of the technical studies show the sludge beds are not a threat to the water quality of the lake or to the State of Vermont.

Observation and testing of these beds indicate that they are not a source of pollution to the interstate waters of Lake Champlain and should not be disturbed. The disturbance of the beds might well create an ecologically damaging condition in the lake of an unknown, but protracted, duration, as well as degrading land areas that are now biologically productive.

As I advised you previously, most of the active pollutional discharge from the International Paper Company plant had been reduced by December 1, 1970, with the remainder to be terminated on July 1, 1971. This program has been carried out with International Paper closing down completely its operations in Ticonderoga and moving to a new plant some four miles north.

To determine the pollutional effects of the sludge beds in the lake, the engineering firm of Quirk, Lawler and Matusky was engaged to review the problem. Additionally, the Department of Environmental Conservation conducted water quality surveillance during the summer months of 1971, and the Department's Division of Fish and Wildlife inquired into the possible impact of dredging upon fish and wildlife in the lake, in Ticonderoga Creek and adjacent marsh areas.

The findings of the Quirk, Lawler and Matusky report, entitled "Evaluation of the Bottom Deposits in Ticonderoga Bay, Lake Champlain, New York" are enclosed. They concluded that a full-scale dredging operation would release organic carbon, nitrogen and phosphorus to the overlying waters, and that disturbances caused by covering or dredging would increase the turbidity in the entire area.

In summary, Quirk, Lawler and Matusky recommended that the bottom deposits in Ticonderoga Bay be left undisturbed. This recommendation was based upon the conclusion that neither covering nor dredging will improve on either the dissolved oxygen concentrations expected in the area or the ecological community that appears to be developing in the associated marshland.

In its water quality surveillance, the Department established a patrol to observe the conditions in the lake during the period of greatest bacterial action within the sludge beds and when the dissolved oxygen in the overlying waters would be the lowest. From July 13 to September 2, 1971, this patrol, consisting of technical personnel from this Department and volunteers from the State of Vermont, was on the lake for representative periods of every day in the week and the entire range of daylight hours. In addition to making visual observations, 362 samples for dissolved oxygen were collected and analyzed.

I am enclosing the report of this surveillance patrol, which found a definite improvement in water quality of Lake Champlain in vicinity of Ticonderoga Bay. The patrol also determined that the residual sludge deposits in and around the Bay are actively decomposing as evidenced by observations of rising gas bubbles and generally undersaturated dissolved oxygen levels in the overlying lake waters.

Also enclosed are findings of the Division of Fish and Wildlife of the Department of Environmental Conservation which show the Ticonderoga marsh and bay area is obviously responding rapidly to the cessation of paper mill waste discharges. Biological conditions reflect the generally good dissolved oxygen levels reported this summer. Although suspended silt and floating pulp was observed, obnoxious odor no longer dominate the area and gas bubbles appear about normal for marsh conditions. Productivity is expected to improve even more once all sources of upstream pollution are eliminated and the sludge beds completely stabilized.

In addition to these three inquiries, the New England Interstate Water Pollution Control Commission solicited the opinion of Mr. Ralph H. Scott, Chief, Paper and Forest Industries Research at the Environmental Protection Agency's Pacific Northwest Water Laboratory. Mr. Scott advised that relocation of the sludge deposits would take a number of years and result in extensive lake turbidity as well as redistribution of some portion of the solids over a greater area.

The conclusions of all these documents have been carefully studied. They all agree that the sludge beds are not a source of pollution that will result in the contravention of the dissolved oxygen standards of the interstate waters of Lake Champlain. There is agreement that any attempt to move the beds will have a deleterious effect on the lake that will last for an indefinite period and that placing the dredged material on land will cause irreparable damage to the land while the beds show signs of stabilizing and become a productive bottom for aquatic organisms.

Bacterial action is occurring within the deposits. The observations during 1971 indicated that the rate was insufficient to cause the rising of the large sludge mats that occurred previously and were a source of complaint as well as odor. It is expected that as the top layers of the sludge stabilize and mineralize, they will increase in density and support rooted vegetation. As a result a seal will be established that will prevent the bacteria from receiving additional nutrients and also prevent the escape of any gas. Thus there should be no deterioration of conditions that were observed in 1971.

At the time of the Federal Enforcement Conference we were aware of three pollutional sources in the area with

the potential to contravene interstate water quality standards; the International Paper Company plant in the Village of Ticonderoga, the sludge beds and the Village of Ticonderoga. We have eliminated the discharges from the International Paper Company plant.

The sludge beds are not now contributing to the contravention of interstate water quality standards. A satisfactory solution to the discharges from the Village of Ticonderoga is inhibited only by the current lack of both federal authorization and funds.

Sincerely,

s/ HENRY  
Commissioner

Mr. William Ruckelshaus  
Administrator  
Environmental Protection Agency  
U.S. Department of the Interior  
Washington, D. C. 20242

14a

## APPENDIX D

WATER QUALITY SURVEILLANCE

TICONDEROGA BAY

LAKE CHAMPLAIN BASIN

September 1971

DIVISION OF PURE WATERS  
NEW YORK STATE DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION

## WATER QUALITY SURVEILLANCE

TICONDEROGA BAY  
LAKE CHAMPLAIN BASIN*Summary*

1. 362 samples of dissolved oxygen and temperature were taken from July 13 through September 2, 1971.
2. Samples were taken at about ten feet below the water surface and at an estimated 100 yards west of the New York-Vermont State Line.
3. Sampling schedule was spread out from 5:30 a.m. to 8:00 p.m.
4. Dissolved oxygen concentrations varied from 6.2 mg/l to 9.4 mg/l.
5. Average temperature was about 23°C.
6. No significant floating sludge mats were observed.

*Synopsis*

Starting on July 13 and running through July 30, 1971, for about 7 hours every day, the area of Lake Champlain off Ticonderoga Creek was under the surveillance of a technical employee of this Department and a volunteer from the State of Vermont. Since that time the survey was limited to two days per week and personnel from this Department only.

The main water quality items covered in the survey were floating solids, dissolved oxygen and water temperature. Never in all this time, even though two storms (7/13 and 7/17) hit the area, were any of the floating sludge mats seen in previous years observed. Occasionally, however, some material about the diameter of a coffee cup rose

from the bottom of the lake. The supporting bubble of gas was quite visible and when that dissipated the material sank.

Five sampling stations were chosen at an estimated 100 yards west of the New York-Vermont State Line (see attached map). 362 samples for dissolved oxygen and temperature were taken from July 13 through September 2. These were taken at about 10 feet below the water surface. Sampling schedule was spread out from 5:30 in the morning to 8:00 in the evening. The lowest DO recorded was 6.2 mg/l which was over 70% saturation.

Dissolved oxygen values were plotted for each station as recorded and are appended. They are summarized arbitrarily in the following table:

Period .....	7/13-9/2, 1971
Number of samples .....	362
Average temperature .....	23°C
Dissolved oxygen ranges .....	6.2 mg/l-9.4 mg/l
Average dissolved oxygen .....	7.0 (+) mg/l

<i>DO Ranges (mg/l)</i>	<i>No. of Samples</i>	<i>% of Samples</i>
6.2 .....	8	2
6.3-7.0 .....	127	35
7.1-8.0 .....	204	57
above 8.0 .....	23	6

Statistical analyses were also performed. Samples were grouped in the following manner: Before 1000 hours, between 1000-1559 hours and 1660 hours on. Two observations were taken for each time interval for each day from Monday to Friday. Results were appended. The results indicated:

1. There are no differences among the five sites in mean Dissolved Oxygen.



2. There are differences in time of day and day of week. (Monday and Tuesday) appear higher than (Wednesday, Thursday and Friday) for before 1000 hours and 1600 hours and Thursday and Friday are a little higher than Monday, Tuesday and Wednesday from 1000 hours to 1559 hours.

There is an upward trend in mean D.O. over the day for Wednesday, Thursday and Friday. Monday and Tuesday go down in the 1000 to 1559 period and then rise.

The most striking effect is that D.O. values during 1600 on is consistently higher than at any other time. The day effect is not consistent for each time. The time effect is not consistent for each day.

#### OBSERVATION LOG SUMMARY

Phase I—Temp., D.O., & visual observations conducted  
7 days/week

##### *July 13-17*

A severe storm hit the area on 7/13/71; small craft warnings posted on the lake. Boat survey curtailed after sampling Sta. 2 & 5 due to choppy surface and rain. Storm followed by clearing, sunny, and windy weather. No observations reported of floating sludge mats during or after the storm. Water temperature recorded at 23-24°C.

##### *July 18-24*

Weather ranged from mostly sunny and clear to cloudy and windy after rain storm of 7/19. Occasionally, small floating sludge particles and gas bubbles were observed on the sunny, calm days at station 3 through 7/20. Water temperature 22-24°C.

*July 25-30*

Weather for this period started off sunny and clear with calm surface only to become overcast and breezy with choppy surface. Period ended with a return to clearing and calm weather. Frequent observations of gassing and occasional small portions of small floating sludge particles were logged. Passage of a cabin cruiser caused stirring up and evolution of "thousands of gas bubbles". Water temperature ranged from 22.5-26.0°C.

*Phase II*—Two surveys per day, 2 days per week.

*August 1-7*

Sunny, clear and calm weather of 8/5 changed to sunny and rough water on 8/6. Several observations of floating sludge particles and gas bubbles were logged. At station 3 an 18" diameter sludge mat surfaced, disintegrated and sank. Warm calm spell has set in. Water temperature: 22.5-23.5°C.

*August 8-14*

The warm calm spell continued with some windy periods. There were no observations of floating solids or gassing entered in log. Water temperature: 24-25°C.

*August 15-21*

Sunny, clear and calm weather continued. Observations of gassing at station 3 were logged. Water temperature: 23°C.

*August 22-30*

Surveys conducted on 8/29, 8/30 detected coolest water temperatures (20-21°C). Variable surface conditions (calm to choppy) during hazy weather. One instance of gas bubbles observed again at station 3.

*September 1-2*

September 1 was sunny and calm.

Two-depth (5 ft. and 10 ft.) diurnal sampling was conducted on 9/2. Sunny in the morning, turned hazy in the afternoon. Water surface was choppy.

Water temperature continued to be cool ( $20^{\circ}$ - $21^{\circ}$ C). Gassing occurred at Station 3.

## CONCLUSIONS

1. There was no evidence of dissolved oxygen levels falling below 6.2 mg/l (70% saturation). New York State federally approved water quality standards require at least 4.0 mg/l at all times while Vermont's standards are for 5.0 mg/l. Contravention of D.O. standards was not observed. The result of the statistical analyses strongly supports the observation.
2. Diurnal ranges in D.O. did not exceed 1.0 mg/l which is indicative of low level photosynthetic effects.
3. Definite improvement in water quality of Lake Champlain in vicinity of Ticonderoga Bay has occurred in the past year due primarily to the shutdown of the International Paper Mill at Ticonderoga.
4. The residual sludge deposits in and around Ticonderoga Bay in Lake Champlain are actively decomposing as evidenced by observations of rising gas bubbles accompanied on occasion by small clumps of sludge, and generally under-saturated dissolved oxygen levels in the overlying lake waters. Rising sludge did not persist afloat. Rapid disintegration of floc was followed by re-sedimentation and elutriation. Station 3 located lake-ward of the mouth of Ticonderoga Bay is most reflective of sludge activity.

## APPENDIX E

Evaluation of Potential Disposal Sites  
For Ticonderoga Creek—Lake Champlain Sludge Deposits  
Division of Fish and Wildlife  
Department of Environmental Conservation

Lower Ticonderoga Creek and an adjacent area of Lake Champlain have been polluted by wastes from pulping and paper making processes. The United States Supreme Court is considering a suit brought to force the removal of these wastes by dredging. This report contains an evaluation of potential spoil sites in terms of impact on fish and wildlife resources. No attempt is made to consider the question of whether or not the sludge beds should even be disturbed other than to note that environmental losses will far outweigh any gains. All available evidence indicates the polluted area is rapidly stabilizing and recovering; dredging will only retard this recovery.

Few options for spoil sites exist in the Ticonderoga area other than those described in the January 1970 Corps of Engineers report "Report on Survey of Sludge and Lake Bottom Deposits, Ticonderoga Creek and Lake Champlain—Ticonderoga, N.Y." These are discussed in decreasing order of adverse impact on fish and wildlife resources.

*Ticonderoga Creek Marsh*—Lake Champlain has long been considered as a highly productive lake; partly due to its large number of shallow well-protected bays serving as spawning and nursery grounds for many species of fish as well as a source of an abundant and varied food supply. The complex at the mouth of Ticonderoga Creek is the largest single wetland unit on the New York side of the lake

for about ten miles in either direction and thus contributes significantly to the productivity of that segment of the lake.

An intensive survey of this complex was made in 1929 during a biological survey of the Lake Champlain watershed. Ticonderoga Creek received the discharge of three active paper mills and most of the town sewage at that time. Heavy pulp deposits were present in the creek and out into the lake for at least 1500 feet. Deposits in the creek were confined mostly to the stream channel by the extensive marshes on each side.

Fifteen species of fish were found in the creek proper from its mouth up to the lowermost mill dam; including pickerel, yellow perch, channel catfish, walleye and a variety of minnows. Twenty two species were found in the marsh area. The best feeding grounds were found to be these weed beds, which contained an abundance of benthic organisms preyed upon by fish as compared to few such organisms in the areas of pulp deposition.

The marsh areas also served as a nursery for a number of species, including sunfish and smallmouth bass. These young fish—and adults inhabiting the marshes—were free to range upstream to feed on those species such as minnows, top-minnows and suckers which could forage in the mud at the sides of the stream channel or feed on algae. Tests were made which demonstrated that none of the pollutants constituted a direct danger to free swimming fish. The survey team concluded that “these spring-fed weed beds constitute the redeeming feature of the situation, so far as the fishes of this portion of the Champlain waters are concerned—.”

Observations and limited sampling on five occasions during the period July 27-September 2, 1971 confirm that this

conclusion is just as valid today. Although not in pristine condition; the Ticonderoga marsh complex was found to be vibrant with life and in good ecological health. The luxuriant growth of submerged, emergent and floating aquatic vegetation includes common cattail, narrow-leaved cattail, duckweed, white pond lily, filamentous algae (Chlorophyceae), arrowhead, smartweed, wild celery, softstem bulrush and spiked loose-strife.

Nineteen species of birds were observed: redwing blackbird, gulls, black tern, belted kingfisher, great blue heron, American bittern, green heron, marsh wren, killdeer, tree swallow, common goldfinch, sandpiper, Florida gallinule, American coot, mallard, black duck, green-winged teal, blue-winged teal and wood duck. Several broods of wood and black duck were produced on the area; its importance to migrating waterfowl was demonstrated by the presence of 192 individuals of seven species on September 8.

Gill nets were set for three hours in the marsh area just west of the railroad tracks on September 2 and collected yellow perch, golden shiners, longnose gar, chain pickerel, pumpkinseed, smallmouth bass and largemouth bass. Schools of small fish were observed east of the tracks and in Ticonderoga Creek. In contrast, only gar pike, bowfin and redhorse suckers were captured in a June 1970 sample. Minnows and the wakes of large fish were observed on each trip to the marsh. Fishermen were active in the area when visited on August 5; bullhead fishing was reported as reasonably good.

Other wildlife observed in the marshes included muskrats, map turtles, snapping turtles, bullfrogs and raccoon.

Evidence of spring muskrat trapping was found and trapping was reported as fair.

The Ticonderoga marsh and bay area is obviously responding rapidly to the cessation of paper mill waste discharges. Biological conditions reflect the generally good dissolved oxygen levels reported this summer. Although suspended silt and floating pulp was observed; obnoxious odors no longer dominate the area and gas bubbles appeared about normal for marsh conditions. Productivity is expected to improve even more once all sources of upstream pollution are eliminated and the sludge beds completely stabilized.

While the Ticonderoga marsh offers the highest economic benefits as a disposal site, since dredged material can be spoiled at lake level in the immediate vicinity of the sludge beds, environmental costs are also highest of all potential sites. A highly productive natural resource constituting an important element of the larger Lake Champlain ecosystem and contributing to the environmental diversity of the Ticonderoga area would be destroyed forever. Fortunately the Corps of Engineers reported that soil conditions would prove too unstable to support the diking required for use of this site. In any case, the Division of Fish and Wildlife remains opposed to use of the Ticonderoga wetlands as a spoil site.

*Land Reclamation*—An alternate proposal offering the advantages of lake level disposal is to construct a low dike out from the shore of the lake. Dredged materials would be placed behind the dike and covered with sand and top soil to create additional land area. The site selected was below Fort Ticonderoga; about 45 acres of land would be created.

The shoreline in this area grades from clay banks on the west to rocky outcrops on the east. Emergent and floating vegetation is limited, but submerged aquatics—mostly Potamogeton and Elodea—are abundant. No samples were taken, but numerous fish were observed on July 27, 1971. The shoreline was literally teeming with the cast skins of burrowing mayfly nymphs (*Hexogenia*)—another indication of a healthy and productive environment.

Use of this site would be less objectionable from the standpoint of fish and wildlife, but would mean the loss of 45 acres of valuable littoral zone. Important considerations would be the method and duration of the dewatering process and the nature of the leachate.

Objections have been raised to the use of this site because it would change the historical geography associated with Fort Ticonderoga. Other sections of shoreline could be utilized with corresponding increases in cost as distance from the sludge-beds increased. Minimal impact would entail loss of littoral zone and the same concerns regarding dewatering and leachates. More detailed analysis would be necessary of each individual proposal. Some benefits might be gained for fish and wildlife if the spoils were used to create small offshore islands. Additional "edge" and waterfowl nesting sites would compensate for the loss of bottom.

*Upland Disposal*—The only practical upland disposal site is the gully north of Ticonderoga identified in the Corps of Engineers report. This site can accommodate all the dredged material; dewatering and consolidation of the material would be slow because of the depth to which it would be piled.

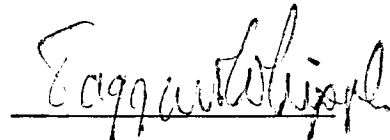


The gully does not constitute a unique ecosystem nor is it a critical element in a larger ecosystem. It does not contribute significantly to the environmental diversity of the Ticonderoga area. No known rare or endangered fauna or flora inhabit the gully. For these reasons, use of this site would have no significant impact on fish and wildlife resources. While economic costs are highest because of the need for long distance pumping; environmental costs are lowest. Odor problems, screening to prevent visual pollution and fencing for safety must be considered.

### **Certificate of Service Under Rule 33**

TAGGART WHIPPLE, attorney for defendant International Paper Company and a member of the Bar of this Court, certifies that all parties required to be served with said Defendant's Answer dated June 19, 1972 were served the 19th day of June, 1972, three copies having been mailed this day respectively to the Honorable Deane C. Davis, Governor of the State of Vermont, National Life Drive, Montpelier, Vermont 05602; the Honorable James M. Jeffords, Attorney General of the State of Vermont, State Library Building, Montpelier, Vermont 05602, attorney for plaintiff, and the Honorable Louis J. Lefkowitz, Attorney General of the State of New York, 80 Centre Street, New York, New York 10013, attorney for defendant State of New York, by causing the same to be deposited in a mail box maintained by the United States Post Office at One Chase Manhattan Plaza, New York, New York 10005, with first class postage prepaid.

June 19, 1972

  
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Taggart Whipple



