ILLINOIS POLLUTION CONTROL BOARD

September 19, 1974

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| CITY OF JACKSONVILLE,<br>Petitioner, | ) | |
| v. | ) | PCB 74-92 |
| ENVIRONMENTAL PROTECTION AGENCY,<br>Respondent. | ) | |

James R. Reilly, Jr., attorney for Petitioner.
John Rein, attorney for Respondent.

OPINION AND ORDER OF THE BOARD (by Dr. Odell)

On March 14, 1974, the City of Jacksonville (City) filed a Petition for Variance with the Illinois Pollution Control Board (Board). Petitioner sought relief from Rule 203(h) of Chapter Three: Water Pollution Regulations of Illinois (Chapter Three). Petitioner wishes to apply the fish toxicant, antimycin, (trade name Fintrol-5) to the water of Lake Jacksonville for the purpose of poisoning the undesirable gizzard shad, small sunfish, and carp which have overpopulated the lake, resulting in a sharp decline in the numbers and quality of game fish.

On April 4, 1974, the Environmental Protection Agency (Agency) moved that the Petition be dismissed for inadequacy or that the City file an amended petition. The interim Order of the Board on April 18 directed that the City of Jacksonville submit additional information. An Amended Petition for Variance was received on April 25, 1974. This Petition resolved the questions contained in the Agency's April 4 Motion. The Agency responded to the April 25 Petition by filing another Recommendation on May 28, 1974, and introduced issues of fact not raised in its April 4 Motion. The Agency recommended that the Amended Petition be denied or dismissed until the Petitioner could answer these new issues of fact. On June 20, 1974, the Board ruled that a hearing was the best method for resolving the unanswered questions.

A hearing took place August 7, 1974, in Jacksonville, Illinois. The Petitioner called three witnesses and introduced seven exhibits into evidence. The Agency cross examined the witnesses but deferred any comment on the exhibits until it had enough time to examine the documents. During the course of the hearing, the City agreed to

carry out safeguard procedures listed by the Agency in paragraph 18 of its May 28, 1974, Recommendation (R.5, 24). A biologist who testified for the Petitioner stated that Lake Jacksonville was populated by an overabundance of shad (R.7). An application of Fintrol-5 has been used at neighboring Beaver Dam Lake (R.9, 31) and numerous other locations with good results (R.15). One application of Fintrol-5 should bring about a permanent improvement in the fish population (R.15). Fishery Biologists with the Department of Conservation are willing to apply the Fintrol-5 to insure that it is used properly (R.13, 22). Fintrol-5 is not toxic to cattle (R.17); the 0.5 ppb to be applied will only affect the shad, not the larger sports fish (R.20).

Lake Jacksonville provides a back-up water supply for the City (R.24, 25). The Utility Superintendent indicated that the City would not need any water from Lake Jacksonville during the coming winter or following spring (R.25, 26). Local groups have formed a Save-the-Lake Committee and all favor treating the lake with Fintrol-5 (R.27). Organizations working on the Committee include camping and boating groups, a fishing club, girl scouts, and the 4-H Club (R.27). The lake is heavily used by the community; no citizens opposed the grant of a variance (R.33).

The seven exhibits entered into evidence report research done with Fintrol-5. The submitted data included:

Exhibit 1 - The Formula for Fintrol-5 (1967).
Exhibit 2 - The Toxicology of Antimycin (1965).
Exhibit 3 - Antimycin Toxicity Studies: II-Administration of Water Treated with Antimycin to Rats and Dogs (1967).
Exhibit 4 - Antimycin Toxicity Studies: I-Administration of Fish Killed with Antimycin to Dogs and Rats (1967).
Exhibit 5 - Bibliography of Antimycin.
Exhibit 6 - Antimycin As a Management and Sampling Tool (1974).
Exhibit 7 - Toxicity of Potassium Permanganate to Fish And Its Detoxification of Antimycin (1971).

The seven exhibits prompted Agency response on August 22, 1974. The Agency took issue with many of the scientific findings contained in the exhibits. The Agency felt that the data were not only incomplete and unreliable, but also that the results were biased. While we agree with many of the Agency's comments, the data do establish that:

1. Various species of fish are differentially killed at specified concentrations. The size of fish, water temperature, and pH of water also influence the effectiveness of antimycin.

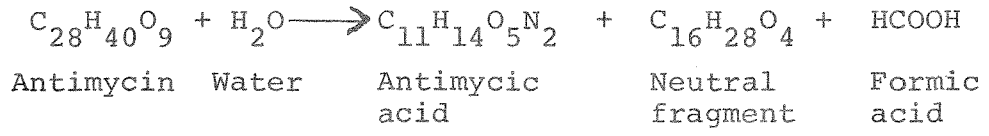
2. Aquatic plant and insects, tadpoles, frogs, salamanders, turtles, and water snakes do not appear to be harmed by concentrations of the chemical which are used to selectively kill some fish.

3. Antimycin degrades rapidly in lakes and streams, usually within 4 to 7 days.

4. Administration of fish-killing concentrations of antimycin to mallards, pheasants, pigeons, quail, chickens, mice, rats, guinea pigs, dogs, and lambs has not produced harmful effects, but some of these data are not as applicable or definitive as is desirable.

5. Skin and eye irritation is caused by improper contact with antimycin.

Exhibit 6 is a recent (1974) paper which includes useful information concerning antimycin, including its properties, mode of action, and proposed degradation mechanism. This paper, entitled "Antimycin as a Management and Sampling Tool," by M.E. Antonioni and P.C. Bauman of the University of Wisconsin, was presented May 2-4, 1974, in Aviemore, Scotland, at the FAO Symposium on Methodology for the Survey, Monitoring and Appraisal of Fishery Resources in Lakes and Large Rivers. The degradation mechanism of antimycin and components proposed in this paper are as follows:




(One mole of formic acid per mole of antimycin)

Since the proposed breakdown components of antimycin listed in Exhibit 6 were (a) submitted after the Agency Recommendation of May 28, and (b) give the latest information on this subject, we shall omit from our Order the Agency's suggested condition (a)(iii) on this point.

We grant the Variance. First, the questions we raised in our Interim Order have been satisfactorily answered and additional information has been supplied. We acknowledge that the exhibits are incomplete in some respects, but feel that it would be an unreasonable burden to demand the Petitioner to carry out costly research to answer the myriad of questions that can be raised. If this fish-killing procedure were as yet untried, we would demand greater scientific assurance. Second, the procedure provides an opportunity for environmental improvement and offers a promise of utility to segments of the community. While some risks exist, they appear small in proportion to the possible benefit. Third, reasonable safeguards will be implemented during the fish kill. Fourth, it is the best available method of restoring the ecological balance to the lake.

This constitutes the findings of fact and conclusions of law of the Board.

ORDER

Petitioner is hereby granted a Variance from Rule 203(h) of Chapter Three to enable it to apply Fintrol-5 in Lake Jacksonville once during the fall of 1974. This Variance is subject to the following conditions:

"a) That all necessary precautions be taken to protect Lake Jacksonville as a public water supply, including but not limited to the following:

(i) That the valve which would allow draining the water from Lake Jacksonville to the watershed serving Lake Mauvaise Terre should be closed and locked, and the waterworks superintendent should be provided with the only key to the lock;

(ii) That water from Lake Jacksonville not be used as a source of water until it meets the recommendations of the supplier of the chemical, Ayerst Laboratories. These recommendations are as follows: "Treated waters must not be used for drinking by man or animals, or for crop irrigation, until fingerling rainbow trout or fingerling bluegill survive 48 hours exposure in livecars";

(iii) Omitted as explained in the Opinion.

(iv) That the water level in Lake Jacksonville be lowered at least two feet, and in any event, to such level as is necessary to contain all storm waters which may be received over a period of at least fourteen days. Such a precaution must be taken to prevent the discharge of poisoned waters from Lake Jacksonville.

(v) That should poisoned waters be discharged either to Lake Mauvaise Terre, Sandy Creek or any other waterway, all necessary steps will be taken by Petitioner to neutralize the poison so that it is no longer toxic to man or animals;

"b) That all necessary safety precautions be taken to protect those persons handling and administering the subject toxicant;

"c) That Lake Jacksonville be closed for all primary and secondary contact uses, including but not limited to swimming, boating, and camping, for the fourteen day period during and after administration of the subject toxicant, and until fingerling rainbow trout or fingerling bluegill survive 48 hours exposure in livecars;

"d) That all necessary precautions be taken to protect cattle and other mammals and amphibians which may use Lake Jacksonville as a source of drinking water;

"e) That all necessary precautions be taken to ensure the water quality of Lake Jacksonville, Lake Mauvaise Terre, Sandy Creek and any other waterway which may potentially be affected;

"f) That Petitioner obtain the necessary equipment and manpower to remove dead fish and have such equipment and manpower available for as long a period of time as necessary to completely remove all dead fish. The removal operation should proceed under Petitioner's direct and active supervision;

"g) That dead fish be deposited into enclosed container-type trucks and transported to a sanitary landfill in the vicinity;

"h) That Petitioner comply with all other statements made in its petition and accompanying reports and its amended petition regarding administration of the toxicant;

"i) That Petitioner report to the Agency the results of the subject administration of fish toxicant within thirty-five days of the completion of the operation."

j) That treatment shall be made under the direct, on-site supervision of Fishery Biologists of the Department of Conservation. The City shall notify the Agency 10 days in advance of the treatment so that they may observe the treatment if they care to.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 19th day of September, 1974, by a vote of 5 to 0.

Christan L. Moffett