



Appeal: 83/09 PES

J U D G E M E N T

Appeal against Pesticide Control Act
Pesticide Use Permit No. 142-6-83/84
for use of Cythion (P.C.P. Act Reg. No.
12216 or equivalent) for control of
mosquito adults within the Regional
District of Central Okanagan

Appellants:

Citizens Opposed to Malathion
Applications

Society Promoting Environmental
Conservation

DECISION

The Panel of the Environmental Appeal Board has considered all of the evidence submitted to it in the appeal hearing on Pesticide Control Act Pesticide Use Permit No. 142-6-83/84 for use of Cythion (P.C.P. Act Reg. No. 12216 or equivalent) for control of mosquito adults within the Regional District of Central Okanagan, and has decided that the implementation of the program in accordance with the terms and conditions specified in the Permit will not cause an unreasonable adverse effect to man and/or the environment.

It was clear from the evidence of both Appellants that the terms and conditions of a previous permit had not been met and that other similar permit violations might occur in future if the permit under appeal were approved.

The Panel is aware of the Appellants' concerns and is, nevertheless, convinced that the Permit Holder will fully comply with all of the terms and conditions of the Permit 142-6-83/84 throughout the period it is in effect. The Permit Holder (Regional District of Central Okanagan) has prepared a detailed plan for implementation in a practicable way all of the terms and conditions of the Permit, and has given to the Panel a commitment of its intention to fulfill all of the steps included in that plan. (See attached Appendix "A" for details of compliance method and implementation procedures.)

It was clear to the Panel from the evidence that the criteria used by the Permit Holder in determining whether an application of a spray to control adult mosquitoes should be applied, need to be carefully re-examined. Abating mosquito nuisance is not, in the view of the Panel, the only determinant. Attempting to avert a potential threat to human health is another.

The Permit Holder's representative, in his evidence, made it very clear that if any resident of the Regional District did not wish to have an application of the spray made in the vicinity of his property,

and notified the Regional District, in advance, of his preference, that every reasonable effort would be made to exclude that property from the spray program.

The Permit Holder also stated that Malathion, the common name of the chemical to be applied, would appear in all future notifications given the public and other interested groups and associations.

The Panel did not agree with the Appellants on their recommendation that a door-to-door distribution of pamphlets notifying residents of an area of a planned application of the spray should be made immediately preceding the actual application. The procedures presently in place are realistic notwithstanding allegations that many residents never become aware of the spray program until it is actually in progress, or are unaware that it has previously taken place.

The Panel agrees fully with the Appellants that greater emphasis in controlling the mosquito problem of the District should be placed on larviciding programs.

While considerable evidence was advanced by the Appellants to demonstrate the human health hazards associated with the use of Malathion (Cythion) approved under the Permit, the scientific and medical data available to the Panel indicate that this chemical is of low toxicity to man.

The suggestion that Malathion (Cythion) may cause birth defects in humans is purely speculative and is not supported by scientific evidence.

In the opinion of the Panel, the use of Malathion (Cythion) for the control of mosquito adults in the Regional District of Central Okanagan, as specified by the terms of the Permit, will not endanger the health of the public. Like all chemicals, however, Malathion must be handled with care and, for this reason, the Permit specifically demands "that all insecticide use be carried out by or under the direct supervision of an individual with a valid B.C. pesticide applicator's certificate in the mosquito and biting fly category".

The decision to implement an adulticiding mosquito control spray application must, in the Panel's view, be carefully weighed.

A severe mosquito nuisance alone, particularly when it affects young children in the community, may well justify the use of chemical mosquito control programs. The application of such a control measure, however, appears even more pressing and may indeed be vital in areas where Western Equine Encephalitis (WEE) is known to occur.

Medical evidence available to the Panel is that a potential hazard of WEE definitely exists in the interior of the Province, including the Central Okanagan. Local, wild and domestic bird populations are reservoirs for the specific virus that causes this disease. The mosquito, Culex tarsalis, is abundant in the area. It acquires the infection from birds and serves as an important vector of the disease to mammals, including horses and man. Outbreaks of WEE in horses have been reported in the past from various areas in the interior of British Columbia, some as recently as 1976.

The disease usually occurs in the late summer of years in which there have been prolonged periods of high temperatures and an abundance of mosquitoes. There is no specific treatment for this potentially fatal disease.

In 1971-1972, two outbreaks of clinical encephalitis in humans were reported from the Okanagan area, including eight laboratory confirmed cases of WEE. One elderly patient died and one infant, after recovering from the disease, was later diagnosed to be mentally retarded.

The absence of reports of recent cases of WEE in the Province may well indicate that the existing mosquito control programs at least had some beneficial effect. On the other hand, the infection often appears as a mild "flu-like" illness and may go unrecognized. A serological survey conducted by the B.C. Ministry of Health in 1967 in south-eastern British Columbia showed that a significant number of healthy humans carried antibodies of WEE in the blood, indicative of past infections which were undiagnosed.

Apart from drainage of mosquito breeding grounds, which is often costly and difficult to achieve, the only effective large-scale measures of preventing or aborting epidemics are fogging or spraying of stagnant pools and water-bodies where mosquitoes breed, with larvicides, as well as ground and aerial spraying, with adulticides.

The Panel does not consider larviciding alone a sufficiently effective measure of adequate mosquito abatement. Further, the Panel cannot accept the claim by the Appellants that adult mosquito control should be considered only when an extreme human health hazard of WEE exists. Preventive action must be instituted well in advance of such an emergency.

The Permit Holder currently utilizes mosquito bite counts to measure mosquito densities and the need to implement adult mosquito control measures. The medical evidence available to the Panel suggests that the techniques available for monitoring the presence of WEE could be improved by maintaining and testing of sentinel flocks of birds, and by capturing and testing of mosquitoes. It is evident to the Panel that the responsibility for the introduction of improved monitoring techniques is not solely the responsibility of the Permit Holder but the development of such procedures would improve disease monitoring methods while at the same time limiting pesticide spray applications to situations where potential health hazards were specifically known to exist.

The Panel of the Board concurs with the Appellants' statements that Malathion (Cythion) is highly toxic to fish and bees. For this reason, the Permit requires the Permit Holder to observe stringent pesticide-free zones around all fish bearing waters. The Permit Holder made it clear that the 10-meter pesticide-free zones could be carefully observed as well as adequate buffer zones around all known bee hives.

The Panel requests that the Permit Holder republish all notices where the common name of the chemical, Malathion, did not previously appear. In addition, the residents of the Regional District of Central Okanagan shall be made aware of the fact that their property can be exempted from any spray application under the Permit if such a request is made to the District.

The Panel recommends that an evaluation of the effectiveness of the adulticiding program take place following expiration of the Permit in 1984. This evaluation should provide more meaningful data than in the past in view of the Permit Holder's plans to assemble data on pre- and post-spray application bite counts.

In addition, the Panel recommends that the Administrator, Pesticide Control Act, monitor the spray applications made under the Permit to the extent necessary to satisfy himself that the terms and conditions of the Permit, particularly in respect of the 10-meter pesticide free zone, are being fully complied with.

In conclusion, it is the Panel's opinion that, on balance, the spray program authorized under Permit 142-6-83/84, can be implemented in such a manner so as to ensure that any adverse effects to man or the environment are kept to an absolute minimum. In addition, the Panel agrees that the Administrator, Pesticide Control Act, was correct in issuing the Permit authorizing the spray applications, particularly when the benefits of improved human well-being and health protection of the residents of the District are considered.



J.O. Moore,
Panel Chairman
Environmental Appeal Board

Victoria, B. C.
September 26th, 1983

S U M M A R Y

The following pages of this Judgement contain a summary of the hearing details and principal points advanced in the testimony of the parties to the appeal.



J.O. Moore
Panel Chairman
Environmental Appeal Board

HEARING DETAILS:

The hearing was held by a Panel of the Board in Kelowna, B. C., in Room 748 of the Capri Hotel, on August 16th, 1983.

The Panel of the Board in attendance were:

J.O. Moore (Tax Consultant)	Chairman
Dianne Kerr (Management Consultant)	Member
N. Schmitt, M.D. (Physician)	Member

Miss Shirley Mitchell, Secretary to the Board, acted as Recorder of the Proceedings.

SUMMARY OF PRINCIPAL REASONS FOR APPEAL:

The appeal was taken under Section 15 of the Pesticide Control Act against Pesticide Use Permit No. 142-6-83/84 for the use of Cythion (P.C.P. Act Reg. No. 12216 or equivalent) for control of mosquito adults within the Regional District of Central Okanagan, issued by the Administrator of the Pesticide Control Act on May 26, 1983, and amended May 31, 1983 and July 20th, 1983, for the following reasons:

- (1) The Permit (142-6-83/84) does not preclude adulticiding of mosquitoes in the area of Mission Creek, Scenic Canyon, or within 300 meters of fish bearing waters as was required under the former Permit (142-4-81/83) but, instead, substitutes the requirement that a 10-meter "pesticide-free zone" be maintained around or leading to any fish bearing waters.
- (2) The Permit does not provide adequate advance public notification of a planned spray application.
- (3) The practice of fogging residential areas for adult mosquito control using a potentially dangerous chemical is antiquated.

- (4) Viable alternative methods of adult mosquito control to ground fogging of chemical pesticides exist and should be used.
- (5) The risks to the environment and the Okanagan tourist industry involved in the mosquito control program authorized under the Permit far outweigh any benefits which may occur from it.

APPELLANTS' REPRESENTATIVES:

- (1) Citizens Opposed to Malathion Application
Mr. Lloyd Manchester - Spokesman
- (2) Society Promoting Environmental Conservation
Mr. Peter Chataway - Spokesman
Ms. Judy Loukras - Witness

PERMIT HOLDER'S REPRESENTATIVE:

- (1) Regional District of Central Okanagan

Mr. A. T. Harrison - Spokesman
Administrator
Regional District of Central Okanagan
Kelowna, B. C.

ADMINISTRATOR, PESTICIDE CONTROL ACT REPRESENTATIVE

- (1) Mr. Stuart Craig - Spokesman
Regional Manager
Pesticide Control Program
Penticton, B. C.

EXHIBITS FILED:

- Ex. "A" Operations Record of Regional District
- EX. "B" Second version of EX. "A"
- EX. "C" Map of Residential Area - Lakeshore Road
- EX. "D" Page from Agriculture & Food Compendium -
"Minimum Number of Days Between Last
Pesticide Application and Harvest".
- EX. "E" Submission of the Regional District of
Central Okanagan
- EX. "F" Submission of Administrator, Pesticide
Control Branch

In addition, the following letters and reports were provided for the information of the Panel:

- (1) Letter dated August 2, 1983, from Dr. D.A. Clarke, Medical Director, Ministry of Health, Province of British Columbia, to the Mayor & Council, City of Kelowna, re: Malathion Mosquito Adulticide Spraying Program.
- (2) Letter dated May 16, 1983, from Douglas M. Wilson, Senior Program Officer, Environment Canada, to Ms. Marilyn Kansky, West Coast Environmental Law Association, re: Toxicity of Malathion to Fish.
- (3) Letter dated January 26, 1981, from R.L. Morley representative for the B.C. Fish and Wildlife Branch, Ministry of Environment, to Mr. B. F. Vance, Chairman, Inter-Ministerial Pesticide Committee, Pesticide Control Branch, with reference to the application for Pesticide Use Permit 142-4-81/85.
- (4) Table setting out meteorological conditions existent at the time spraying under Permit 142-4-81/83 was taking place.

Summary of points alleged in the evidence of the Appellants:

A. Citizens Opposed to Malathion Applications (C.O.M.A.)

- (1) The Operations Records kept by the Regional District of Central Okanagan in connection with the application of Malathion authorized under Pesticide Use Permit 142-4-81/83, were poorly prepared, incomplete, and failed to accurately record the meteorological conditions in existence at the time spraying took place.
- (2) The Operations Records clearly showed that spraying had occurred in areas within 300 meters of fish bearing waters in violation of Condition 10 of Pesticide Use Permit 142-4-81/83.
- (3) The Regional District of Central Okanagan was charged with and convicted of a violation of the terms and conditions of Pesticide Use Permit 142-4-81/83.
- (4) The Administrator, Pesticide Control Act, cancelled Pesticide Use Permit 142-4-81/83 in November of 1982 because of allegations of permit infractions.
- (5) Malathion is highly toxic to fish and aquatic invertebrates. Very low concentrations in water are fatal to fish, hence such sprays must be prevented from reaching fish bearing waters.
- (6) The representative of C.O.M.A. endorsed the view expressed by the Medical Director, Ministry of Health, for the area, that aerial spraying for adult mosquito control should only be considered when a major threat to health or the community's welfare is imminent as judged by professional, independent scientists.
- (7) The Regional District of Central Okanagan has not given adequate public notice of the purpose and scope of the spray program as required under Section 9 of Pesticide Use Permit 142-6-83/84. In addition, the advertisements published failed to state the common name of the chemical approved under the Permit in contravention of advertising instructions issued by the Pesticide Control Branch.

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- (8) Pamphlets warning residents of an area of a planned spray application should be distributed door-to-door shortly before the spraying commences. The pamphlet should include the approximate time the spray will be applied, the pesticide to be used, and the health hazards associated with its use. In addition, the pamphlet should set out the Permit Holder's phone number and the right of each resident to have his property exempted from the spray application.
- (9) The chances of unwanted, accidental exposure to the spray authorized under the Permit are extremely high because the public may not be aware of the time the spray application is planned, or has recently taken place. Consumption of Malathion-covered fruits and vegetables may unknowingly occur because of inadequate public notification.
- (10) Alternatives to the use of pesticides for adult mosquito control purposes should be actively pursued as a means of reducing the quantities of harmful chemicals being introduced into the environment.

Additional points which arose out of the cross-examination of the C.O.M.A. representative.

- (1) Malathion is extremely toxic to bees and fish. Less so to humans.
- (2) The toxicity of Malathion increases under high summer temperatures.
- (3) The Permit provides for larviciding wherever possible to reduce the need to spray for adult mosquito control.
- (4) Property owners who are aware of an impending application of pesticide spray can take a number of precautions to avoid any unwanted exposure.
- (5) Residents should have the right to decide whether their property is to be sprayed.

B. Society Promoting Environment Conservation

- (1) The witness for the Society questioned the need for the Regional District to spray for adult mosquitoes.
- (2) Many of the residents of the area in which the witness for the Society lives were unaware of the Regional District's plan to spray malathion for adult mosquito control, notwithstanding that notices of the plan had been published in local newspapers.
- (3) The spray program planned for the area in which the witness for the Society resides, is being imposed without her consent to do so.
- (4) The Province of British Columbia does not have the equipment or facilities to measure water quality to a one part per billion standard.
- (5) The preservation of high levels of water quality in Okanagan Lake is essential both to the residents of the Valley and to the furtherance of a prosperous tourist industry. The use of malathion sprays poses a threat to the maintenance of high levels of water quality and are particularly hazardous to fish.
- (6) The use of malathion sprays adversely affects the growing of fruit in the orchards because of its extreme toxicity to bees.
- (7) The public should take more steps to protect themselves from mosquito bites and place less emphasis on requesting local governments to provide mosquito control spray programs.

Summary of principal points entered in evidence by the representative of the Permit Holder - Regional District of Central Okanagan

The evidence presented by the Permit Holder's representative was submitted to the Panel of the Board in the form of a brief, and was identified for the record as Exhibit "E".

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The brief, entitled "Brief Submitted to the Panel of the Environmental Appeal Board respecting the use of pesticides to control adult mosquitoes under Pesticide Use Permit No, 142-6-83" was read into the record by Mr. A. T. Harrison, Administrator, Regional District of Central Okanagan.

The brief details the manner in which the Regional District of Central Okanagan intends to comply fully with each of the terms and conditions of Pesticide Use Permit 142-6-83/84, and describes the procedures in place to administer the adulticiding mosquito control program in an effective manner.

A photocopy of the brief is attached to this Judgment as Appendix "A".

Additional points brought out in the cross-examination of the Permit Holder's representative:

- (1) The Regional District of Central Okanagan takes no responsibility for the selection or safety of the chemicals approved by the Administrator, Pesticide Control Act, for use in mosquito control programs. It views its role in the program to be strictly administrative.
- (2) The newspaper advertisements setting out the notice of intention to spray for adult mosquito control purposes did not in all cases show the common name of the chemical approved for use simply because the Permit referred to the pesticide as "Cythion"
- (3) Bite counts are taken by the Regional District of Central Okanagan upon receipt of a complaint to determine whether spraying is warranted. A second bite count is taken immediately preceding any spray application to determine if spraying continues to be warranted, and again after the spray has been applied to determine whether its application has been effective.
- (4) The Regional District of Central Okanagan attempts to reach as many residents as possible to advise them of its plans to spray for adult mosquitoes, through newspaper advertisements, prime time radio announcements and by maintaining a 24-hour telephone line carrying

details of planned spray applications.

- (5) The notices published in local newspapers contained details of the purpose and scope of the spray program authorized under Pesticide Use Permit 142-6-83/84
- (6) Under procedures introduced this year by the Regional District of Central Okanagan, bite counts will be taken following each application to monitor how effective the spray application has been.
- (7) The need for an adult mosquito spray program is principally determined by the Regional District of Central Okanagan on the basis of nuisance abatement rather than health considerations.
- (8) No strong objection to the spray program authorized under Pesticide Use Permit 142-6-83/84 was expressed by bee keepers within the Regional District of Central Okanagan, principally because the District endeavours to avoid spraying within 0.8 km of any known bee hives.
- (9) The Regional District of Central Okanagan will shut off its spray equipment in the vicinity of any property the resident of which has specifically requested be excluded from the spray application.

Testimony of the representative of the Administrator,
Pesticide Control Act

The Administrator, Pesticide Control Act, did not plan any formal presentation at the hearing in connection with his decision to authorize the issuance of Pesticide Use Permit 142-6-83/84.

The Panel of the Board requested, however, that a representative of the Administrator be present at the hearing to provide an explanation of the similarities and differences in meaning of the expressions "Pesticide Free Zone" and "Pesticide Buffer Zone" as the terms and conditions of Pesticide Use

Permit 142-6-83/84 reflected a change from the preceding permit, from a 300 meter pesticide buffer zone to a 10 meter pesticide free zone.

Mr. S.M. Craig, Regional Manager, Pesticide Control, Okanagan Region, appeared on behalf of the Administrator, and presented a memorandum to clarify the meaning of the two expressions. The memorandum was identified as Exhibit "F" and was read into the record by the Administrator's representative.

A photocopy of the memorandum is attached as Appendix "B" to this Judgement. It provides the rationale for the change in the terms and conditions of the Permit from the 300 meter pesticide buffer zone to a 10 meter pesticide free zone.

End of Summary