



APPEAL NO. 86/12 PES

JUDGEMENT:

In the appeals of the Arrowsmith Ecological Association, Mrs. Kathleen A. Braden, the Kwah-Li-Kum Ratepayers' & Residents' Association, Mrs. Beryl E. Mottershead, Mrs. Martha Oakley, the Qualicum Bay-Horne Lake Waterworks District, Mr. Wm. Spira and Mrs. Norene L. Wilson, against the Pesticide Use Permit 400-165-86/88, dated April 11, 1986:

The Permit, issued by the Administrator of the Pesticide Control Act, authorized the British Columbia Minister of Forests, Port Alberni Forest District, to apply glyphosate and 2,4-D Amine to portions of D.L. 84, Cochrane Road, U.T.M. 10-3797-54727, for the control of red alder, bigleaf maple, herbaceous and deciduous brush species:

Pesticide Use Permit No. 400-165-86/88 authorizes the application of 240 kg. of the isopropylamine salt of glyphosate and 30 kg. of 2,4-D amine, at the rate of 2.14 and 3.0 kg/hectare, respectively, to 112 and 10 hectares of the treatment site, again respectively. Application is to be by aerial helicopter, power hose/nozzle, backpack sprayer, and individual tree injection and stump application. Where spray application methods are utilized, a 10-meter pesticide free zone is to be maintained around all watercourses, with a 3-meter zone where application is by injection. Application is projected over a two-year period, although three weeks' advance notice, in writing, is required before any pesticide application is carried out. The nearest source of domestic water (well) is indicated as being more than 700 meters (actually 2 kilometers) from the treatment site, with Bowser and Qualicum Beach being the closest nearby communities.

HEARING INFORMATION:

The hearing was held on July 30th, 1986, at the Tally-ho Islands Inn, Nanaimo, B.C.

Board members in attendance were:

Dr. C.C. Walden - Chairman of Panel
Dr. Wm. Godolphin - Member
Mr. Ian Hayward - Member

Miss Shirley Mitchell, Executive Secretary to the Board, acted as recorder for the proceedings.

REGISTERED APPELLANTS:

Arrowsmith Ecological Association, Errington, B. C.
Mrs. Kathleen M. Braden, Qualicum Beach, B. C.
Kwah-Li-Kum Ratepayers' & Residents' Association,
Bowser, B. C.
Mrs. Beryl E. Mottershead, Bowser, B. C.
Mrs. Martha Oakley, Qualicum Beach, B. C.
Qualicum Bay-Horne Lake Waterworks District,
Qualicum Beach, B. C.
Mr. Wm. Spira, Errington, B. C.
Mrs. Norene L. Wilson, Qualicum Beach, B. C.

PERMIT HOLDER:

The Permit Holder is the B.C. Minister of Forests, Port Alberni District, represented by:

Mr. C.H. Hayhurst, Spokesman, Operations Superintendent,
Alberni Forest District

Mr. Gerald Reichenback, Resource Officer, Silviculture,
Alberni Forest District

EXHIBITS:

- EX. 1 Submission of Arrowsmith Ecological Association
- EX. 2 Submission of Mrs. Kathleen Braden
- EX. 3 Submission of Kwah-Li-Kum Ratepayers' & Residents' Association.
- EX. 4 Submission of Mrs. Beryl E. Mottershead
- EX. 5 Submission of Mrs. Martha Oakley
- EX. 6 Submission of Qualicum Bay-Horne Lake Waterworks District
- EX. 7 Submission of Mr. Wm. Spira
- EX. 8 Submission of Mrs. Norene Wilson
- EX. 9 Submission of Permit Holder
- EX. 10 Submission of Permit Holder
- EX. 11 Site Plan

DECISION:

The Environmental Appeal Board, authorized under the Environment Management Act to hear the appeals of the Arrowsmith Ecological Association, Mrs. Kathleen Braden, the Kwah-Li-Kum Ratepayers' & Residents' Association, Mrs. Beryl E. Mottershead, Mrs. Martha Oakley, Qualicum Bay-Horne Lake Waterworks District, Mr. Wm. Spira, and Mrs. Norene Wilson, against the decision of the Administrator of the Pesticide Control Act of April 11th, 1986, to issue Pesticide Use Permit No. 400-165-86/88 to the British Columbia Minister of Forests, Alberni District, has considered all of the evidence submitted to it at the hearing of July 30th, 1986, and has decided that the issuance of this permit, with the amendments listed below, will not cause an unreasonable adverse effect to mankind or to the surrounding environment.

The appeals, therefore, are dismissed.

The following amendments are to be made to the permit:

- 1) Section 4.e, Treatment Area for Roundup is revised to read "50.5 hectares"; Treatment Area for 2,4-D Amine 80 to read "5.3 hectares". Correspondingly, Section 4.f, Quantity for Roundup, is revised to read "108 kg." and for 2,4-D Amine 80, is revised to read "15.9 kg".

- 2) Section 6, Purpose, is revised to read "Site Rehabilitation and Brush Control in Conifer Plantations".
- 3) Section 7.b, Specific Location, is corrected to read, "D.L. 84, Cochrane Road, U.T.M. 10-3797-54727".
- 4) Section 9, Completion Date is revised to read "yr.-89".

MONITORING REQUIREMENTS:

It is the stated opinion of the Board that the concentrations of pesticides in surface and sub-surface waters, adjoining the treatment site, following treatment, will be negligible. Nevertheless, the permittee shall carry out, or have carried out, the following sample procedures and provide analysis of the two pesticides for the samples, as follows:

- a) At a location approximately 500 meters downstream from the perimeter of the treatment site, where access is most convenient, samples shall be taken of the water from two creeks, one known locally as Black Brook, and the other, the creek which flows into Nash Creek. These samples shall be taken 12 hours, 7, 30 and 90 days after treatment, and shall be analyzed for pesticide contamination, including the concentration. The weather on the day of and the day preceding the taking of samples shall also be noted.
- b) At the nearest well (approximately 2 kms distant), which would be representative of all wells in the area (i.e., check with the appellants). This well will be one which supplies potable water to a person or people in the area. A sample shall be taken 30 and 90 days after treatment, and shall be analyzed for pesticide contamination, including the concentrations.
- c) The permittee shall provide the appellants, as well as the Appeal Board, with the results of the monitoring program on these two streams and the well.

It is anticipated that these analyses will confirm the Board's opinion and reassure the appellants concerning the minimal risks associated with the herbicide treatment.

GENERAL COMMENTS OF THE BOARD:

- 1) There appeared to be a consensus among the appellants that the permittee should be obligated to include in his presentation to the Board, substantive technical evidence documenting the general environmental impacts, or absence thereof, pertaining to the pesticides covered in the permit. The Board does not concur with this position and suggests that the appellants may find it useful to acquire a more complete appreciation of the procedures employed by Ag. Canada in the registration of pesticides.
- 2) When a pesticide is proposed for registration, the applicant is advised that certain technical data regarding the product's environmental impacts are required. The decision to register the product for specific applications, or to reject it, is based on this submitted information. For any one specific product, it has been casually estimated that the cost of producing and assembling the required technical data is between \$2 and \$5 million. This cost, which must be borne by the applicant, is in itself a screening mechanism, inasmuch as manufacturing chemists are reluctant to spend these sums of money on products whose possible registration appears doubtful.

Although Ag. Canada is legally responsible for pesticide registrations, advice and opinions are sought throughout the registration process from the most competent people available. These include not only Ag. Canada, but also Environment Canada, National Health and Welfare, Fisheries and Oceans, Canada, the National Research Council of Canada, and other individuals and organizations whose competences bear on a specific pesticide registration.

A consensus is normally required as to the information required for the specific applications pertaining to each product being registered, the validity of the information when it is produced and, finally, the acceptability, or otherwise, of the product for which registration is being sought. When allowed, registration then gives the citizens of this country the right to use the pesticide anywhere within Canada provided they do so safely, and within the provisions to be found on the pesticide label. The appellants in this hearing (and others) must be aware of the aspects of the registration process which bear on the Board's consideration of various appeals. Although this hearing has been quasi-judicial, it is not strictly an adversarial situation, and the Board is required to consider all pertinent information available to the Board, not merely that presented at the hearing. Moreover, the Board takes the position that the user of a registered pesticide (i.e. the permittee), cannot be expected to make available at individual appeal hearings the level and breadth of competence necessary to document the full technical basis on which the pesticide qualified for registration.

- 2) The situation has not yet arisen where previously unknown technical evidence has been submitted at an appeal hearing which casts serious doubts on a pesticide's acceptability. Other fora are more probable. As at this hearing, appellants selectively refer only to those previously known studies which can be construed to detract from the pesticides environmental acceptability. The facts are the same; only interpretations thereof differ. For example, the effect of glyphosate on the thymus and reproductive ability of test animals was cited by Mrs. J. McLeod (Arrowsmith Ecological Association) at the present hearing. The inference from the statement in the Arrowsmith Ecological Association's brief is that any persons ingesting any amount of glyphosate, however small, would immediately be at substantial risk concerning possible impairment in reproducibility and damage to the thymus gland. This is not correct.

In the experimental studies in question, these effects occurred only as the result of abnormally large doses over abnormally extended feeding periods, a situation which cannot occur in nature. Many materials considered to be totally innocuous by the lay public, produce similarly

undesirable impacts when taken in excess. Documented cases have occurred where individuals drank so much water, their lungs filled and they drowned. The human body requires a daily intake of about 0.5 gm. of common salt. The average North American intake is about 12 gm. per day, resulting in kidney damage, heart strain and an increased risk of heart attack -- at least for a segment of the population. Yet, are water and common salt poisons? Obviously not!

- (3) Pesticides are obviously toxic materials because their application is intended to kill the target species. A desirable pesticide, if one accepts that such a substance can exist, is one which effectively kills the target species, with minimal or no effect on non-target species. Usually, concern is greatest regarding mankind and other animals. The effect of the toxicant on these non-target species depends on the amount ingested, and the time period involved. If a large daily dose over a long time-period is necessary to produce an effect, it does not mean that a smaller dose over the same time-period will produce any effect at all, or even that a large dose over a short-time period will have any effect. In assessing any potential impact resulting from the authorized use of a pesticide, the Board must consider both the concentration of the pesticide, (which is inevitably very small) and the period of time to which non-target species may be exposed. The above considerations are sometimes construed as not pertaining to pesticides which are potential carcinogens, because it is correct that "one molecule (of the carcinogen) can cause cancer. Nonetheless, the probability of this happening is so low, it is difficult for the human mind to comprehend. Any practical possibility of exposure resulting in cancer depends again on the total amount ingested (many, many molecules), i.e., the concentration of the pesticide and the time-period involved. In one recent court hearing, the probability has been equated to that of cancer occurring in an individual as a result of taking one puff in a life-time on a cigarette. Although the Board recognizes that a certain segment of society is unwilling to take even this risk, and sees no reason why it should, these are the types of considerations that are examined relative to the advantages to society resulting from use of the pesticide, during the pesticide registration process.

- 4) The Board recognizes that at least within a segment of society, certain sectors of the scientific establishment lack credibility in environmental matters. This is unfortunate. Although attracting considerable unfavourable publicity when it occurs, the provision of fraudulent scientific data to regulatory bodies is extremely rare. To the Board's knowledge, none of the registrations of pesticides are based on such fraudulent data, and any such studies have now been repeated to provide satisfactorily valid data to the registration agencies for the various authorized application uses of the pesticides in question.
- 5) At the current hearing, repeated reference, particularly by the Kwah-Li-Kum Ratepayers' & Residents' Association's spokesperson, was made concerning statements attributed to various technical regulatory personnel, which pertained to the carcinogenicity status of specific pesticides. These statements were made some 5 to 15 years ago. Since that time, significant advances have taken place in our technical abilities to detect potential carcinogens. Usually based on microorganisms, these tests are more rapid, are able to detect low levels of carcinogenic effects (to the microorganisms), and are much, much less expensive than previous animal tests -- a thousand-fold less expensive, or more. Consequently, a virtual explosion has occurred in our knowledge concerning the possible carcinogenicity of our foodstuffs, our clothing, our surroundings - indeed, our total environment. The results are very confusing to the lay person.

A high proportion of the materials making up our immediate environment appear to have some cancer-causing potential. It seems virtually impossible to organize a life-style which avoids all contact with these materials. Surprisingly, to some people, many of these potential carcinogens are natural in origin and are not artifacts of our industrial society. Nonetheless, the process of proving that a substance is a human carcinogen is still lengthy, time-consuming and extremely expensive. Certainly, the number of substances accepted as being bona fide human carcinogens are very substantially less than the number which are conceivably suspect as a result of tests with microorganisms. Certain

previous statements by some regulatory persons may now appear to be clouded with controversy as a result of the knowledge explosion in the cancer field that has occurred in recent years. The Board, however, has no option except to base its decisions on the best technical information presently available, both proven information and that which may raise any serious doubts concerning environmental safety in specific applications.

- 6) The Board noted throughout the hearing that the permittee's representative, i.e., Mr. Chris Hayhurst, had made prior contact with at least most of the appellants, providing information concerning the proposed treatment in face-to-face discussions, and had arranged for the various appellants to tour the proposed treatment site. The Board commends Mr. Hayhurst for these actions. At the same time, there was a paucity of information presented to the Board concerning the treatment site topography, the need for treatment (i.e., long-term plans for the site), consideration of alternative treatment techniques, and details concerning the proposed use of the pesticides involved. Although much of this information was brought out during cross-examination, the desirable detail was absent, due to lack of preparation by the permittee. For example, the confusion regarding the watercourses on the treatment site should have been clarified prior to the hearing, rather than subsequently.
- 7) During cross-examination, it was brought out that it was the intent of the permittee to reduce the areas to be treated substantially, together with a corresponding reduction in quantities of pesticides to be used. The permit is modified accordingly.
- 8) It was pointed out in evidence by a number of appellants, (Mrs. Kathleen Braden, the Kwah-Li-Kum Residents' and Ratepayers' Association) that the aquifer permeating the Quadra Sands extends over 20 miles along the east Vancouver Island coast from Dashwood to Mud Bay. Any spray chemicals from the treatment site, not immobilized and degraded micro-biologically, were expected to enter this aquifer. Concern was expressed that this would immediately place all domestic (and fish) water supplies originating from the aquifer at risk. The Board concurs that the mechanism is probably correct, but considers that any resulting risk is well below

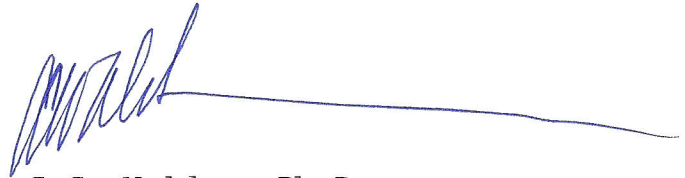
"an unreasonable adverse effect to mankind or to the surrounding environment." Only an extremely small fraction of the applied pesticide will enter the aquifer. The concentration of pesticides at the point of entry (treatment site) will be very low, and will be increasingly diluted with distance from the treatment site. The Board has been unable to arrive at any absolute numbers because water volumes contained in the aquifer are unknown. Nonetheless, if all of the pesticides to be applied, not just an extremely small portion thereof, were to wind up in the fish-rearing ponds on Four Cedars Farm, the concentration of these substances would be well below that tolerated under the Canada Drinking Water Standards. In this connection, the Standards are intended to protect the public against inadvertent spills of these materials. In this particular situation, even though the Board is not suggesting that it would be a desirable one, no harm would come to the fish. Although the protection of humans is obviously more critical than the protection of fish, humans would be at less risk utilizing the same water, inasmuch as water constitutes a much lesser proportion of our environment than it does for fish. The Board is satisfied that users of the nearest well to the treatment site will be at "no risk", and those further away, will be at less risk, if this can be considered possible.

- 9) The Board has noted specifically the concern of the Qualicum Bay-Horne Lake Waterworks District for their users, whose source of water is either Nile Creek (distribution system) or wells fed by the Quadra Sands aquifer. Nile Creek is at the extreme north-end of the Quadra Sands area, and remote from the treatment site. According to Mr. Preuss, Chairman of the Waterworks District) the distance from the treatment site of the closest well furnishing potable water is two kilometers. Cross-examination indicated that the District does not, in the near future, anticipate any extension of its authority to cover water drainage in the near vicinity of the treatment site.
- 10) The Board has considered the motions of Mr. Wm. Spira that Pesticide Use Permit 400-165-86/88 be disallowed on the grounds that:
 - a) The specific location of the treatment site was incorrectly indicated as District Lot 14 rather than District Lot 84;

- b) Qualicum Beach was indicated as the nearest town, ignoring the nearer communities of Fanny Bay, Union Bay and Ship's Point.

The Board rejects these two motions. The Board finds that there was no attempt to deceive, nor was anyone deceived. Mr. Spira himself was not deceived, nor were any of the other appellants, nor the numerous constituents of the area whom they represented. In the one instance, the perpetuation of a clerical error throughout the permit-granting process does not constitute grounds for disallowing the permit. Neither does the naming of Bowser as the nearest town in a companion permit application constitute grounds for setting aside this permit. Although of minor consequence, it would appear that Qualicum Beach is actually closer to the treatment site than is Bowser, and that the other named communities may not qualify as "towns".

- 11) The Board is cognizant of the expressed desire of a number of appellants to have a "voice" in the issuing of a Pesticide Use Permit before the permit is issued. The jurisdiction of the Board is limited to hearing appeals relative to decisions of the Administrator of the Pesticide Control Act, i.e., after any permit has been issued.



C.C. Walden, Ph.D.,
Panel Chairman,
Environmental Appeal Board

Victoria, B. C.
October 31st, 1986