Province of British Columbia

Environmental Appeal Board

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APPEAL NO. 1999-PES-19

In the matter of an appeal under section 15 of the *Pesticide Control Act*, R.S.B.C. 1996, c. 360.

BETWEEN:	Shuswap-Thompson Organic Producers Association	**APPELLANT**
AND:	Deputy Administrator, Pesticide Control Act	**RESPONDENT**
AND:	City of Kamloops	**PERMIT HOLDER**

BEFORE: A Panel of the Environmental Appeal Board
Katherine Hough — Chair
Tracey Cook — Member
Barbara Thomson — Member

DATE OF HEARING: December 7-9, 1999, January 24-27, and January 31-February 1, 2000.

PLACE OF HEARING: Kamloops, B.C.

APPEARING:
For the Appellant: Bronwen Scott
For the Respondent: Dennis Doyle, Counsel
For the Permit Holder: Len Marchand, Counsel

APPEAL

The Shuswap-Thompson Organic Producers Association ("STOPA") appealed the June 4, 1999 decision of Stuart Craig, Deputy Administrator, Pesticide Control Act (the "Deputy Administrator"), to issue Pesticide Use Permit No. 296-015-99/01(the "Permit") to the City of Kamloops (the "City"). The Permit authorizes the City to use three herbicides to control noxious weeds within its municipal limits between June 2, 1999, and October 1, 2001.

STOPA is seeking the cancellation of the Permit; its costs associated with this hearing; and a review of the general process related to the granting of Pesticide Use Permits within the Interior/Okanagan region of B.C.

The jurisdiction of the Environmental Appeal Board to hear this appeal is found in section 15 of the *Pesticide Control Act* (the "*Act*"), and section 11 of the *Environment Management Act*. The Board's authority with respect to this matter, pursuant to section 15(7) of the *Act*, is as follows:

On an appeal, the appeal board may

(a) send the matter back to the person who made the decision being appealed, with directions,

(b) confirm, reverse or vary the decision being appealed, or

(c) make any decision that the person whose decision is appealed could have made, and that the board considers appropriate in the circumstances.

The Panel also notes that section 11(14.2) of the *Environment Management Act* allows the Board to require a party to an appeal to pay all or part of the costs of another party in connection with the appeal, as determined by the Board.

While it is within the Board's authority to cancel or vary the Permit and to award costs, the Board has no jurisdiction to review the regional permitting process related to the granting of Pesticide Use Permits. Accordingly, this decision does not address the regional permitting process except to determine whether the statutory requirements set out in the *Act* and the *Pesticide Control Act Regulation* (the "*Regulation*") have been met.

BACKGROUND

The *Weed Control Act,* R.S.B.C. 1996, c. 487 requires an "occupier" of land to control noxious weeds growing or located on the land they occupy. An occupier, as defined under section 1 of that *Act*, is "a person who is in physical possession of land, premises or property," or "is responsible for, and has control over, the condition of, the activities conducted on and the persons allowed to enter or use, land, premises or property." Therefore, municipalities are considered occupiers. Schedule "A" of the *Weed Control Regulation*, B.C. Reg. 66/85, designates certain weeds growing around the province as "noxious weeds," including spotted and diffuse knapweed, houndstongue, and toadflax.

In 1998, the City retained a professional agrologist, Laila Salm, to develop a Weed Control Program for 1999 and beyond. In January 1999, Ms. Salm submitted a report to the City entitled "Integrated Weed Management Report, City of Kamloops" (the "Salm Report"). The Salm Report outlines an integrated plan to contain noxious weeds within the municipal bounds of Kamloops. That plan includes a combination of biological, chemical, cultural, and mechanical treatment strategies to control various noxious weeds on what are classified in the Salm Report as "high", "medium", or "low" risk sites. As one treatment strategy, the Report recommends the use of limited chemical spot treatments, specifically with Banvel (dicamba), Transline (chlopyralid), or Tordon 22K (picloram) for areas classified as high and medium risk. The Salm Report also recommends several non-chemical methods of control to be used in conjunction with the chemical treatments.

The City referred the Salm Report to its Task Force on the Environment for review. A majority of that Task Force supported the weed control program outlined in the Report, including its chemical control component.

On February 22, 1999, the City applied for a Pesticide Use Permit for Tordon 22K, Transline and Banvel for use in containing and controlling noxious weeds**,** primarily knapweed, houndstongue and toadflax, in the manner recommended in the Salm Report.

In accordance with section 16 of the *Regulation*, the City published notices of its permit application in two local newspapers. In response to these advertisements, Bronwen Scott, the agent for STOPA in this appeal, wrote to the City expressing her concerns about the application.

On June 4, 1999, the Deputy Administrator granted the Permit to the City, after having sent the City's application to the Regional Pesticide Review Committee for review. Pursuant to the *Act* and the *Regulation,* the Permit authorizes the use of Banvel, Transline and Tordon 22K in accordance with the conditions set out in the Permit.

The Permit conditions most relevant to the issues in this appeal are as follows:

B. Signs shall be posted at visible access points to the treatment area where pedestrian traffic is likely to occur advising of treatments, and such signs shall be maintained for a minimum of 2 weeks following the treatments. The signs shall contain the following information:

(1) name of permit holder

(2) permit number

(3) purpose of pesticide use

(4) trade and common name of the pesticide(s) used

(5) date(s) of pesticide application, and

(6) phone number of permit holder's office.

C. The pesticides listed below are approved for use under the terms of this permit. Application rates and quantities indicated are maximums. Lower rates and quantities may be used where project objectives may still be achieved.

a. Trade Name	b. Common Name	c. P.C.P. No.	d. Application Rate (kg a.i./ha)[1]	e. Treatment Area	f. Quantity (kg a.i.)
Tordon 22-K	Picloram	9005	2.0	75	150.0
Banvel	Dicamba	18837	2.2 *1	105	231.0
Transline	Clopyralid	24085	0.30	105	31.5

[1] a.i./ha. = active ingredient/ha

*1 The maximum label rate for Banvel on non-crop land is 2.2 kg a.i./ha

...

E. The following sites as described on the maps accompanying the permit application are approved for treatment in accordance with the application methods(s) indicated

TREATMENT SITES

WITHIN THE CITY OF KAMLOOPS

APPLICATION METHODS

Backpack, truck or ATV mounted handgun, ATV boomless nozzle

...

G. Each contracting firm conducting the project shall possess a current British Columbia Pest Control Service Licence...

H. All herbicide use shall be carried out by or under the direct supervision of an individual with a valid British Columbia pesticide applicator certificate in the Industrial Vegetation/Noxious Weed Category.

Restrictions

I. A 10 metre pesticide-free zone shall be maintained along all water bodies.

J. Applicators shall provide adequate buffer zones to ensure that the 10 metre pesticide-free zone is maintained.

K. No pesticide shall be applied within 30 metres of domestic water intakes or wells.

L. Appropriate precautions shall be taken to ensure that the herbicide is used in a manner that will not result in damage to non-target plant species.... Precautions shall include, but not be limited to, the following:

(1) Where groundwater or shallow aquifers are within 1.8 metres of the surface, surface soils shall be assessed in the field and soil maps shall be consulted to ensure that the application of **Tordon 22-K** is conducted only in areas where there is a sufficiently thick layer (minimum 50 cm) of soil finer than loamy sand to prevent leaching of picloram to groundwater. Soil assessments must be completed before spraying commences.

(2) Do not apply **Tordon 22-K** to ditches unless these ditches are self-contained. For the purposes of this permit, self-contained means that the ditch does not drain directly or indirectly to natural water courses or to water courses used for irrigation purposes....

(3) Do not apply **Transline** to roadside or other ditches if these ditches drain directly to fish-bearing waters….

…

O. Herbicides shall be applied on a spot-treatment only basis to weeds designated as noxious under the *Weed Control Act*.

On July 29, 1999, the City entered into a contract with pesticide applicator Grayco Contracting Ltd. ("Grayco"). By the terms of its contract with the City, Grayco agreed to comply not only with the terms and conditions of the Permit, the *Act* and the *Regulation*, but also with the additional restrictions set out in the contract itself. The relevant terms of the contract are summarized below:

- Post roads to be treated 4 days prior to treatment to notify residents of the pending spray operations.
- Within 21 days prior to spraying, contact residences immediately adjacent to the spray area for the purpose of locating all wells and domestic water intakes.
- Do not spray where there is any doubt about water sources.
- If residents object to spraying, cease chemical treatment within the boundaries of the resident's property (allow for residents to designate their properties "no spray" zones).

Grayco's daily operations records for July 27 to August 4, 1999, inclusive, indicate that Grayco applied a total of 147.8 litres of Banvel and .225 litres of Tordon 22K to noxious weeds at various sites within the City limits. However, at the outset of the hearing, counsel for Kamloops brought it to the parties' attention that all references to "Banvel" in the operations records should read "Banvel II", as Banvel II was, in fact, the herbicide applied in the City's 1999 spray operations.

On July 27, 1999, STOPA appealed the granting of the Permit to the Environmental Appeal Board. STOPA requests that the Permit be cancelled, on the primary ground that the permitted pesticide use will cause unreasonable adverse effects on human health or the environment.

The City and the Deputy Administrator both submit that STOPA has failed to show that there is a risk of an unreasonable adverse effect on either human health or the environment due to the use of the pesticides, and accordingly the appeal should be dismissed.

RELEVANT LEGISLATION

Section 6 of the *Pesticide Control Act* provides that pesticides must be applied in accordance with a permit or an approved pest management plan:

6 (1) Except as provided in the regulations, a person must not apply a pesticide to a body of water or an area of land unless the person

(a) holds a permit or approved pest management plan, and

(b) applies the pesticide in accordance with the terms of the permit or approved pest management plan.

(2) An application for a permit of the approval of a pest management plan must

(a) be made to the administrator,

(b) be in the form required by the administrator,

(c) contain the information prescribed by regulation and any other information required by the administrator, and

(d) be accompanied by the applicable fee established by regulation.

(3) The administrator

(a) may issue a permit or approve a pest management plan if satisfied that

(i) the applicant meets the prescribed requirements, and

(ii) the pesticide application authorized by the permit or plan *will not cause an unreasonable adverse effect*, and

(b) may include requirements, restrictions and conditions as terms of the permit or pest management plan. [emphasis added]

Section 2(1)(a) of the *Regulation* states that "no person shall use a pesticide in a manner that would cause an unreasonable adverse effect." "Adverse effect" is defined in section 1 of the *Act* as "an effect that results in damage to humans or the environment."

The Board dealt with the relevant legislation and case law in *City of Port Moody* v. *Deputy Administrator, Pesticide Control Act* (Environmental Appeal Board, Appeal No. 98-PES-O5(b), January 13, 1999)(unreported). In summary, at the federal level, the *Pest Control Products Act*, R.S.C. 1985, P.-9 (the "*PCPA")* requires a pesticide to be registered before that pesticide can be sold or imported into Canada. It also provides that the pesticide must be used in accordance with its label. The onus is on the applicant to submit all relevant studies to the federal government to show that its product does not cause an "unacceptable risk of harm to public health, plants, animals and the environment" (*Pest Control Products Regulations* (the "*PCP Regulations"*), section 18(d)(ii)), before a decision is made to register a pesticide.

Banvel[2] and Tordon 22K are all registered under the federal *PCPA* for noxious weed control in western Canada. Transline is registered under the *PCPA* for use in the Interior of B.C. However, STOPA contends that Transline was not federally authorized for use in the Kamloops area until after the date the Permit was granted.

[2] and Banvel II

The British Columbia Court of Appeal has ruled that the Environmental Appeal Board can consider a registered pesticide to be generally safe when used in accordance with the label (*Canadian Earthcare Society* v*. Environmental Appeal Board* (1988), 3 C.E.L.R. (N.S.) 55). However, it is also clear that the fact that a pesticide is federally registered does not mean that it can never cause an unreasonable adverse effect.

Justice Legg, in *Islands Protection Society* v*. British Columbia Environmental Appeal Board* (1988), 3 C.E.L.R. (N.S.) 185 (B.C.S.C.) found that, in making its decision, the Board should engage in a two-step process to determine whether a pesticide application would cause an unreasonable adverse effect. The first stage is to inquire whether there is any adverse effect at all. The second stage is if the Board decides that an adverse effect existed, then the Board has to undertake a risk-benefit analysis to ascertain whether that adverse effect is reasonable.

At paragraph 22 of the Court of Appeal decision in *Canadian Earthcare Society*, the Court supported Justice Lander's finding, in the court below, that:

> Should the Board find an adverse effect (i.e. some risk) it must weigh that adverse effect against the intended benefit. Only by making a comparison of risk and benefit can the Board determine if the anticipated risk is reasonable or unreasonable. Evidence of silvicultural practices will be relevant to measure the extent of the anticipated benefit. Evidence of alternative methods will also be relevant to the issue of reasonableness. If the same benefits could be achieved by an alternative risk free method then surely the use of the risk method would be considered unreasonable.

It is clear that the test for "unreasonable adverse effect" is site specific and application specific. For the Appellants to be successful, they must show that, at a specific site, the application of the herbicides under the Permit will cause an unreasonable adverse effect to human health or the environment. Evidence of alternative methods is relevant to the issue of reasonableness.

ISSUES

1. Whether Transline was authorized for use in the Interior of B.C., including Kamloops, when the Permit was issued.

2. Whether the use of Banvel II was authorized under the Permit.

3. Whether use of the pesticides as authorized by the Permit will have an adverse effect on human health or the environment.

4. Whether any adverse effects arising from use of the pesticides as permitted are unreasonable in the circumstances.

5. Whether there has been adequate public notice of the Permit.

6. Whether STOPA should be awarded its costs in the appeal.

The Panel will address these issues in the order they have been set out above.

In addition, it was brought to the Panel's attention that the Permit was authorized in accordance with section 8 of the *Act*. This appears to have been a typographical error; section 6 of the *Act* is the authority under which pesticide use permits may be granted. Therefore, the Permit should be amended accordingly.

DISCUSSION AND ANALYSIS

1. Whether Transline was authorized for use in the Interior of BC, including Kamloops, when the Permit was issued.

STOPA argues that the Permit is invalid because it authorized the use of Transline in Kamloops before that product was federally registered for use in that area. STOPA submitted correspondence from Don Bertoia, Program Pesticide Officer for Health Canada's Pest Management Regulatory Agency ("PMRA"), stating that Transline was not registered for use in the Interior of B.C. until July 20, 1999, more than 1 month after the Permit was granted. In his letter to STOPA dated December 23, 1999, Mr. Bertoia explains that although Transline was accepted by the PMRA for use in the Interior on July 14, 1997, its authorization was not formalized until July 20, 1999. This was because DowElanco, the manufacturer of the product, did not print new labels until then. In a follow-up letter dated January 14, 2000, he states that "any use of [Transline] in [the Interior] prior to [July 20, 1999] would have been in contravention of the [*PCPA*] and *Regulations.*"

STOPA also notes that Mr. Bertoia informed the Deputy Administrator by letter dated April 19, 1999, that Transline was not registered for use in the Kamloops region at that time. Finally, STOPA argues that even if Transline was approved for use, Kamloops is not included in the "Interior of B.C." region.

The Deputy Administrator submits that when the Permit was issued, Transline had a conditional registration for use in the Interior of BC, which was subject to the filing of certain information including payment of fees under the *PCPA*. The Deputy Administrator points out that section 10 of the *Regulation* authorizes approval of a pesticide where is it "registered or acceptable for registration under the *PCP Act* (Canada)." He submits that use of Transline could be permitted because it was "acceptable for registration," even though the formal registration process may not have been completed.

The Deputy Administrator refers to a letter from the PMRA to DowElanco, dated November 13, 1997, as evidence that Transline was acceptable for registration when the letter was written. The letter states as follows:

> The PMRA has now had the opportunity to review your applications of February 7, 1996, and March 5, 1996, to extend registration of the subject products [Transline Herbicide and Transline 2000 Herbicide] to include interior and coastal British Columbia. These applications were amended July 14, 1997, and July 31, 1997, to extend the registration to include interior British Columbia only. *The proposed amendment to include interior British Columbia is acceptable*. Copies of the final draft labels are enclosed. [emphasis added]

> We will be able to amend the registration of these products once we have received and reviewed four (4) final labels printed according to the approved drafts.
>
> If we do not receive the printed label within 365 days from the date of this letter, these submissions will be withdrawn.

The Deputy Administrator suggests that the formal registration process was delayed because DowElanco did not submit the printed label within the allocated time. The Deputy Administrator submits that Transline has been used in other parts of Canada for many years, and any "gap" in the registration for Interior of BC was due to administrative oversight and not product safety.

Finally, the Deputy Administrator confirmed that the City did not use Transline in 1999.

The City submits that Transline was "acceptable for registration" at the time the Permit was issued. The City also submits that because no Transline was actually used under the Permit until the federal registration process was finalized, the issue is moot.

The Panel agrees that even if the Permit incorrectly authorized the use of Transline before it was formally registered, Transline was not used by the City in 1999. In addition, now that Transline has been registered, this issue is moot.

With respect to the question as to whether the "Interior of BC" includes Kamloops, the Panel notes that no information was submitted to guide the Panel in interpreting the boundary of the region as used by the PMRA. The Deputy Administrator testified that he used the Ministry of Environment, Lands and Parks ("MELP") regional boundaries to determine that the "Interior of BC" includes Kamloops. In the absence of guidance from the PMRA, the Panel finds that the Deputy Administrator's determination was reasonable in the circumstances. However, the Panel recommends that the Deputy Administrator seek clarification from the PMRA as to the relevant geographical boundaries.

2. Whether the use of Banvel II was authorized under the Permit.

The City's use of Banvel II as a substitute for Banvel in its 1999 spray operations was not disclosed until the start of this hearing. The Panel heard submissions by all parties as to whether the substitution was authorized under the Permit and whether arguments related to the use of Banvel could by extension be applied to the use of Banvel II.

STOPA argues that the City's use of Banvel II in place of Banvel in the 1999 spray season was unauthorized and amounts to a breach of the Permit. STOPA points out that the products have different Pesticide Control Product (PCP) numbers, and that the products' active ingredient (dicamba) is carried by dimethylamine salt in Banvel, and by diglycolamine salt in Banvel II.

Moreover, STOPA states that even if Banvel and Banvel II are equivalent, the Permit does not allow for the substitution of an equivalent product, and that such substitution is a serious breach of the Permit.

The Deputy Administrator testified that although he was not aware of the substitution of Banvel II in the 1999 spray operations, it was a "routine substitution" which he would have authorized on application by the City. The Deputy Administrator also stated that the unauthorized substitution would not result in a cancellation of the Permit.

The City submits that its substitution of Banvel II without first receiving the approval of the Deputy Administrator was an oversight which should not impact the appropriateness of the Permit. The City submits that Banvel was not available in 1999, as it was being phased out and replaced with Banvel II by the manufacturer. The City submits that the two are "equivalent products." Both products contain the same active ingredient in the same concentration and have no reported differences with respect to their potential for adverse environmental impacts. The City stated that the reason Banvel II was used rather than Tordon 22K or Transline in 1999 was that it was too late in the spray season to effectively apply Transline or to perform the soil assessments required for the use of Tordon 22K.

The City submitted a letter from the manufacturer of Banvel, BASF Canada Inc., stating that BASF switched production to Banvel II because diglycolamine salt has a lower volatility than dimethylamine salt. The letter also states that the PMRA automatically assigns a new PCP number to a new product formulation. Finally, it notes that Banvel is no longer being produced.

The Panel notes that no evidence was presented indicating a difference in the manner the two formulations act or the effect they may have on health or the environment. The Panel accepts the evidence that under the *PCPA*, a new PCP number will be assigned to a new formulation of a pre-existing registered pesticide. Therefore, the Panel orders that the Permit be amended to substitute Banvel II for Banvel.

However, the Panel notes that the City's action of substituting products without obtaining formal authorization may represent a technical breach of the Permit (and the *Act*), that could result in revocation or suspension of the Permit under section 13(1)(a) of the *Act*. The Panel accepts that this was an oversight by the City, and that the Deputy Administrator would have authorized the substitution as a routine amendment. Therefore, the Panel finds that the circumstances do not warrant the cancellation of the Permit.

3. Whether use of the pesticides as authorized by the Permit will have an adverse effect on human health or the environment.

STOPA asserts that the permitted use of Banvel, Transline and Tordon 22K will adversely affect human health and the environment. STOPA submitted the Material Safety Data Sheets ("MSDS"), National Institute of Occupational Safety and Health ("NIOSH") sheets, and numerous excerpts of published articles as evidence of the

possible adverse effects that the permitted pesticides may have on the environment and human health.

Regarding potential effects on human health, STOPA argues that the permitted pesticides contain inert ingredients and contaminants, which may cause sublethal and chronic effects. STOPA submits that the permitted pesticides contain organochlorines, which bioaccumulate and are associated with increased risks of cancer. STOPA further submits that NIOSH sheets for these pesticides indicate that they are mutagens, and published studies indicate that these pesticides can cause birth defects, liver damage and kidney damage. According to STOPA, published studies show that children are especially at risk of exposure to pesticides, through pesticide use in public areas and contamination of water used for drinking and swimming.

STOPA also argues that these pesticides contain toxic chemicals that are persistent and mobile in the environment. As a result, they may contaminate surface water, groundwater and domestic wells, and may adversely affect non-target plants, insects, and aquatic biota. STOPA submits that pesticides have been found in groundwater in the United States and abroad; that groundwater contamination by pesticides may not become apparent for decades; and, that once contaminated, groundwater sources must be abandoned.

The Deputy Administrator submits that there is a general presumption of safety with respect to the use of registered pesticides in accordance with their labels, which can only be rebutted by specific evidence that application according to the Permit conditions is likely to result in adverse effects. The Deputy Administrator admits that irresponsible pesticide use can produce adverse affects, but submits that there is no evidence to show that use of the pesticides according to this Permit would be likely to cause any adverse effects. He submits that use of the authorized pesticides is a safe and effective method of noxious weed control when used in accordance with label directives and the Permit conditions.

With respect to STOPA's documentary evidence concerning the possible adverse effects generally of the permitted pesticides, the Deputy Administrator submits that these documents would have been considered by the regulatory authorities in approving the pesticides for registration.

The City submits that many of the published articles referred to by STOPA deal with adverse effects associated with use at concentrations of a much greater magnitude than authorized by the Permit. Further, the City points out that although Tordon 22K and other herbicides have been used in the Kamloops area for at least three decades, STOPA provided no evidence of adverse effects to human health or the environment in this area arising from such use. Roy Cranston, Provincial Weed Specialist for the Ministry of Agriculture, Food and Fisheries ("MAFF"), testified that he was not aware of any adverse effects on human health or the environment in spite of decades of use of herbicides, including Tordon 22K, in this region.

In further support of its position with regard to the safety of the permitted use of Tordon 22K, the City introduced expert evidence from toxicologist Dr. Leonard Ritter. In a statement prepared for the hearing of this appeal, Dr. Ritter writes:

> In finalizing its 1995 re-registration of picloram [active ingredient in Tordon 22K] the US EPA [the United States of America Environmental Protection Agency] concluded that, in accordance with various use restrictions, picloram and its derivatives can be used without causing unreasonable adverse effects to humans or the environment, and that all registered uses were eligible for re-registration. The present Permit imposes a number of substantial limitations on use of picloram which go well beyond those imposed in the United States. These restrictions should ensure that the specified uses should not be associated with any unreasonable risk to human health or the environment.

In response, STOPA questions the value of Dr. Ritter's opinion because he admitted that he is unfamiliar with the unique hydrogeology of the Kamloops area. Further, STOPA points out that because there has been no testing of local water supplies for the presence of picloram (Tordon 22K), it is misleading to state that the use of Tordon 22K has not had an adverse effect on the environment.

Finally, STOPA maintains that because there is a potential for a delay in the federal regulatory review of a pesticide, new information which shows an adverse effect with the use of a pesticide may not be reflected in the current registration status of the pesticides. Thus, STOPA suggests that the Panel should observe the "precautionary principle" and be cautious in permitting any use of pesticides that could pose a threat to the local environment or human health.

The Panel notes that STOPA's arguments relied strongly upon the MSDS and NIOSH documents for the permitted pesticides. At page 10 of Dr. Ritter's written evidence, he states as follows:

> MSDS … and NIOSH … provide brief information on potential occupational exposures and hazards which may be associated with sustained high level daily, lifetime exposure (over an entire working lifetime) to manufacturing grade products…. The data contained therein is not intended to provide an estimation of risk to those who may be infrequently exposed to very low levels of the product.

The Panel notes that STOPA has provided no information to contradict Dr. Ritter's conclusions in this respect. The Panel finds that STOPA's documentary evidence, while helpful in identifying the possible adverse effects generally of the permitted pesticides, does not fully answer the question of whether the pesticides, applied in accordance with the conditions outlined in the Permit, will pose an unreasonable adverse impact on human health or the environment. The evidence of Dr. Ritter does not fully answer this question either. Although there is no conclusive evidence that previous pesticide use in the Kamloops area has had adverse effects on human health or the environment, there has been no testing of local water supplies for the presence of these pesticides or their derivatives. Thus, it may be misleading to conclude that past use of these pesticides has had no adverse effects, or that the pesticide uses contemplated in this Permit may not have adverse effects.

The Panel does find, however, that the potential for adverse effects on water supplies and non-target vegetation warrants a precautionary approach to the

application of pesticides. Therefore, the Panel finds that it should review the site-specific evidence to see whether there will be any adverse effects to human health or the environment from the pesticide uses specified in the Permit, including an examination of alternatives to see if any risk is "unreasonable."

4. Whether any adverse effects arising from use of the pesticides as permitted are unreasonable in the circumstances.

Effects of Transline and Tordon 22K on groundwater and surface water – Permit Condition L

STOPA argues that the use of the pesticides as authorized in the Permit causes an unreasonable threat to the local groundwater and water supply. STOPA says that the hydrogeological structure in the municipality is conducive to contamination of groundwater by pesticides. STOPA is particularly concerned about contamination of the groundwater by Tordon 22K, and argues that the Permit conditions L(1) and L(2), are insufficient to prevent groundwater contamination by this pesticide.

STOPA maintains that condition L(1) is inadequate because the average pesticide applicator would not be able to assess whether there was an aquifer within 1.8 metres of the surface, and so would not know where soil assessment is necessary under the Permit. Moreover, STOPA says that the method of hand texturing used by pesticide applicators in the field (the DowElanco Standard Operating Procedure for Characterizing Soil Texture) is not useful for the classification of soils beyond the very top layer, and certainly not to a depth of 50 cm. STOPA admits that hand augers may be used to assist the soil classification process, but argues that a hand auger may not be useful to bore 50 cm below the surface in all cases. Finally, STOPA maintains that even if the pesticide applicator were able to determine that 50 cm of soil finer than loamy sand existed above an aquifer at a given site, this may not be sufficient to protect groundwater at the maximum rate of application.

With respect to conditions L(2) and L(3), STOPA argues that underground aquifers must be considered "natural water courses" in the context of this condition. A ditch cannot reasonably be considered "self-contained" if it drains into an underground aquifer. STOPA argues that it is impossible for an applicator to properly apply this condition because it is impossible to discern from standing on the surface whether or not a ditch does drain into an aquifer beneath it.

STOPA submits numerous documents on this point, but relies primarily on the testimony of Paul Blackett. Mr. Blackett is an environmental technologist with experience related to the movement of contaminants in groundwater. Mr. Blackett admits that he has no training or experience directly related to the transport of pesticides in particular, nor related to the toxicology of pesticides. Mr. Blackett did not offer any evidence directly related to the ability of Transline or Banvel to contaminate groundwater. With respect to Tordon 22K, he suggested that it may be more problematic than the weeds themselves.

Mr. Blackett testified that although the overall ambient groundwater table does not occur within 1.8 m of the surface within most of the municipality, "large seasonal variations in groundwater elevations, groundwater discharge springs along hillsides

and the occurrence of perched groundwater tables may be problematic." Moreover, Mr. Blackett testified that the location of aquifers within the municipality are generally unpredictable.

With respect to the ability of a pesticide applicator to determine soil composition, Mr. Blackett testified that the document relied upon by Grayco to assess soils, *Soils of the Ashcroft Map Area*, is generally not useful for determining soil composition beyond 1 metre in depth, nor is DowElanco's hand-texturing methodology. It was Mr. Blackett's opinion that where, as in the present case, there is not enough known about the groundwater regime, the best option is not to introduce new potential contaminants.

The Deputy Administrator argues that Permit conditions L(1) and L(2) are adequate to protect the groundwater from contamination by picloram, the active ingredient in Tordon 22K.

The Deputy Administrator testified that in his 20 years of experience in the Kamloops area, he was not aware of any aquifers within 1.8 metres of the ground surface. He also notes that the City has a semi-arid climate with little precipitation during the growing season, and because leaching requires water movement, the dry climate tends to limit the mobility of soluble compounds in soils. The Deputy Administrator submits that areas where rocks and other coarse materials prevent the use of an auger to determine soil depth are exactly the areas where treatment is not authorized under the Permit conditions – that is, they could not be classified as "soil finer than loamy sand".

The Deputy Administrator presented the evidence of Phil Epp, a professional agrologist with a specialty in soils. Mr. Epp confirmed that condition L of the Permit reflects his opinion stated in a letter dated May 8, 1995, that "50 cm of sandy loam or finer textured soil will adequately protect groundwater from contamination by Tordon 22K at application rates of less than or equal to 1.08 L/ha." Mr. Epp provided evidence to confirm and expand on the opinion he expressed in this letter.

Mr. Epp stated that available soil maps, including *Soils of the Ashcroft Map Area*, are very useful in determining the presence or absence of groundwater at a specific site. Mr. Epp testified that a lay individual could easily learn to interpret and apply the information it contains. Mr. Epp also gave evidence that "field checking of [soil] texture and depth to water table is not at all difficult."

The City says that STOPA has raised no substantive concerns with respect to the contamination of groundwater by either Banvel or Transline, and agrees with the Deputy Administrator that the conditions in the Permit are appropriate to control the leaching of Tordon 22K into groundwater. The City submits that there are extremely small amounts of picloram presently at issue, that very little of the picloram that is actually sprayed will ever reach the ground. The City submits that the soil assessments required under the Permit will ensure that the amount of picloram that may leach to groundwater will not cause an unreasonable adverse effect on human health or the environment.

The City notes that Grayco's owner is a certified and experienced pesticide applicator who uses only certified applicators with soil assessment training for this Permit. The City says that Mr. Epp confirmed that the hand texturing techniques used by Grayco are a recognized and appropriate method for defining soil types.

Transline

A United States Department of Agriculture Fact Sheet submitted by STOPA states that clopyralid, the active ingredient in Transline, is rated as having a low toxicity to fish, mammals and other organisms. The Panel notes, however, that clopyralid is highly soluble in water and is not absorbed well by soil. In addition, the label for Transline states as follows:

> NON-TARGET SITES
>
> Avoid contamination of non-target land, water or irrigation ditches. Do not use Transline Herbicide in the following areas: standing or flowing water; the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands…

Based on this information, the Panel finds that Transline should not be used where it may come into contact with surface water. Although Permit condition L(3) provides that Transline can not be applied to ditches that drain into fish-bearing streams, the Panel finds that this may not provide adequate protection against the risk of Transline coming into contact with water in ditches, regardless of whether ditches are dry or wet at the time of application. Therefore, the Panel orders that Permit condition L(3) be amended so that Transline shall not be applied to <u>any</u> ditches.

Tordon 22K

The parties agree that picloram, the active ingredient in Tordon 22K, is a persistent chemical which is mobile in moist environments. The Panel heard evidence that Tordon has been used in the area for 30 years, and that no evidence of picloram has been detected in the groundwater. However, it is impossible to know what effect Tordon use may have had on the local groundwater regime because testing has not been carried out. In the absence of such information, the Panel must rely on the evidence at hand.

The label for Tordon 22K states that it may persist in soil for up to five years, is water soluble, and can move with water in irrigation or drainage ditches. Under "Environmental Hazards," the label states as follows:

> Do not apply directly to water. Do not apply where runoff is likely to occur …

The Panel has also considered regulatory decisions concerning the use of Tordon 22K in the United States. In its August 1995, "Reregistration Eligibility Decision", the U.S. Environmental Protection Agency ("EPA") states that picloram is one of the most mobile of the currently registered pesticides, and does not degrade well in anaerobic soils or coarse textured soils. The EPA determined that the principal

environmental risks related to the chemical include the contamination of surface and groundwater, and damage to non-target terrestrial plants in areas adjacent to application. Although the EPA determined that picloram and its derivatives could be used without causing unreasonable adverse effects to humans or the environment, the EPA made the use of Tordon 22K subject to restrictions designed to protect against ground water contamination. In the U.S., the manufacturer is monitoring water contamination by the pesticide in areas where it is used.

Although the EPA's decision is not binding in Canada, the Panel considers the EPA's conclusions to be persuasive.

Finally, the Panel notes that in *Thompson Watershed Coalition* v*. Deputy Administrator* (Environmental Appeal Board, Appeal No. 93/03, November 10, 1993)(unreported), the Board found as follows:

> The label for TORDON 22K … states, "Do not treat the banks of irrigation or drainage ditches and avoid spray drift falling into them to avoid contaminating water used for irrigation."
>
> The Panel cannot accept an interpretation which does not consider all roadside ditches, whether dry or not, as drainage ditches. The registration for TORDON 22K requires that it not be sprayed on the banks of drainage ditches. Therefore, there must be a PFZ and accompanying buffer zone along all roadside ditches whether dry or not.

Although previous Board decisions are not binding on this Panel, the Panel notes that the risk of surface water contamination by Tordon 22K is also a concern in the present appeal. Regardless of the requirements imposed by condition L of the Permit, the evidence shows that there are numerous ditches and floodplain areas within the City, to which Tordon 22K could be applied.

In light of Tordon 22K's persistence and mobility in moist environments, and the variable nature of the soils around Kamloops, the Panel finds that soil assessments should always be conducted prior to applications of Tordon 22K under the Permit. The Panel notes that, in any event, Grayco only applies Tordon 22K after first checking the depth and composition of the soil layer to ensure that there is sufficient depth of appropriate soil to prevent leaching of picloram into groundwater. Therefore, the Panel orders that Permit condition L(1) be amended to require that soils be assessed in the field and soil maps be consulted in all instances where Tordon 22K is to be applied.

The Panel also finds that although Permit condition L(2) prohibits application of Tordon 22K to ditches except those that do not flow into water courses, the evidence shows that picloram may be transported by moisture travelling through soils along the bottom and sides of self-contained ditches, even up to five years after the pesticide application. Therefore, the Panel finds that condition L(2) of the Permit should be amended so that Tordon 22K shall not be applied to any ditches.

Similarly, the Panel finds that a condition should be added to the Permit to ensure that Tordon 22K is not applied to floodplains that may be inundated by high water

from the Thompson River, which bears fish including salmon. Specifically, the Panel finds that Tordon 22K should not be applied on the Mission Flats floodplain where it is flooded by the Thompson River at average intervals of five years or less.

Finally, the Panel recommends that within the next year, the City, the Deputy Administrator and other users in the Kamloops region work together to initiate a system to monitor water supplies for the presence of residues of picloram and other pesticides used in the area. This information would be of great assistance in the future to the users, the public and the Board to assess the effects of the use of pesticides in the area.

Quantity of Banvel permitted

There is no dispute that the City applied for authorization to use a total quantity of 108.5 kg a.i. of Banvel, but the Permit authorizes a total of 231.0 kg a.i. STOPA submits that this is contrary to the provincial policy to reduce pesticide use where possible and practicable**,** as stated in the "Guidelines for Pesticide Treatments in Public Use Areas" (the "Guidelines"), dated November 1991, and issued by MELP. Consequently, STOPA submits that the Permit should be amended so that the total quantity of Banvel (or Banvel II) permitted does not exceed the amount applied for by the City.

The Deputy Administrator gave evidence that the maximum quantity of Banvel specified in condition C was based on the maximum label application rate and the area to be treated. He testified that he would not expect the total authorized quantity to be used on the treatment areas specified in the Permit, and indicated that he would not object to lowering the total quantity to what was actually applied for.

The City acknowledges that the Permit approved more than the amount of Banvel requested by the City. It submits, however, that the amount approved is appropriate, as it represents the amount required for application at label rates.

Although MELP's Guidelines are not legally enforceable, they provide decision-makers with some guidance as to government policy. The general principles concerning pesticide use, found at page 6 of the Guidelines, include the following:

(a) Consideration should be given to viable, economic alternatives to pesticide use.

(b) Pesticides should only be applied when there is clear evidence of a current or potential pest problem…

(c) Pesticides should be applied when target species are at their most susceptible stage whenever possible.

(d) Product formulations that present the lowest risk to non-target organisms should always be utilized.

…

(g) Pesticides should only be applied when they can be applied safely, giving consideration to the proximity of children, adjacent open windows, laundry, neighbours, traffic, etc.

The Panel agrees with STOPA that the Guidelines reflect a general policy towards reducing the use of pesticides where practical and possible. The Panel notes that the Deputy Administrator has no objection to lowering the amount of Banvel to that which was requested in the City's application and that the labelled application rates for Banvel and Banvel II are the same. The Panel also notes that the Deputy Administrator's method for calculating the total quantity of Banvel that can be used could result in the total level of application being higher than that requested or required by the City. The Panel finds that this practice is not consistent with the aim of provincial policy, as stated in MELP's Guidelines, to minimize pesticide use.

Therefore, the Panel finds that the maximum quantity of Banvel (or Banvel II) authorized by the Permit should equal the lesser of either the maximum label application rate multiplied by the treatment area, or the maximum quantity of pesticide requested in the permit application. Accordingly, the Panel orders that the Permit be amended so that the total quantity of Banvel II to be used is reduced to 108 kg ai.

Application rate and quantity of Tordon 22K

STOPA submits that the amount of Tordon 22K approved in the Permit is more than necessary. STOPA also submits that the City's use of Tordon 22K is a "new" pesticide use, contrary to the general provincial policy expressed in MELP's Guidelines.

The Deputy Administrator stated that the application rate for Tordon 22K specified in condition C was based on the concentrations indicated by the pesticide label in June 1999, when the Permit was issued. He notes that condition C provides for lower rates to be used where possible, and states that he would not expect that the total authorized quantity of Tordon 22K will be used.

Mr. Cranston testified that MAFF conducts studies to determine whether lower rates of pesticide applications can be effective against target weed species, and that this information is available from MAFF. He testified that according to MAFF's studies, Tordon 22K is effective when applied at half of the maximum application rate described in the Permit.

The City submits that it does not intend to use the total amount of Tordon 22K approved by the Permit. Therefore, the City does not object to the application rate of Tordon 22K listed in condition C being reduced to half of the maximum label rate, and the maximum quantity of Tordon 22K being reduced to 75 kg ai/ha.

The Panel accepts that the Deputy Administrator calculated the maximum quantity of Tordon 22K permitted in condition C by multiplying the maximum application rate, as described in the label when the Permit was issued, by the area to be treated. However, the Panel notes that in its 1995 "Reregistration Eligibility Decision," the EPA reduced the maximum application rate for Tordon 22K, as

described in its label, to 1.125 kg ai/ha. This represents half of the previous labelled maximum application rate, and half of the rate allowed by the Permit. The EPA did not require the reduced maximum application rate to be printed on labels for Tordon 22K until October 1999.

The Panel also notes that according to Mr. Cranston, Tordon 22K is effective against some species when applied at half of the rate listed in the Permit, and the City is willing to accept a reduced application rate and total quantity for Tordon 22K. Finally, the Panel has considered that provincial policy favours reduction in the use of pesticides where possible. In light of all of these considerations, the Panel finds that the Permit should be amended to reduce the maximum application rate of Tordon 22K, to 1.0 kg ai/ha. Accordingly, the total quantity of Tordon 22K that may be used should be reduced to 75.0 kg ai. Furthermore, the Permit should be amended to specify that the maximum application rate permitted for Tordon 22K is the maximum for each annual growing season.

Buffer zones

STOPA argues that condition J of the Permit allows Grayco too much discretion in determining whether "adequate" buffer zones are maintained around pesticide free zones ("PFZ's"). STOPA argues that this condition is imprecise and could be misinterpreted, and that it should not be left to the applicators to determine the size of the buffer zones. STOPA presented evidence questioning the competency and accountability of Grayco.

The Deputy Administrator submits that Grayco has held a Pesticide Control Service Licence since 1995, and that there is no record of any complaints or disciplinary action being taken against Grayco. The Deputy Administrator testified that the term "adequate" was purposefully used in condition J to allow applicators to address varying conditions at each site. He asserted that what is "adequate" in any given situation must be determined by certified applicators in the field.

The City denies STOPA's allegations concerning the competency and accountability of Grayco. The City submits that Grayco's daily use records provide confirmation that in 1999, Grayco applied the permitted pesticides in appropriate concentrations. The City agrees that the use of the word "adequate" in condition J of the Permit was meant to allow flexibility to address variable site-specific conditions at the time of application.

The Panel notes that STOPA's concerns about the accountability of Grayco are based primarily on issues of enforcement which are beyond the Board's jurisdiction.

The Panel agrees that the purpose of condition J in granting the applicator discretion to determine "adequate" buffer zones is to allow for flexibility in assessing each site and the prevailing conditions in maintaining the PFZ, and that this sort of site-specific assessment cannot be made in advance of application. Moreover, the Panel notes that Permit conditions G and H require that contractors possess a current British Columbia Pest Control Service Licence, and that all herbicide use shall be carried out by or under the supervision of an individual with a valid pesticide applicator certificate. The Panel notes that the City's contract with

Grayco goes even further than condition H, by requiring that applications will be done by certified applicators only. As this is not a condition of the Permit, it cannot be assumed that this may continue to be the case if Grayco's contract is amended or another contractor is used. However, even if the current contract did not apply, the Panel notes that section 11 of the *Regulation* requires a certified applicator to be in continuous attendance when pesticides are being applied. This person may supervise no more than four uncertified assistants at one time, and must maintain continuous visual and/or auditory contact with uncertified applicators.

Therefore, the Panel finds that the Deputy Administrator, and the City, should be able to rely on the discretion of a licenced applicator such as Grayco, to determine adequate buffer zones. The Panel finds that there is insufficient evidence to find that Grayco has not or will not provide for adequate buffer zones to protect PFZ's. There is no record of any complaints or disciplinary action being taken against Grayco. Consequently, the Panel finds that in these circumstances, condition J of the Permit provides for reasonable measures to ensure that PFZ's are maintained.

Application of Tordon 22K near residential areas

STOPA expressed concern that although the label for Tordon 22K states that it should not be applied in urban areas, the City plans to use Tordon 22K near some residential areas, including a trailer park on Ord Rd.

The City submits that since the area in question is zoned "rural" rather than "urban", Tordon 22K and the other permitted pesticides may be applied there. The City also submits that Grayco's standard practice is to ensure that buffer zones are maintained around trailer parks and areas affecting domestic wells, including those of located in areas designated as "rural" on the City's zoning map.

The label for Tordon 22K states as follows under the heading "Use Precautions":

> DO NOT USE IN URBAN AREAS

The Panel accepts that Grayco's practice is to maintain adequate buffer zones around trailer parks. The Panel also accepts that the maintenance of buffer zones will adequately protect trailer parks located within rural areas. However, given this precaution in the label, the Panel is concerned that Tordon 22K not be used in close proximity to any residential areas in "rural" zones. Therefore, the Panel recommends that adequate buffer zones be maintained around all residential areas located within "rural" zones, including trailer parks and subdivisions.

Spot treatments

STOPA notes that the respective product labels for Banvel (and Banvel II), Transline, and Tordon 22K all warn that the products may damage non-target species. Although the Permit tries to limit chemical damage to non-native plants under condition O, by restricting the permitted usage to "spot treatment" only, STOPA maintains that this condition is vague, and Permit conditions should be added to protect non-target native plants from possible destruction by the pesticides.

The Deputy Administrator made no submissions directly on this point, but in testimony defined "spot treatment" as the treatment of a radius of 0.5 m around the base of individual weeds. He agreed that where there are monocultures of weeds, the spot treatments result in overlapping circles of treatment.

Mr. Cranston stated that a spot treatment should involve a 1 m radius around the plant, as it is necessary to treat the seeds that the plant has dropped – application only to the target plant and not the surrounding area may be ineffective treatment. He also stated that after treatment with relatively low concentrations of Tordon 22K, native grasses often grow better as their competition is reduced. At the same time, the growth of native forbs, i.e. herbs other than grass, is not adversely affected because the roots of these forb species are located at a deeper soil depth.

The City endorses Mr. Cranston's evidence that native grasses and forbs grow as well or better after pesticide treatments.

The Panel accepts that noxious weeds may harm native plant species by overtaking their habitat, and that, therefore, chemical containment may be necessary in some areas. The Panel also accepts that to be effective, a "spot treatment" should involve treatment of a 0.5 to 1 metre radius around the target plant, and that the permitted chemicals may cause damage to non-target plant species. However, the Panel notes that condition O of the Permit tries to limit the chemical damage to non-target plants by restricting the permitted usage to "spot treatment".

Condition E of the Permit provides for a variety of methods in conducting spot treatments, including ATV boomless nozzle or truck mounted handgun. However, the Panel notes that Mr. Gray, the owner of Grayco, testified that his firm did not use ATV boomless nozzles or truck mounted handguns in conducting spot treatments in 1999. The Panel is concerned that accurate spot treatment may not be not be possible with an ATV boomless nozzle or a truck mounted handgun**,** as these methods may not allow sufficient accuracy in directing the pesticide to a 0.5 to 1 metre radius around target plants. Therefore, the Panel orders that 'ATV boomless nozzle' and 'truck mounted handgun' be deleted from the list of authorized application methods in condition E of the Permit.

<u>Whether non-chemical methods of vegetation control are reasonable alternatives to pesticides.</u>

STOPA submits that noxious weeds do not pose a significant problem within the municipal boundaries of Kamloops. STOPA maintains that the focus of the City's noxious weed control plan is to address the concerns of the local ranchers who wish to control weeds to maximize cattle forage, at the expense of others in the community.

STOPA argues that alternatives to pesticides, such as mowing, weed-eating, hand-pulling and flaming, were not adequately assessed prior to the authorization of the Permit. STOPA also points out that the non-chemical alternatives identified in the Salm report were not used by the City in 1999. STOPA says that, in the past, the City has mowed at the wrong time of year (after seed set) and exacerbated the problem. Additionally, STOPA notes that in 1999, the City took no steps to control

noxious weeds within the 10 metre PFZ's. STOPA submits that as a result, pesticide treatments will be ineffective because weeds from the PFZ's will re-infest the chemically treated sites.

The Deputy Administrator and the City both submit that the City has a legal right, if not a duty, pursuant to the *Weed Control Act*, to control noxious weeds within its boundaries. Both the Deputy Administrator and the City maintain that the use of the pesticides is necessary to control the spread of noxious weeds in the Kamloops area.

Mr. Cranston testified that noxious weeds are introduced species that are difficult to control because they have no natural predators in the area. He testified that noxious weeds kill native vegetation, reduce crop yields, impair the usefulness of range lands and may cause soil erosion affecting the quantity and quality of groundwater resources.

Mr. Cranston stated that in his opinion, Tordon 22K is the most appropriate control mechanism for the spread of noxious weeds in the area. He noted that after treatment with Tordon 22K, native grasses often grow better, as the competition is reduced. Also, picloram stays resident in the top soil layers, reducing regeneration of the weed seeds which are also found in the upper soil layer.

Mr. Cranston further testified that the biorelease of control insect populations may be an effective means of controlling noxious weeds where the weed population is large enough to sustain the insects. However, the biorelease insects are expensive and have not been identified for the control of all the weed species in the area. For these reasons, bioreleases along roadsides are not a practical alternative.

The City maintains that noxious weeds are a general problem within its boundaries, and are not a problem specific to the ranching community. While the City acknowledges that the spread of noxious weeds to agricultural lands is a grave concern, it submits that noxious weeds may adversely effect native vegetation, crop production, reforestation, wildlife, and recreation, as well as impairing the City's water quality due to increased soil erosion and sedimentation. The City says that these submissions are supported by Mr. Cranston's testimony.

The City submits that the use of pesticides is the most cost-effective means of controlling noxious weeds in the area, and that weed control would not be possible without pesticides. Doug Lewis, Parks Horticulture Foreman for the City of Kamloops testified that the City's budget for chemical weed control was limited to $20,000.00 for 1999. Mr. Lewis estimated that the City could have treated only one side of one road for $20,000.00 if hand pulling was the sole method of weed control. Mr. Cranston offered rough cost comparisons of chemical versus mechanical control, and supported Mr. Lewis' opinion that chemical control is by far the least expensive of the available methods of weed control.

The City further submits that although its integrated weed control plan contemplates a combination of chemical, biological, and manual control methods, non-chemical control methods are often less effective than pesticides. The City submits that hand-pulling is not possible in dessicated soils and may cause soil

disturbance, which can promote further weed infestation. Mowing promotes seed set at levels lower than the mower blades can cut and must be repeated at regular intervals. Further, mowing must occur just prior to seed set and the City does not have the physical resources to mow all locations at that time. The City notes that the permitted pesticides were selected, on the advice of Ms. Salm, for their effectiveness and appropriateness for the particular challenges that face the City.

In response, STOPA asserts that although the City may be obligated to control noxious weeds, this obligation does not necessarily require the use of pesticides. STOPA submits that use of the permitted pesticides within the municipality represents a "new use" of pesticides which is contrary to provincial and municipal pesticide use reduction policies. STOPA says that to assess the cost-effectiveness of any given control method, future costs must be considered. These future costs include risks to groundwater, human health and the environment. STOPA submits that these costs have not been considered by the City, and that the City should pursue non-chemical alternatives more seriously.

The Panel recognizes that noxious weeds are a provincial problem that the legislature has addressed with the enactment of the *Weed Control Act*. The *Weed Control Act* requires all "occupiers" of land to control noxious weeds growing or located on the land they occupy. Noxious weeds listed in Schedule A of the *Weed Control Regulation* include spotted and diffuse knapweed, houndstongue, and toadflax, which are found within the City's municipal boundaries. Thus, the Panel accepts that noxious weeds pose a problem that the City has a statutory duty to address.

The Panel agrees that the control of noxious weeds requires that a range of tools be used which may include pesticides, as reflected in the City's integrated weed control plan. The evidence indicates that the City assessed the cost and effectiveness of both chemical and non-chemical weed control methods prior to its application for the Permit. However, the Panel notes that the City presented little information detailing the non-chemical control methods it intends to actually use. The Panel also notes that a stated policy goal of MELP and the municipality is to reduce the use of pesticides. This was supported by Mr. Cranston's evidence that MAFF conducts studies to determine whether lower rates of pesticide application can be effective against weed species, and that this information is available from MAFF. Therefore, Panel recommends that the City consult with MAFF prior to developing its spray programs, to ensure that the lowest quantity of pesticide required is always used.

The Panel also accepts the evidence that mechanical means of control including hand-pulling and mowing can be more expensive than chemical control, and that hand-pulling may not be effective in dry soils or for creeping root species such as toadflax and houndstongue, and may contribute to soil disturbance, creating new seed beds and exacerbating the problem. Therefore, the Panel agrees that in these circumstances, non-chemical weed control methods may not be reasonable alternatives to pesticide use when the relative costs and effectiveness of these methods are compared. However, the Panel agrees with STOPA's concern that since PFZ's can not be treated with pesticides, they may become refugia for weeds and a source of re-infestation in the future. Therefore, the Panel recommends that

the City manually treat all PFZ's and buffer zones adjacent to chemically treated sites.

Conclusion

In conclusion, the Panel is satisfied that with the above noted changes to the Permit, there will be no unreasonable adverse impact on human health and the environment resulting from use of the pesticides in accordance with the terms of the Permit.

5. Whether there has been adequate public notice of the Permit.

STOPA argues that the public has not been sufficiently informed about the use of the pesticides to allow an adequate evaluation of the areas in which the pesticides have been and are to be used, the methods of application, or the properties of the pesticides themselves.

First, STOPA submits that although the City posted a map of the expected areas of chemical treatment, the map is inadequate. STOPA also says that posting of spray areas only four days before application does not allow for adequate public evaluation of the risks associated with any given application. STOPA also notes that Permit condition B only requires that signage be maintained in spray area for 2 weeks following spray, yet because Tordon 22K persists in the environment for much longer in arid regions, the public is at risk of exposure after the signs have been removed.

Moreover, STOPA says that the City's efforts at "door-to-door" notification of households within spray zones was not true public notification, as the City did not disseminate any health or toxicological information related to the permitted pesticides during its door-knocking campaign.

The Deputy Administrator made no submissions with respect to this issue.

The City argues that public notice with respect to all aspects of the Permit has been adequate. The City submits that Grayco's door-to-door public notification prior to spraying indicates that public notice was exhaustive. The City emphasizes that its contract with Grayco requires more stringent public notice than the Permit. The City also maintains that it is not required to inform the public of the "potential hazardous effects" of the permitted pesticides – the federal registration of the pesticides on the permit "assures public safety" if the pesticides are used in accordance with the label requirements. Finally, the City submits that its map of the application area, available for public inspection, was well defined.

Section 18(1) of the *Regulation* provides as follows:

> It is a term of a permit that a permittee will, without delay, make a copy of the permit and any relevant maps available for inspection by the public within the vicinity of the location where the pesticide is to be used.

Under section 18(2) of the *Regulation*, the Deputy Administrator may add further terms to a permit regarding public notice. Pursuant to this section, condition B is a term of the Permit.

The Panel finds that the City has complied with the requirements of the *Regulation* and condition B of the Permit in terms of public notification. In fact, the City has gone further, by requiring Grayco to undertake door-to-door public notification and to post notices at least 4 days before spraying. The Panel agrees with the City that it is not required by the relevant legislation or the Permit to inform the public of the potential hazardous effects of the permitted pesticides.

However, the Panel accepts STOPA's concern regarding the public notice of areas that have been sprayed, as portrayed by maps attached to the Permit. The map shows only the areas that are or were slated for treatment, and not the areas where treatment actually occurred. Thus, the public cannot see which areas were sprayed in the last season. Therefore, the Panel orders that the Permit to be amended to include a condition that a map showing the date, type of treatment and location of treatment be made available at a location accessible to the public within a reasonable period after the application of pesticides.

The Panel notes that although the EPA has not identified human health concerns with the use of Tordon 22K, it imposed a minimum entry restriction for occupational use. Under this restriction, no one is to enter or allow others to enter a treated area before the spray has dried. In light of this evidence, the Panel finds that when Tordon 22K is used in a public space, the entry requirements applicable for occupational use should apply to protect the public from inadvertent exposure. Therefore, the Panel orders that the Permit be amended to require that any area treated with Tordon 22K be closed to the public during application and remain closed until the spray has dried on the foliage.

6. Whether STOPA should be awarded its costs in the appeal.

STOPA argues that it should be awarded its costs associated with this appeal because it and its agent have been forced, at great cost in terms of labour, time and money, into the position of acting as public watchdog, a function shown to have been necessary for the public good in this case. STOPA maintains that it tried to avoid the appeal by engaging in a dialogue with the City. Finally, STOPA says that, "the City lengthened the hearing time considerably by adding three new, uncredible and unnecessary witnesses six working days before the appeal reconvened in January."

Under section 11(14.2) of the *Environment Management Act*, the Board has the discretion to require a party to pay all or part of the costs of another party in connection with an appeal. Section 11(14.2) reads as follows:

> In addition to the powers referred to in subsection (2) but subject to the regulations, the appeal board may make orders for payment as follows:
>
> (a) Requiring a party to pay all or part of the costs of another party in connection with the appeal, as determined by the appeal board;

The Board has adopted a general policy to award costs in "special circumstances." These circumstances are outlined in the *Environmental Appeal Board Procedure Manual*, and include:

> (d) where a party unreasonably delays the proceeding;

The Panel finds that the City's actions did not unreasonably extend the duration of the hearing before the Board. The Panel found that the evidence from each of the City's witnesses was helpful in reaching its decision in this matter. Thus, no special circumstances exist that warrant an order for costs.

The Panel, therefore, declines to award costs in this case.

DECISION

In making its decision, the Panel has carefully considered all of the evidence and argument before it, whether or not specifically reiterated here.

For the above reasons, the Panel orders that the Permit be varied as follows:

1. All references to the word "Banvel" shall be deleted and replaced with the word "Banvel II".

2. Add condition B.1 to the Permit, as follows:

   B.1 A map showing the date, type of treatment and location of treatment be made available at a location accessible to the public within a reasonable period after the application of pesticides.

3. Add condition B.2 to the Permit, as follows:

   B.2 Signs shall be posted to ensure that any area treated with Tordon 22K is closed to the public during application and remains closed until the spray has dried on the foliage.

4. The total quantity of Banvel II authorized by the permit as indicated in condition C (f) shall be amended to read "108.0 kg a. i.."

5. The application rate of Tordon 22K authorized by the Permit as indicated in condition C(d) shall be amended to read "1.0 kg a.i./ha per annual growing season."

6. The total quantity of Tordon 22K authorized by the Permit as indicated in condition C(f) shall be amended to read "75.0 kg a.i.."

7. The references to "truck mounted handgun" and "ATV boomless nozzle" in condition E of the Permit shall be deleted.

8. Condition L of the Permit shall be deleted and replaced with the following:

L. Appropriate precautions shall be taken to ensure that the herbicide is used in a manner that will not result in damage to non-target plant species or to the contamination of soil used for agriculture crop production, gardening or landscaping purposes. Precautions shall include, but not be limited to, the following:

(1) Surface soils shall be assessed in the field and soil maps shall be consulted to ensure the application of Tordon 22K is conducted only in areas where there is a sufficiently thick layer (minimum 50 cm) of soil finer than loamy sand to prevent leaching of picloram to groundwater. Soil assessments must be completed before spraying commences.

(2) Do not apply Tordon 22K on portions of the Mission Flats floodplain where it is flooded by the Thompson River at average intervals of five years or less.

(3) Do not apply Tordon 22K to ditches.

(4) Do not apply Transline to ditches.

9. The concluding statement of the Permit shall be amended to read as follows:

The above pesticide use is hereby authorized in accordance with section 6 of the *Pesticide Control Act*. (Permit is not valid unless signed by the Deputy Administrator).

The Panel also recommends that prior to any use of Transline by the City, the Deputy Administrator shall copy all parties with written confirmation from the PMRA that the registration of Transline for use in the Interior of B.C. includes the Kamloops municipal area.

The appeal is allowed, in part. The request for costs is denied.

Katherine Hough, Panel Chair
Environmental Appeal Board

Tracey Cook, Panel Member
Environmental Appeal Board

Barbara Thomson, Panel Member
Environmental Appeal Board

May 3, 2000