IN THE SUPREME COURT OF NEWFOUNDLAND AND LABRADOR
TRIAL DIVISION

Citation: *Ring v. The Queen*, 2007NLTD146
Date: 20070801
Docket: 2006 01T 2880 CP

BETWEEN:

EDWARD RING, SR. AND MARY WILLIAMS — PLAINTIFFS

AND:

ATTORNEY GENERAL OF CANADA AND THE MINISTER OF NATIONAL DEFENCE — DEFENDANTS

AND:

THE DOW CHEMICAL COMPANY AND PHARMACIA CORPORATION — THIRD PARTIES

Before: The Honourable Justice Leo D. Barry

Place of hearing: St. John's, Newfoundland and Labrador

Heard: March 26-30, 2007

(Class actions – Alleged harm from spraying of chemicals on military base – Whether evidentiary burden for certification met – Whether identifiable class, common issues, preferable procedure and proper representative plaintiffs)

Appearances:

Anthony Merchant, Q.C.	Counsel for the Plaintiff
Ian H. Fraser	Counsel for the Defendant
J. David Eaton, Q.C.	Counsel for the Dow Chemical Company
Daniel M. Boone, Q.C.	Counsel for Pharmacia Corporation

Authorities Cited:

CASES CONSIDERED: Western Canadian Shopping Centres Inc. v. Dutton, [2001] 2 S.C.R. 534; **Hollick v. Toronto,** [2001] 3 S.C.R. 158; **Carom v. Bre-X Minerals Ltd.** (2000), 51 O.R. (3d) 236 (C.A.), leave to appeal to the Supreme Court of Canada denied, [2000] S.C.C.A. No. 660; **Wheadon v. Bayer Inc.** [2004] NLSCTD 72; **Pearson v. Inco Ltd.** (2002), 33 C.P.C. 264 (Ont. S.C.J.), reversed 78 O.R. (3d) 641 (C.A.); **Anns v. Merton London Borough Council,** [1978] A.C. 728 (H.L.); **Cooper v. Hobart,** [2001] 3 S.C.R. 537; **Edwards v. Law Society of Upper Canada,** [2001] 3 S.C.R. 562; **Operation Dismantle Inc. v. R.,** [1985] 1 S.C.R. 441; **Childs v. Desormeaux,** [2006] S.C.C. 18; **Law Society of Newfoundland and Labrador v. 755165 Ontario Inc.** (2006) 260 Nfld. & P.E.I.R. 222 (NLCA); **Eliopoulos (Litigation Trustee of) v. Ontario (Minister of Health and Long-Term Care)** (2006), 82 O.R. (3d) 321 (C.A.); **Brown v. British Columbia (Minister of Transportation and Highways),** [1994] 1 S.C.R. 420; **Swinamer v. Nova Scotia (Attorney General),** [1994] 1 S.C.R. 445; **A.L. v. Ontario (Minister of Community and Social Services),** [2006] O.J. No. 4673 (C.A.); **Wuttunee v. Merck Frosst Canada Ltd.,** [2007] SKQB 29; **Ayers v. Jackson Tp.** (1987), 106 N.J. 557; **Robitaille v. R.,** [1981] 1 F.C. 90; **Formea Chemicals Ltd. v. Polymer Corporation Ltd.,** [1967] 1 O.R. 546 (C.A.); aff'd on other grounds [1968] S.C.R. 754; **Danyluk v. Ainsworth Technologies Inc.,** [2001] 2 S.C.R. 460; **Toronto (City) v. CUPE, Local 79,** [2003] 3 S.C.R. 77; **Sarvanis v. Canada,** [2002] 1 S.C.R. 921; **Gustar v. Wadden, et al.** (1994) 91 B.C.L.R. (2d) 86; **Elliott v. Canadian Forces Housing Agency Kingston,** (2003) Can. LII 35396; **Horvath v. Thring, et al.** (2003), 20 B.C.L.R. (4th) 370; **Frey v. B.C.E.**

Inc., (2006) SKQB 331; **Knight v. Imperial Tobacco Ltd.,** [2006] B.C.C.A. 235; **Mouhteros v. Devry Canada Inc.** (1998), 41 O.R. (3d) 63 (Gen. Div.); **Davis v. Canada,** [2007] NLTD 25; **Cloud v. Canada (Attorney General)** (2005), 73 O.R. (3d) 401 (C.A.); **Exploits Valley Air Services Ltd. v. College of North Atlantic** (2005), 258 D.L.R. (4th) 66 (NLCA); **Potter v. Firestone Tire** (1993), 6C. 4th 965 (Cal. Sup. Ct.); **Palmer v. Nova Scotia Forest Industries,** [1983] N.S.J. No. 534; **In Re "Agent Orange" Products Liability Litigation** MDL No. 381 (1987), 818 F. 2d 145; **Isaacson and Stephenson v. Dow Chemicals** (2004), 304 F. Supp. 2d 404; **Martel Building Ltd. v. R.,** [2000] 2 S.C.R. 860; **Odhanji Estate v. Woodhouse,** [2003] 3 S.C.R. 263; **Childs v. Desormeaux,** [2006] 1 S.C.R. 643; **Syl Apps Secure Treatment Centre v. B.D. (S.C.C., July 27, 2007); Abdool v. Anaheim Management Ltd.** (1995), 21 O.R. (3d) 453 (Ont. C.A.); **Anderson v. Wilson** (1999), 44 O.R. (3d) 673 (C.A.), app.

STATUTES CONSIDERED: *Class Actions Act*, S.N.L. 2001, c. C-18.1; *Crown Liability and Proceedings Act*, R.S.C. 1985, c. C-50; *Government Employees Compensation Act*, R.S.C. 1985, c. G-8; *Pension Act*, R.S.C. 1985, c. P-6; *Pest Control Products Act*, Stats. Can. 2002 c.28

RULES CONSIDERED: *Rules of the Supreme Court, 1986*

PUBLICATIONS CONSIDERED: Journal of the Canadian Pediatric Society, **Pediatrics and Child Health**, "Pesticide Assessment: Protecting Public Health on the Home Turf"; National Academy of Sciences, "*Veterans and Agent Orange: Update (2004)*"

REASONS FOR JUDGMENT OF BARRY J.
(Interlocutory application for class certification)

INTRODUCTION

[1] The Plaintiffs claim the Federal Crown, from 1956 to 2004, by spraying Canadian Forces Base Gagetown, New Brunswick, with herbicides containing

toxic chemicals[1], created an unreasonable risk of the Plaintiffs and others at the Base developing malignant lymphomas. The Plaintiffs now apply for certification of their action as a class proceeding, the class to include all those ever present at CFB Gagetown between 1956 and the present. As of March 23, 2007, Plaintiffs' Counsel say they have been contacted by 1715 individuals, 35 from this Province, of whom 37 have been diagnosed with Leukemia, 345 with a form of cancer (2 with soft tissue sarcoma, 9 with multiple melanoma, 6 with lymph node related cancer), 18 with Non-Hodgkin's Lymphoma and 6 with Hodgkin's Disease). The Crown has joined the manufacturers of some of the chemicals as Third Parties.

BACKGROUND FACTS

[2] The Crown admits that test spraying of military herbicides was conducted at CFB Gagetown in 1966 and 1967 in conjunction with the United States Army. From 1956 to 1965 and since 1967, commercially-available herbicides were also applied annually to control brush in limited sections of the Base for fire control and vehicle access. The Crown says Agent Orange[2] was released only in 1966 and 1967. These years are the subject of the Third Party claim.

[3] Over the past several years the Crown has been engaged in the "Base Gagetown and Area Fact-Finders' Project". This resulted in a Fact-Finders' Report, which has been relied on by the parties on this application to establish many of the facts on which argument proceeded. Other background information was set out by the filing of affidavits. (The Third Parties do not adopt the findings

---

[1] The main chemicals of interest are: 2,4-dichlorophenoxyacetic acid (2,4-D). 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and its contaminant 2,3,7,8-tetrachlorodibenzo-p-dioxin ("dioxin"), cacodylic acid, and picloram containing hexachlorobenzene ("HCB").

[2] The Crown and Third Parties note that, while commercial herbicides contain 50:50 mixtures of 2,4-D and 2,4,5-T, this is not the same as Agent Orange, which was a 50:50 mixture of 2,4-D and 2,4,5-T prepared especially for the U.S. military, never submitted to any civilian regulatory process to be approved for use, and whose chemical composition was never subjected to analysis in a regulatory process.

of the Report on the merits of the action but solely for the argument on certification.)

[4] The Plaintiffs allege that the Crown's spraying with chemicals created an unreasonable risk of individuals present at CFB Gagetown contracting cancer, specifically malignant lymphomas. They say there are core issues of negligence in this case which are common to the claims of all class members. These include: Do the chemicals sprayed materially contribute to the risk of causing lymphoid cancers in humans? Was the Crown negligent in its decisions to spray the chemicals? Should the Crown have warned those frequenting areas of CFB Gagetown about risks arising from the chemicals earlier than it did?

PROPOSED COMMON ISSUES

[5] The Plaintiffs propose the following common issues:

(i) Did CFB Gagetown or parts of the Base, after spraying, constitute an unusual or unreasonable danger of causing a malignant lymphoma and, if so, when? If the Crown permitted the introduction of the chemicals into the environment at CFB Gagetown, in what amounts, in what parts, and at what times were the chemicals present at CFB Gagetown? Can the chemicals materially contribute to, or materially contribute to the risk of, causing lymphoid cancers in humans, and if so, what is the smallest amount?

(ii) Ought the Crown to have known about or reasonably foreseen the creation of the unusual or unreasonable danger by creating the toxic areas at CFB Gagetown?

(iii) Did the Crown fail to use reasonable care to prevent the risk of developing malignant lymphomas in those who were exposed to the toxic areas, and if so, when?

(iv) If so, is an award of punitive damages appropriate under all of circumstances, and if so, how much, and can the award be as an aggregate monetary award to class members who subsequently establish an entitlement to compensatory damages?

(v) Can members of the class recover the costs of testing for dioxin and hexachlorolbenzene poisoning on an aggregate basis, and if so, how much should be awarded?

THE CLASS

[6] The Plaintiffs have proposed that the following class be certified: All individuals who were at CFB Gagetown between 1956 and the present; with a sub-class, or alternatively a class, described as: all individuals who were at CFB Gagetown between 1956 and the present and were subsequently diagnosed with a malignant lymphoma; or in the alternative, all individuals who were at CFB Gagetown between 1956 and the present and were subsequently diagnosed with Non-Hodgkin's Lymphoma, Chronic Lymphotic Leukemia, Soft-Tissue Sarcoma or Hodgkin's Disease.

THE EVIDENCE FILED

[7] Much material has been filed on the scientific issues raised by the Plaintiffs' claims. I have concluded I need not deal here with all points raised in specific detail since this would involve assessment of the merits of the case, something not

appropriate on a certification application. However, a summary of the material is needed for context to permit appropriate analysis of the Crown's and Third Parties' arguments that certification should not proceed because the great variability between proposed class members in relation to each of the steps in the "toxicological chain of causation" (source contaminant-exposure-dose received-disease caused) means that the Plaintiffs' proposed common issues are incapable of determination and the Plaintiffs have no real chance of success at trial.

Edward Ring, Sr.

[8] The proposed representative plaintiff, Edward Ring, Sr., was diagnosed with Non-Hodgkin's Lymphoma on December 19, 1995. Non-Hodgkin's Lymphoma is a malignant lymphoma. Other lymphomas include Chronic and Folic Leukemia, Soft-Tissue Sarcoma, and Hodgkin's Disease. Lymphoma is a general term for various neoplastic diseases of the lymphoid tissue.

[9] Following his diagnosis, Ring underwent a number of bone marrow aspirations, chemotherapy, and, ultimately, a bone marrow transplant. Following the transplant he suffered from Graft Versus Host Disease because of his body's rejection of the bone marrow transplant.

[10] On December 6, 2003, Ring had to retire from the Canadian Forces Reserve in order to be able to recover from the transplant and associated treatments. At the time of his retirement he was the Deputy Commander, Land Force Atlantic Area, holding the rank of Brigadier General for the two years prior to retirement. Had he not been required to retire before his retirement date he says he would have probably been offered an opportunity to be appointed Commander of the Land Force Atlantic Area.

[11] Ring claims damages because his exposure to toxic areas at CFB Gagetown allegedly caused his Non-Hodgkin's Lymphoma. He served at the Base from the

VOB

1970's, while in the Canadian Forces. He also entered the Base recreationally in the capacity of a woodcutter, hunter and fisherman. He says he consumed moose, whitetail deer and fish from the Base, and claims this food was tainted with chemicals as a result of the Crown spraying.

Mary Williams

[12] Mary Williams lived with her husband at CFB Gagetown, while he was a member of the Canadian Forces. She was diagnosed with type-2 diabetes in 1975, while residing on the Base. She says she gave birth to a number of children who suffer or suffered from various illnesses, each of which has been associated with exposure to chemicals such as sprayed by the Crown. In 1968 she gave birth to a child who suffered from a brain tumour and ovarian cancer. In 1959 another child developed tumours on his spine, and a malignant melanoma, and died of brain cancer in 1991. Other children, born in 1954 and 1961, have been diagnosed with type-2 diabetes. Mary Williams claims only for the costs of testing for dioxin and hexachlorolbenzene poisoning as a result of being exposed to the toxic areas she says were present on the Base.

[13] Affidavits from other potential class members, who have developed lymphomas, attach an excerpt from the *Veterans and Agent Orange Update (2004),* prepared by the National Academy of Sciences for veterans of the Vietnam War. This *Update* notes that the committee studying the matter found sufficient evidence of an association between exposure to herbicides 2, 4-D and 2, 4, 5-T and development of lymphomas, including soft-tissue sarcoma, Hodgkin's lymphoma, Hodgkin's disease and Chronic Lymphocytic Leukemia.

[14] The affidavit of a senior scientist with the consulting company retained by the Ford Foundation to do extensive studies in Vietnam involving the impact of dioxins and pesticides on the environment and humans attached a copy of his company's report stating that very high levels of 2, 3, 7, 8-T (dioxin) were measured in soil, fish fat, pooled human blood and breast milk samples in Vietnam where Agent Orange had been sprayed. He also attached a copy of the 1990 report

10B

of Admiral E.R. Zumeralt, Jr. to the Secretary of the Department of Veteran Affairs concluding that a review of the scientific literature led to the conclusion that it is at least as likely as not that there is a relationship between exposure to Agent Orange and the lymphomas noted above. The report notes some immunotoxicologists believe dioxin can cause the human immune system to turn on itself, manifesting such breakdowns in the form of cancer.

[15] Attached to the affidavit of another class member is a copy of a report prepared by the American Cancer Society, which notes the link between Agent Orange exposure and lymphomas set out in the *Veterans and Agent Orange Update.*

[16] The Third Parties filed affidavits by Dr. Peter H. Wiernik, an Oncologist, Dr. Jack S. Mandel, an Epidemiologist, Dr. Philip s. Guzelian, a Toxicologist and Dr. John P. Giesy, an Environmental Toxicologist to address whether the written medical and scientific issues related to causation of disease, proposed by the Plaintiffs as common issues, are capable of meaningful determination.

[17] The Third Parties sought through these experts to persuade the court:

(i) that malignant lymphomas are a heterogeneous group of forty diseases with diverse causes;

(ii) that whether a group of chemicals causes a group of diseases is not a proper causation question;

(iii) that exposure must be individually determined, rather than by reference to presence in a generically defined "toxic area"; and

(iv) that the Plaintiffs' "toxic area" proposal is scientifically unsound and of no practical utility.

(i) Lymphomas as a diverse group of diseases

Peter H. Wiernik, M.D. - Oncologist

[18] Dr. Wiernik explained that lymphomas, the more common term for lymphoid cancers, are "a general term for various neoplastic diseases of the lymphoid tissue and form a particularly diverse group of diseases". Lymphomas have some common features, such as lymph node involvement and sensitivity to some of the same drugs and radiation treatment. But he said there is no known common cause for lymphomas.

[19] The current WHO classification recognizes approximately 50 different types of lymphomas. They are broadly divided between Hogkin's Lymphomas and Non-Hodgkin's Lymphomas, with the Non-Hodgkin's Lymphoma further divided between B-cell neoplasms. There are 19 distinct types of mature B-cell malignant neoplasms, 15 types of mature T-cell and NK-cell malignant neoplasms, and 6 types of Hodgkin's Lymphoma (Hodgkin's disease).

[20] The current WHO classification of lymphomas has been strongly influenced by our developing understanding of the differences in histolic type (microscopic differences in cell and tissue structure), cell lineage, genetic abnormalities, etiology, and clinical course among the 40 major types of malignant lymphomas. Diseases classified and distinguished based on such consideration might be suspected to have different causes, said Dr. Wiernik, and there is considerable evidence that this is the case for lymphomas.

40B

[21] Various genetic factors have been implicated in the development of lymphomas. The instant rates of particular types of lymphoma vary by gender, age, and over time.

[22] Dr. Wiernik said that such differences among the various types of lymphomas bear directly on the determination of medical causation. The extent that different types of lymphomas originate in different cells at different sites, generate types of neoplastic cells with different genetic abnormalities, take differing clinical courses, respond differently to treatment, and show variation in incidence patterns (for example, by gender, age, and over time), taken together, naturally suggest to Dr. Wiernik that the underlying causes of malignant lymphomas may be as heterogeneous as the 40 major types of lymphoma themselves. The available medical and scientific information on known causes of lymphomas, while limited, provides further evidence for Dr. Wiernik that the various specific types of lymphomas should be evaluated as separate diseases when considering issues of causation.

[23] Dr. Wiernik noted that medical understanding of the heterogeneity of lymphomas has increased greatly since the WHO classification of lymphomas was published in 2001. The first systematic descriptive analysis of incidence patterns for all types of lymphomas used in the WHO classification was published in 2006. The authors found "striking differences in incidence patterns" among types of lymphomas and concluded that these differences "strongly suggest" different causes: "the striking differences in incidence patterns by histologic sub-type strongly suggest that there is etiologic heterogeneity among lymphoid neoplasms".

[24] Dr. Wiernik stated that from a medical perspective, given such evidence of heterogeneity of causes, a general question as to whether a herbicide caused "lymphoma" would be similar to a general question as to whether it caused "cancer" or "disease". He said that such a general question would be of no use in determining whether a herbicide caused a specific types of disease or cancer or lymphoma in a specific individual – the relevant question under accepted scientific principles for determining causation of disease.

lob

[25] Noting that the Plaintiffs state that 37 potential class members have reported being diagnosed with lymphoid cancer: 17 with Non-Hodgkin's Lymphomas, 10 with Chronic Lymphocytic Leukemia, and 5 with Hodgkin's Disease, Dr. Wiernik stated that from a medical perspective such generic diagnoses are insufficient for determining whether a cause can be identified for a lymphoma in an individual class member, and common issues as to causation could not be reliably determined for these generic categories of lymphoma. A generic finding that a herbicide could cause Non-Hodgkin's Lymphoma, for example, would not provide a medical basis for concluding that it could cause any of the 34 specific types of Non-Hodgkin's Lymphoma. Nor would it facilitate determining whether a herbicide had in fact caused a specific type of Non-Hodgkin's Lymphoma in a particular individual. That question should be analyzed by evaluating an individual's diagnosis, history and other relevant circumstances and the scientific literature for the individual's specific type of Non-Hodgkin's Lymphoma.

[26] Dr. Wiernik concluded that lymphomas are an exceptionally heterogeneous group of diseases, specifically with respect to causation and factors likely related to causation. Neither the medical and scientific considerations supporting the classification of 40 different types of malignant lymphoma nor the available evidence as to their known causes suggest to him any common ground for a reliable generic determination of causation. A generic question of causation relating to a heterogeneous group of diseases such as lymphomas is not capable of meaningful scientific determination in his opinion.

[27] On the known causes of lymphoma, Dr. Wiernik pointed out that specific viruses have been identified as causing certain specific types of Non-Hodgkin's Lymphoma. Bacteria and immune disorders cause other Non-Hodgkin's Lymphomas. Heredity plays a role in the development of hematologic malignancies such as lymphoma and Leukemia. Approximately 10 to 15 percent of human lymphoid malignancies are known to be caused by certain viruses and bacteria, immune suppression, and heredity. For the other 85 to 90 percent the cause is unknown. Those causes which are known are often specific to a single type or a small group of lymphomas. Thus, the question of causation is inherently individual says Dr. Wiernik and should, from a medical perspective, be posed and answered for a specific type of lymphoma by evaluation of a class member's

medical history, the nature, timing, and likelihood of actually absorbing a significant amount of herbicides at issue, and the strength of other alternative factors that may be relevant to the class member's individual circumstances.

[28] In Dr. Wiernik's opinion there are no known causes of lymphomas as a group. Dr. Wiernik confirmed that exposure to herbicides and pesticides and other chemicals have been suggested as potential factors for various lymphoid cancers, as well as farming, cigarette smoking, exposure to animals, working in a wood-related industry, consumption of animal fat, and various specific medical conditions. He noted, however, that evidence regarding these risk factors is typically weak and inconsistent, from limited epidemiological studies and individual case reports, and they are not established causes of lymphomas. The weak and inconclusive evidence as to many of these factors could be attributable to an underlying weak association of these factors with exposure to animal viruses. Potential risk factors such as these often play no causal role in disease in Dr. Wiernik's opinion and are simply indicators that may to a degree be associated with actual causal factors known or unknown. For example, coffee-drinking was once identified as a risk factor for lung cancer though in retrospect it became evident that the association resulted from the purely sociological fact that coffee drinkers were at one time very likely also to be smokers.

[29] Over the years a number of other possible causes of lymphomas have been proposed based on individual anecdotal or case reports but were not supported by subsequent careful epidemiological investigation. Hair dyes, electromagnetic radiation from high-tension electrical lines, and cell phones are three prominent examples.

[30] Dr. Wiernik suggested that were inquiry to be extended beyond the known causes of lymphoid cancers (viruses, bacteria, immune suppression and heredity), there would be numerous potential risk factors for persons at CFB Gagetown to be considered: exposure to animals, hunting, exposure to chemicals, farming, herbicides, pesticides, cigarette smoking, diet and others. Contamination from many different chemical residues of munitions has been reported at various levels and locations at CFB Gagetown and this would also have to be evaluated.

10/3

[31] Dr. Wiernik concluded there is no apparent medical or scientific basis to extend consideration beyond the known causes of lymphoid cancers to one potential risk factor, such as herbicides, without considering the other factors mentioned as well, all of which lack strong and consistent support in the medical and scientific literature. That conclusion is strengthened by the fact that the studies of herbicides and pesticides are predominantly generic, dealing with unspecified herbicides and pesticides, not specifically with the herbicides named by the Plaintiffs in this litigation.

[32] Noting Ring's affidavit and the proposal for common issues relating to the designation of parts of CFB Gagetown as "toxic areas" with the potential to cause lymphomas at particular periods of time, Dr. Wiernik stated he is not aware of any physician or scientist who employs such an approach to determine whether an individual's lymphoid cancer resulted from exposure to herbicides. Nor is he aware of any scientific data suggesting that such an approach would be reliable. He pointed out the information from Dr. Giesy (discussed below) regarding the variability of herbicide residues within and across regions and of bioavailability in particular locations, times and individual circumstances, which would suggest that mere presence in a "toxic area", however long or brief and of whatever nature, would not reliably predict even the amount of herbicide actually absorbed into a class member's body, much less the likelihood that lymphoma would result. In light of this data, said Dr. Wiernik, there is no evidence that the "toxic area" approach could even be used to separate class members into sub-groups that had greater or lesser likelihood of receiving a significant dose of herbicide.

[33] For these reasons Dr. Wiernik concluded that the answer to the proposed common question regarding presence in a "toxic area" would be of no use to him as a clinical oncologist in making a determination as to the cause of lymphoma in a particular individual. Factors relevant to causation of lymphomas are evaluated for the particular individual in determining medical causation, not generally in terms of a "toxic area". Rather, he would proceed to follow the well-established methodology for determining causation in patients, reviewing the relevant medical literature to the extent he was not already familiar with it, evaluating any potential causal factors in the patient's history and the course of the disease over time, and then deciding whether cause could be identified based on the evidence available or

LOVS

whether it should be considered unknown. Dr. Wiernik noted that Dr. Guzelian's affidavit provides a more detailed presentation of the accepted methodology, for determining causation in individuals. He said that following this methodology, in his 35 years of practice, he has never seen a patient whose lymphoma was caused by exposure to herbicides.

[34] In summary, Dr. Wiernik stated that the proposed common question to designate "toxic areas" at CFB Gagetown in relation to malignant lymphomas cannot be determined employing accepted medical or scientific methods. Given the heterogeneity of the various types of lymphomas it is not possible, from a scientific standpoint, to determine causation generically for lymphomas as a group. Dr. Wiernik also stated that the plaintiff's proposed common question as to causation of "lymphoid cancers" or "Non-Hodgkin's Lymphoma" is not a common question with a common answer applicable to persons with all types of lymphomas. An answer to the question would not be useful when following accepted medical and scientific procedures to determine whether exposure to any of the various herbicides at issue caused any particular class member's lymphoid cancer.

(ii) A group of chemicals causing a group of diseases

Jack S. Mandel, Ph.D., M.P.H. – Epidemiologist

[35] Jack S. Mandel participated in the design of the Ranch Hand Study, a long-term investigation of possible health effects in Vietnam veterans who sprayed Agent Orange during the Vietnam War. He has reviewed the epidemiologic history of Agent Orange (and dioxin) and health outcomes, including specific types of cancer, diabetes and other conditions.

[36] In Dr. Mandel's opinion, the proposed common question is too broad and ambiguous to answer using generally accepted scientific epidemiologic methods. He stated it does not make scientific sense to ask about disease causation in such a

1013

broad way, either with respect to the exposure or to the disease; individuals would have different exposures, both in terms of specific chemicals and the nature and different levels of exposure as well as different potential doses and different diseases as a result. In his opinion it is therefore scientifically inappropriate to ask whether mere presence on the Base, which represents potentially as many varied exposure scenarios (e.g., different chemicals, different dose responses, etc.) as there are plaintiffs, causes lymphomas (a diverse group of many types of cancers). There will be different bodies of epidemiological literature for the various chemicals and diseases, which may be properly evaluated independently for particular pairs of chemicals and diseases. There would be no general expectation of a single, uniform answer for all. Nor would the entire CFB Gagetown pose the same hazard across its full length and breadth to any person within the area, however briefly or long, whatever the individual circumstances. I have attached as Appendix A to this decision the bases for Dr. Mandel's conclusions, as set out in paras. 7-26 of his affidavit.

(iii) Individual exposure versus "toxic areas"

Philip S. Guzelian, M.D. - Toxicologist

[37] Dr. Guzelian explained in his affidavit how medical toxicologists determine if a person's diagnosed illness was caused by exposure to a chemical. He described the objective, evidence-based method for making that determination and summarized the salient points. Certain events must necessarily occur in order for an individual to develop a disease as a result of a chemical substance in the environment. These events may be characterized as a progression of four indispensable steps: a **source** of the chemical in the environment, **exposure** to that chemical source, a **dose** of the chemical within the body resulting from the exposure, and **disease** resulting from that dose. The chemical source must be identified and physical characteristics and circumstances of release known. The magnitude of the exposure is critical in causation analysis and actual physical contact must be verified. As the dose of an agent is increased over a certain range, its toxic effects should also increase.

[38] Dose and exposure are not synonymous. A proven exposure does not necessarily result in the delivery of a dose. The dose must be established by determining the actual amount of a chemical agent that has entered the body. Typically this is done through biologic tests of the amounts of chemicals in human blood, exhaled air, urine, stools, other excreta, or tissue biopsies. In some cases it may be possible to estimate an individual's dose using procedures such as dose reconstruction. If an individual has received a dose of a chemical, and if this dose is of a sufficient magnitude, then a characteristic medical effect such as a symptom, a sign, an abnormal laboratory finding, a pathophysiologic state, or a recognizable clinical disease may result. A physician considers a number of disease entities that might account for the patient's findings. After carrying out various tests and applying judgment to "rule in" or "rule out" potential alternatives, the physician arrives at a best, final diagnosis.

[39] In Dr. Guzelian's opinion, the Plaintiffs' proposal to determine as a common issue for all class members the periods of time when CFB Gagetown was a "toxic area", that is, when the amount of the various herbicides present at CFB Gagetown was at least "the smallest amount" that could cause lymphoid cancers, is essentially meaningless with respect to toxicology. Dr. Guzelian asserted that given the numerous different herbicides and contaminants identified by the Plaintiffs, the differences in their chemical composition, times of application, degree of persistence in the environment and toxicological characteristics, no single answer is possible. Moreover, lymphoid cancer is not a single disease but a collection of malignancies that have separate causes, natural histories, and treatments. Even if "a smallest amount" somehow were to be calculated, the question would immediately arise: "a smallest amount" for what amount of risk and for whom? No single answer would be pertinent to the entire class said Dr. Guzelian.

[40] Dr. Guzelian suggested that it may be misleading to speak of "toxic chemicals" because all chemicals have the potential of being toxic. One should instead refer to "toxic exposures" that may lead to "toxic doses" of chemicals, including those that individuals receive voluntarily. Dr. Guzelian stated that if the dose for an individual cannot be determined then, with few exceptions, potential toxicity cannot be evaluated.

[41] Dr. Guzelian explained that five elements are needed to demonstrate chemical causation of an adverse health event in any given individual and failure to satisfy any one of these criteria is usually fatal to the proposition that exposure to a specific chemical has caused a specific medical conditions in a specific individual:

- **General Causation:** Is the chemical known to be capable of causing the effects at issue, based on evidence within the set of toxicological relevant delimiters that were applied to create the causation questions for the current case? (In other words, can references be found that have enough relevance to the toxicologically important characteristics of the current case for their findings to be valuable for the subsequent steps in the analysis?)

- **Exposure and dose:** Did the individual in question have an opportunity for contact with the chemical, and, if so, was the dose received in a sufficient magnitude (amount and duration) to be capable of producing the effects in question?

- **Timing:** Was the chemical exposure temporally related to the onset and/or disappearance of the effects in question?

- **Alternative Cause:** Can plausible alternative causes of the effects in question be ruled out? For example, in this case, one area of inquiry for alternative causation might be substances other than herbicides present at CFB Gagetown such as munitions, infectious agents and so forth.

- **Coherence:** Is there logical coherence and consistency in the clinical, toxicologic (biologic plausibility) and relevant epidemiological evidence taken as a whole?

[42] Dr. Guzelian pointed out that general causation is often a prerequisite for undertaking a specific causation analysis. General causation involves an analysis of the available scientific and medical knowledge, including a critical review of the available toxicological and epidemiological literature to determine whether the

10B

chemical is known to cause the disease in question under the circumstances of the particular case. Evidence-based systematic reviews (as contrasted with narrative reviews) have become the standard for extracting knowledge from the medical literature and for judging medical evidence. The appraised results of the evidence-based review are evaluated for proof or disproof of a causal relationship by use of a set of widely accepted criteria commonly referred to as the Hill or Hill-Susser criteria (described in the opinion of Dr. Mandel: See Appendix A, para. 11).

[43] In Dr. Guzelian's opinion, the Plaintiffs' "toxic areas" proposal would provide none of the requisite individual data for a specific causation analysis. The "smallest amount" gives no useful information about an individual source, exposure, dose, diagnosis, timing, alternate causes, or the overall coherence of such data.

[44] Also, the medical toxicologist must use a rigorous methodology to be able to rule out important confounding risk factors before attempting to attribute causation to a chemical exposure. This is especially true when attempting a causation analysis for low-level chemical exposures. Some alternative explanations may include genetic factors, physical damage, mental state, nutritional deficiencies, excessive consumption of food and drink, or viral, fungal or bacterial infections, other confounding chemical exposures, and spontaneous factors. Dr. Guzelian noted problems with the Plaintiffs' final question and its reference to three different chemicals with different compositions and different human health effects. Other problems arise from the Plaintiffs' reference to "lymphoid cancers", which are not a single form of cancer. In addition, the reference to "the smallest amount" raises problems because it ignores the variables that affect exposure and dose: source of exposure, bioavailability, root of exposure, length and time of exposure and resulting dose.

[45] In Dr. Guzelian's opinion, the Plaintiffs' proposed common question of "toxic areas" is not scientifically meaningful because it assumes that each person would receive a roughly equivalent dose despite different exposure scenarios. Dr. Guzelian listed the various equation imput factors used in the risk assessment at CFB Gagetown as body weight, hand surface area, body surface area, inhalation

rate, soil ingestion, soil adherence factor, wild berry ingestion rate, local fish ingestion rate, and wild game ingestion rate. These exposure parameters are directly related to the calculated doses. He noted that dose calculations in the Gagetown risk assessment varied by a factor of one trillion times or more between the different receptors and scenarios (soldiers versus mixer/loaders). In Dr. Guzelian's opinion it is a physical impossibility to have a flat dose-response curve over such an enormous range of doses. He concluded that given this range of potential doses, individuals will not have similar effects (if any), and it is impossible to even extrapolate doses from one or a few individuals to all members of a large, disparate group of individuals. The differences in potential doses are so extreme as to make it impossible to conclude that there would be a common, comparable "smallest" dose for any potential class member.

(iv) "Toxic area" proposed scientifically unsound

John P. Giesy, Ph.D. – Environmental Toxicologist

[46] Dr. Giesy deposed that the available evidence indicates herbicides released over the course of 50 years into the Gagetown environment differed significantly and were deposited in a non-uniform manner. Accordingly, he said, those herbicides underwent varying degrees of absorption, dissipation and photo-degradation, such that the presence, concentration and bioavailability of those herbicides and contaminants varied substantially as a function of time and place. This would require that each alleged class member's claimed exposure to those chemicals be separately determined and that each class member's absorbed dose of the chemical, where dose is defined as the amount of the alleged offending chemical to which a person is exposed that actually traverses a portal of entry into the person's body, will have to be determined.

[47] Dr. Giesy also supported the statements of Drs. Guzelian and Mandel, discussed above, that the distinction between exposure and dose and the dose-response principle (i.e. the greater the dose the greater the response) are

fundamental aspects of the scientific methodology used to determine disease causation, particularly in instances of alleged environmental contamination.

[48] Dr. Giesy stated that the Plaintiffs' "toxic areas" at Gagetown presents no useful common question because those toxic areas are areas that might have only have supplied an opportunity for members of the alleged class to be exposed in a dissimilar and non-uniform manner and time and do not identify an area where class members absorbed a dose that might actually have caused harm. More than 100,000 persons may have been at Gagetown since 1956 and 24 different herbicides or herbicide mixtures were applied there. These herbicides differed in their chemical composition and almost certainly differed in the amounts, locations and frequency in which they were applied. The concentration of their active ingredients differed and they likely contained varying levels of the dioxin contaminant about which the plaintiff complains. Also, the means of application differed and would lead to differences in the amount deposited in various areas. In addition, the topography and vegetation of the target sites differed and would affect concentrations of the herbicide of contaminants at various sites.

[49] Dr. Giesy noted that contaminants, such as dioxin, in direct sunlight would be quickly destroyed by photodegradation. The contaminants would have dried within a few minutes after application and adhered to or become absorbed into vegetation so as to no longer pose a risk of exposure to individuals in the area. If the dioxin penetrated to the ground, escaped photodegradation and seeped into the soil, it would gradually over a period of weeks become so strongly bound to the soil as to be virtually immobile. It would then remain in place and gradually degrade over a period of years. Many compounds like dioxin do not readily move from the soil through the roots into plants. They are virtually insoluble in water. For the above reasons, Dr. Giesy stated that the analysis of exposure of human beings to these chemicals is highly specific to when and where the chemicals were deposited and when and where the class members came into contact with the environment media in which the chemicals had been deposited. Predictions based on theoretical models and the monitoring of chemicals of this type suggest that the distribution of the chemicals in the environment would not be uniform and for that and other reasons making generalized findings or estimates on a class-wide basis of actual or potential exposures would not be possible.

[50] In Dr. Giesy's opinion no generic assessment to identify toxic areas relevant to every class member could be undertaken. The potential "toxicity" of a particular location would vary with, at least, the type of chemical, mode of application, vegetation, soil conditions, topography and time. It would, at best, be "hit or miss" as to whether the Court's generic findings would be relevant to the specific time and place a particular class member was at Gagetown.

[51] Dr. Giesy pointed out that the different activity patterns of personnel and the varieties of exposure pathways (for example, incidental ingestion of soil, voluntary or involuntary water ingestion, dermal contact and absorption, inhalation, consumption of various fish or wildlife and so forth) further enlarges the number of pertinent variables and adds to the uncertainty of estimating exposures in a scientifically reliable manner. Furthermore, absorbed dose and not exposure is a critical determinant of chemical toxicity. In addition to the tremendous variations in the application of the herbicides, the topography and vegetation at the location sprayed, and the persistence or degradation of the alleged contaminants as noted above, any determination of dose would also involve substantial variation among potential class members in respect of the timing, frequency, location, duration and nature of their individual exposure to the alleged contaminated areas.

Margaret E. Sears, Ph.D.

[52] In response to the affidavits from the Third parties' experts, the Plaintiffs filed an affidavit of Dr. Margaret E. Sears, who received a Master of Engineering degree (Chemical Engineering) in 1981 and a Ph.D. in 1985 from McGill University and a Bachelor of Applied Chemistry and Chemical Engineering from the University of Toronto in 1979. She is a published research scientist, science analyst and medical writer. She has knowledge and experience in chemical engineering, applied chemistry, industrial hygiene, health, and diverse environmental matters. She has published with three other scientists an article in the peer-reviewed Journal of the Canadian Pediatric Society, *Pediatrics and Child Health*, entitled "Pesticide Assessment: Protecting Public Health on the Home Turf". This article discusses the health effects and assessment of the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D). Dr. Sears commented on affidavits filed by

the Third Parties, including the affidavits of Dr. Giesy, Dr. Guzelian, Dr. Mandel, and Dr. Wiernik.

[53] Dr. Sears reviewed the publication of the National Academy of Sciences, *Veterans and Agent Orange: Update (2004)*. She also located for the Plaintiffs published literature relating to the association between the types of chemicals sprayed by the Crown and Non-Hodgkin Lymphoma, Chronic Lymphotic Lymphomas, Hodgkin's Lymphoma and Soft-Tissue Sarcoma.

[54] The Third Parties objected to the admissibility of Dr. Sears' affidavit, submitting that her qualifications did not entitle her to give evidence regarding the association between chemicals and malignant lymphomas. I concluded that the affidavit of Dr. Sears established that she had sufficient qualifications to act as a bibliographer and identify literature dealing with that association. This conclusion is a reasonable inference from the fact she has earned a Ph.D. from McGill University.

Homogeneity of Lymphomas

[55] On the question of the homogeneity of lymphomas Dr. Sears agreed with Dr. Wiernik that lymphomas are now classified as B-cell, T-cell and NK-cell neoplasms, and Hodgkin's Lymphomas (arising from B-cells) under the new WHO classification system. She stated, however, that the published literature on the association between the chemicals noted above and lymphomas indicated the conditions are thought to arise from a common stem cell. Differences in subsequent manifestation as the disease progresses are being identified in the classification scheme. Cellular damage may vary due to individual susceptibilities in the face of causal factors.

[56] Dr. Sears pointed out that the Institute of Medicine in a 2000 update of a study on veterans and Agent Orange examined health effects of the three herbicide

LAB

ingredients 2,4-D, 2,4,5-T, and picloram (in combination), concluding that they are associated with an increase in lymphomas (also in combination). Dr. Sears noted that an underlying immune dysfunction etiology for lymphomas is pervasive in the scientific literature. She stated clinical differences that arise during the progression of lymphoma are important for choosing a course of treatment, but should not be equated with fundamental differences in etiology.

[57] Dr. Sears commented upon Dr. Mandel's statement that there "will be a different body of epidemiological literature for the various chemicals and diseases" and suggests this is not completely accurate. She noted that the Institute of Medicine, in evaluating the scientific and medical literature, found a common causality and etiology for lymphomas in the herbicides 2,4-D, 2,4,5-T, and picloram. She pointed out that in addition there is a significant body of epidemiological literature regarding lymphomas as a whole, a large body of literature addressing Non-Hodgkin Lymphoma, as well as much scientific literature addressing the association between lymphoma and exposure to these chemicals in Vietnam and Italy and for farmers and chemical workers.

[58] Dr. Sears also stated that from her review of the literature, the risk factors or potential alternative causes of illness stated by Drs. Wiernik and Mandel as precluding a common finding of a potential cause of the lymphomas are not as numerous or diverse as their affidavits portray. Dr. Sears referred to publications linking immune system dysfunction in auto-immunity and immune suppression to the development of Non-Hodgkin's Lymphoma. She pointed out that certain authors postulate that "the potential exists that a highly prevalent, sub-clinical form of immune deficiency might be associated with a substantial proportion of NHL". She noted the literature suggests that persistent organic pollutants, such as the dioxin and hexachlorobenzene contaminating the 2,4-D, 2,4,5-T, and picloram, may be the "missing link" as they disrupt the immune system.

[59] Dr. Sears also noted that a 2006 update of an article by Dr. Wiernik and three colleagues postulated that a single genetic basis may be common to both Hodgkin's and Non-Hodgkin's Lymphoma. In addition, Dr. Sears referred to a subsequent article by Dr. B.C. Chiu, whose 2003 article was referenced by Dr.

VOB

Wiernik, where Dr. Chiu in 2004 published research strongly linking Non-Hodgkin's Lymphoma to herbicide use on farms and in 2006 linked genetic translocation in Non-Hodgkin's Lymphoma to exposure to 2,4-D. In the 2004 work Dr. Chiu found that increased risk associated with herbicide exposure was not modified by family history and was consistent across types of Non-Hodgkin's Lymphoma.

Epidemiology

[60] On the epidemiological evidence, Dr. Sears noted that the attention of the medical and scientific community was drawn to the adverse health affects associated with 2,4-D and 2,4,5-T in the 1970's. By then toxicology studies had indicated that dioxin was a potent carcinogen. Dr. Sears pointed out that, because of the long latency period, populations whose exposure took place during the proposed class period (1956 – 2004), if exposed to sufficient quantities of 2,4-D, 2,4,5-T, picloram and contaminants at CFB Gagetown, would now be developing lymphomas at an increasing rate.

[61] Dr. Sears noted literature which would challenge Dr. Guzelian's submission concerning how the dose makes the poison. She identified publications pointing out that chronic low doses may have adverse biological affects in addition to those associated with acute high doses. Endocrine (hormonal) effects and suppression of the immune system may arise at very low chronic levels but not be detected with higher acute exposures and this immune suppression is what may be the link to lymphomas. Soldiers who were exposed to areas that had been defoliated with 2,4-D, 2,4,5-T or picloram on a repeated basis during the years between when those chemicals were directly applied to a specific area could have a similar risk of developing a lymphoma as an individual who had direct contact with the specific chemicals at the time they were applied.

[62] Dr. Sears reviewed literature which suggests that chemicals such as pesticides may play a role in the eventual development of cancer by:

(i) causing genetic damage;

(ii) acting in a manner similar to hormones, thereby stimulating growth that may in turn lead to additional genetic changes as unstable DNA is quickly replicated;

(iii) irritating tissue, causing abnormal cell division and/or immune activity;

(iv) suppressing the immune system, that would otherwise eradicate the abnormal cells; or

(v) interfering with cell death mechanisms (apoptosis), so that cancer cells build up.

[63] Dr. Sears pointed out there is substantial research demonstrating significant correlations between development of malignancies and exposure to Agent Orange, its components or contaminants. The two active ingredients of Agent Orange are the phenoxy herbicides, 2,4,5-Trichlorophenoxyacetic acid (2,4,5-T) and 2,4-Dichlorophenoxyacetic acid (2,4-D). During the manufacture of these two phenoxy herbicides, chlorinated dibenzo-p-dioxins are also formed. 2,4,5-T is no longer used in Canada, while manufacturing changes have been made to reduce but not completely eliminate the contamination of 2,4-D with dioxin.

[64] Dr. Sears noted the significant commonalities in the chemical structures of the compounds under discussion in this case. The most toxic component of Agent Orange is considered to be the dioxin contaminant. Other literature reviewed by Dr. Sears discusses how cancer of lymphocytes has at its root disruption of the immune system. Studies of the relationship between viruses and dioxin-like chemicals in the development of Non-Hodgkin's Lymphoma revealed that virus-linked cancer progressed when there were also significant levels of persistent organic pollutants such as dioxins in the body. Toxic chemicals and the immune suppression they cause may underlie apparently distinct causes of Non-Hodgkin's Lymphoma.

[65] Dr. Sears' research indicates some experts believe genetic changes to lymphocytes precede development of lymphoma and this has been seen in association with exposure to 2,4-D. Increased mortality from cancer has been linked to herbicides, such as 2,4-D. Other studies have linked 2,4-D to increased incidence of Non-Hodgkin's Lymphoma in humans. The pesticide acts similarly to hormones, which can promote the growth of cancers. Dioxin exposure has been correlated with increased risk for "all cause" cancer.

[66] There has been much research and debate about the health effects of exposure to herbicides in Vietnam. Dr. Sears stated the literature indicates evidence of an association between Agent Orange exposure and the malignancies: Soft-tissue Sarcoma, Non-Hodgkin's Lymphoma, Hodgkin's Disease, and Chronic Lymphocytic Leukemia. A 1997 study concluded that dioxin is carcinogenic. Picloram is contaminated with hexachlorobenzene (HCB), and other persistent, toxic, bioaccumulative chemicals. HCB is contaminated with highly chlorinated forms of dioxin that have been detected at high levels at CFB Gagetown. Picloram is highly carcinogenic in rats and mice, yielding neoplasms in all sites. Dr. Sears found that Tordon (a mixture of 2,4-D and Picloram) has been reported to promote cancer by effects on the immune system. High levels of exposure to HCB in a community have been reported as being associated with a high prevalence of soft-tissue sarcoma and thyroid cancer. Other reported health effects from chemicals in herbicides include diabetes.

[67] Dr. Sears stated the literature suggests that bio-monitoring (measuring the levels of pollutants in the blood or tissue of people) may have an important role to play in assessing the long past exposure of people to bioaccumulative toxins contaminating herbicides. Dr. Sears noted one article on alternative medicine suggesting that health may be improved for individuals with toxic levels of chemicals in their systems by "sauna purification". She concluded her affidavit by identifying various experts who will be available to testify in support of the Plaintiff's claims.

HAB

THE ISSUES

[68] The issue on this application is whether the requirements for certification have been met, namely:

(i) Whether the Plaintiffs' pleadings disclose a cause of action;

(ii) Whether there is a properly identifiable class;

(iii) Whether the Plaintiffs' claims raise a common issue;

(iv) Whether the class action is the preferable procedure; and

(v) Whether there are proper representative plaintiffs.

THE LAW AND ANALYSIS

Purpose of class actions

[69] The Supreme Court of Canada in **Western Canadian Shopping Centres Inc. v. Dutton**, [2001] 2 S.C.R. 534, explained the three goals of class action legislation as (i) judicial economy; (ii) access to justice; and (iii) behaviour modification:

> First, by aggregating similar individual actions, class actions serve judicial economy by avoiding unnecessary duplication in fact-finding and legal analysis. The efficiencies thus generated free judicial resources that can be directed at resolving other conflicts, and can also reduce the costs of litigation both for plaintiffs (who can share litigation costs) and for defendants (who need litigate the disputed issue only once, rather than numerous times) ...
>
> Second, by allowing fixed litigation costs to be divided over a large number of plaintiffs, class actions improve access to justice by making economical the

10/3

prosecution of claims that would otherwise be too costly to prosecute individually. Without class actions, the doors of justice remain closed to some plaintiffs, however strong their legal claims. Sharing costs ensures that injuries are not left unremedied. ...

Third, class actions serve efficiency and justice by ensuring that actual and potential wrongdoers do not ignore their obligations to the public. Without class actions, those who cause widespread but individually minimal harm might not take into account the full cost of their conduct because for any one plaintiff the expense of bringing suit would far exceed the likely recovery. Cost-sharing decreases the expense of pursuing legal recourse and accordingly deters potential defendants who might otherwise assume that minor wrongs would not result in litigation. ...

[70] Rule 7A of our *Rules of Court* deals with Class Actions. Rule 7A.01(4) reads:

(4) The *Rules of Court* including Rule 7A, and the procedures to be followed with respect to class proceedings shall be interpreted and applied to achieve the objects of the *Act*, and in particular

(a) to promote the effective and economical use of the judicial system;

(b) to make the court system more accessible to the public; and

(c) to make sure that parties responding to a class proceeding are able to present their case fairly to the court.

Criteria for Class Certification

[71] The criteria for class certification are set out in Section 5 of the *Class Actions Act*, S.N.L. 2001, c. C-18.1, as follows:

5(1) On an application made under section 3 or 4, the court shall certify an action as a class action where

(a) the pleadings disclose a clause of action;

VB

(b) there is an identifiable class of two or more persons;

(c) the claims of the class members raise a common issue, whether or not the common issue is the dominant issue;

(d) a class action is the preferable procedure to resolve the common issues of the class; and

(e) there is a person who

(i) is able to fairly and adequately represent the interests of the class,

(ii) has produced a plan for the action that sets out a workable method of advancing the action on behalf of the class and of notifying class members of the action, and

(iii) does not have, on the common issues, an interest that is in conflict of the other class members.

(2) In determining whether a class action would be the preferable procedure for the fair and efficient resolution of the common issues, the court may consider all relevant matters including whether

(a) questions of fact or law common to the members of the class predominate over questions affecting only individual members;

(b) a significant number of the members of the class have a valid interest in individually controlling the prosecution of separate actions;

(c) the class action would involve claims that are or have been the subject of another action;

(d) other means of resolving the claims are less practical or less efficient; and

(e) the administration of the class action would create greater difficulties than those likely to be experienced if relief were sought by other means.

The Evidentiary Threshold

[72] This test establishes a "low threshold" for class certification: see, **Hollick v. Toronto**, [2001] 3 S.C.R. 158, para. 21. Courts should avoid imposing excessive technical requirements on plaintiffs and should give class proceedings legislation a large and liberal interpretation to ensure that policy goals are realized: see, **Carom v. Bre-X Minerals Ltd.** (2000), 51 O.R. (3d) 236 (C.A.), paras. 40-42, leave to appeal to the Supreme Court of Canada denied, [2000] S.C.C.A. No. 660, and **Hollick**, para. 14. Class certification is not a trial or a summary judgment motion but rather a procedural motion which concerns a form of an action, not its merits. Contentious factual and legal issues between the parties cannot be resolved on a class certification motion. The question at the certification stage is not whether the claim is likely to succeed, but whether the suit is appropriately prosecuted as a class action: see, **Hollick**, para. 16. This is confirmed by Section 6(2) of our *Act*, which provides:

> 6(2) An order certifying an action as a class action is not a determination of the merits of the action.

[73] Plaintiffs seeking certification as a class proceeding, while not obliged to establish the merits of their action, must however pass a certain evidentiary threshold. This was discussed by Chief Justice McLachlin in **Hollick**, paras. 22 and 25:

> The question arises, then, to what extent the class representative should be allowed or required to introduce evidence in support of a certification motion.
>
> ...
>
> I agree that the representative of the asserted class must show some basis in fact to support the certification order. ... That is not to say that there must be affidavits from members of the class or that there should be any assessment of the merits of the claims of other class members. However, the [Ontario Report] clearly contemplates that the class representative will have to establish an evidentiary basis for certification: see Report, at p. 31 ('evidence on the motion for certification should be confined to the [certification] criteria'). The *Act*, too,

> obviously contemplates the same thing: see s. 5(4) [Section 6(1) of our *Act* corresponds] ('[t]he court may adjourn the motion for certification to permit the parties to amend their materials or pleadings or to permit further evidence'). In my view, the class representative must show some basis in fact for each of the certification requirements set out in s. 5 of the *Act*, other than the requirement that the pleadings disclose a cause of action. That latter requirement is of course governed by the rule that a pleading should not be struck for failure to disclose a cause of action unless it is 'plain and obvious' that no claim exists . . . .

[74] As I noted in **Wheadon v. Bayer Inc.** [2004] NLSCTD 72, at para. 96, the Supreme Court in **Hollick** found "some basis in fact" for the commonality requirements in the complaint records filed, which showed many individuals other than the representative plaintiff were concerned about the noise and physical emissions from the landfill forming the basis of the claims. There the Court concluded a class proceeding would not be the preferable procedure for the resolution of the common issues, finding that any common issue was negligible in relation to the individual issues, the plaintiffs had another avenue of redress through a Small Claims Trust Fund, and behaviour modification would be achieved by the defendant being forced to internalize the costs of its conduct either through the prosecution of substantial claims or through payments from that Trust Fund.

[75] In the present case the Third Parties submit that the Plaintiffs have not put sufficient evidence before the Court to satisfy the requirements of Section 5 of the *Act*. They argue that by its very nature the Plaintiffs' claim lacks commonality among their proposed class members because the chain of causation allegedly connecting the Crown's and Third Parties' emission of the herbicides to the proposed class member's alleged injury requires an inherently individual analysis – class member by class member. They note that no Canadian court has ever certified as a class proceeding an environmental action that includes claims for damages for personal injury. They suggest this is because of a lack of commonality among class members that is inherent in these types of claim, where the chain of causation allegedly connecting the use of herbicides to a class member's injury is inherently individual and subject to enormous variation from one class member to the next. They submit that if there is any common issue it will not significantly advance the action.

10 of 13

[76] The Third Parties argue that the fundamental defect in the Plaintiffs' proposed generic causation question is that it fails to address key steps in the "source-exposure-dose-disease toxicological chain of causation" discussed previously. They argue that, in particular, the Plaintiffs' "toxic areas" proposal and the evidence produced by the Plaintiffs completely ignores the role of exposure and dose in the toxicological assessment and the necessity of the Plaintiffs to consider the dose of a specific chemical in relation to a particular disease.

[77] The Third Parties note the comments of Chief Justice McLachlin in **Hollick**, at para. 32, in upholding the denial of certification because of the inherent lack of commonality in environmental cases:

> While each of the class members must, in order to recover, establish that the Keel Valley Landfill emitted physical or noise pollution, there is no reason to think that any pollution was distributed evenly across the geographical area or time period specified in the class definition. On the contrary, it is likely that some areas were affected more seriously than others, and that some areas were affected at some time while other areas were affected at other times. As the Divisional Court noted, '[e]ven if one considers only the 150 persons who made complaints – those complaints relate to different dates and different locations spread out over 7 years and 16 square miles' ... . Some class members are close to the site, some are further away. Some class members are close to other possible sources of pollution. Once the common issue is seen in the context of the entire claim, it becomes difficult to say that the resolution of the common issue will significantly advance the action.

[78] The Third Parties also refer to **Pearson v. Inco Ltd.** (2002), 33 C.P.C. 264 (Ont. S.C.J.), reversed 78 O.R. (3d) 641 (C.A.). That case involved allegations of contamination involving various pollutants emitted by a metal refinery. The claims included claims for damages for personal injury as well as property damage to surrounding lands. The personal injury claims included allegations that the contamination led to numerous different illnesses, diseases and medical conditions among residents living near the refinery. In denying certification at first instance, Nordheimer J., following **Hollick**, at para. 120, explained the commonality problem, with particular reference to the exposure issue, as follows:

> By way of example, central to the claims advanced is the exposure to the contaminants. It is axiomatic that in order to determine exposure, an individual by individual examination is necessary. Coupled with that individual examination is the need to know the person's health history, their occupation, their habits in terms of the amount of time they spend in their homes as opposed to outside in their gardens as opposed to other places, their travelling habits, their personal habits (e.g. smokers v. non-smokers), their work or school histories and so on. One would also have to know the degree of concentration of any contaminants found in the person's yard as well as the concentrations found inside their home since the risk from exposure are directly related to the concentration of the contaminants to which one is exposed. The evidence in the record makes clear that there is a considerable variation in contaminant levels as they exist at the various locations within the geographic boundaries proposed for the class.

[79] Nordheimer J. went on to hold that the lack of commonality in an environmental contamination case is further exacerbated when the plaintiffs are claiming damages for alleged personal injury:

> In the same vein, individual issues would abound in determining whether any given class member has suffered an illness as the result of exposure to the contamination. I have already mentioned that exposure will vary for each individual. This reality will consequently require determination of that individual's particular illness, the extent of any exposure the person may have suffered, the time between exposure and the onset of the illness, other potential causes for the illness that may be present, the risk factors peculiar to the individual for the illness and a host of other individual considerations. It must be recognized in this regard that there are thousands of illnesses from which a person may suffer. Each illness can have different causes and carry different risk factors. Each illness can also require different treatments and have different prognoses. All of these matters must be analyzed on an individual basis.

[80] Justice Nordheimer held that, given the number or individual issues, the resolution of the common issues would not significantly advance the litigation as contemplated by **Hollick**. He held:

> At the most basic legal level, before liability can be imposed on Inco for any claim, a causal link between the alleged harm and the actions of Inco must be established. As the record before me demonstrates, the process of determining

10B

> whether a causal link exists for any given class member with respect to any given allegation of harm is extensive and very much individualized. Given the wide variety of harm alleged and the size of the proposed class, this class proceeding will quickly become unmanageable because it will inevitably disintegrate into the need for thousands of individual trials with potentially tens if not hundreds of thousands of individual issues to be resolved.

[81] I shall refer to **Pearson** below in considering the various criteria for certification. Nordheimer J. did not separately address the issue of whether the plaintiffs there had met the threshold burden of establishing by evidence a basis in fact for the claim. Also, on appeal, the Court of Appeal criticized the decision of Nordheimer J. as taking too narrow a view of the goal of behaviour modification. The Court of Appeal noted that recent case law suggested a more liberal approach should be taken to certification proceedings than had been taken by Nordheimer J. I do not find **Pearson** helpful in determining whether there is a basis in fact for the claim in the present case.

[82] I am satisfied, in any event, that "some basis in fact" has been established here by the affidavit filed on behalf of the Plaintiffs by Tannis M. March, a legal assistant with Plaintiffs' counsel, confirming that 1715 individuals (35 of whom reside in this Province) have contacted Plaintiffs' counsel to report that they were at CFB Gagetown and are concerned that they or a member of their family have suffered harm as a result of exposure to chemicals on the Base. Coupled with the affidavit of Dr. Sears, and the affidavits of potential class members, who noted the existence of reasonably authoritative publications identifying the risk of lymphomas developing following exposure to dioxin and HCB, I believe the Plaintiffs have provided sufficient evidence to meet the low threshold required of plaintiffs in establishing a basis in fact for their claim. This conclusion is consistent with **Hollick** where the Court found "some basis of fact" for the commonality requirements, based merely on the number of complaint records filed by other individuals. It is also consistent with my decision in **Wheadon** that the plaintiffs established some basis in fact by deposing they ingested Baycol and suffered injury.

[83] I shall now consider each of the criteria for certification.

A reasonable cause of action – second stage of Anns test

[84] The Crown submits the pleadings do not disclose a cause of action against the Crown because the Plaintiffs have not shown that a Crown servant owed a duty of care to the Plaintiff.

[85] Crown liability in tort flows from the *Crown Liability and Proceedings Act*, R.S.C. 1985, c. C-50, s. 3:

> 3. The Crown is liable for the damages for which, if it were a person, it would be liable
>
> ...
>
> (b) ... in respect of
>
> (i) a tort committed by a servant of the Crown, or
>
> (ii) a breach of duty attaching to the ownership, occupation, possession or control of property.

[86] The Crown argues that a claim against the Crown must be founded on an allegation that:

(a) it was a duty of care owed by the Crown to the Plaintiff in some capacity other than as a member of the general public ("private law duty of care");

(b) one of the Crown's servants failed to meet the standard of care imposed by that duty; and

(c) foreseeable harm has been caused by that failure.

[87] To determine if a private law duty of care exists, the Court must analyze the claims made using a two-stage analysis usually referred to as the *Anns* test: See, **Anns v. Merton London Borough Council**, [1978] A.C. 728 (H.L.). The first stage of the *Anns* test requires analysis of the relationship between the parties and the harm created to determine if there is a sufficient relationship of proximity to justify imposing liability. The second stage of the *Anns* test requires an analysis of the policy factors that might negate:

(a) the scope of the duty;

(b) the class of persons to whom it is owed; or

(c) damages to which a breach may give rise.

In considering the policy question at the second stage, a Court should take into account the effect of recognizing a duty of care on the legal system and society in general, and should consider if recognizing a duty of care would impose liability on an indeterminate class of people, for an indeterminate amount, over an indeterminate time: See, **Cooper v. Hobart,** [2001] 3 S.C.R. 537, at paras. 30-39, and **Edwards v. Law Society of Upper Canada**, [2001] 3 S.C.R. 562.

[88] All allegations of fact, unless patently ridiculous or incapable of proof, must be accepted as proved when considering whether pleadings support a reasonable cause of action: See, **Operation Dismantle Inc. v. R.,** [1985] 1 S.C.R. 441. Here the Statement of Claim, at para. 31, alleges that in each year between 1956 and 2004, at CFB Gagetown, the Crown regularly released, or permitted others to release, by way of aerial and ground application, chemicals containing 2,4-D, 2,4,5-T or picloram. The Plaintiffs also allege, at para. 32, that, as a result of repeated applications of the chemicals, the Base presented an unusual or unreasonable danger of causing malignant lymphomas in those who became exposed to the chemicals. The Plaintiffs further allege, at paras. 36 and 40, that the

LoB

chemicals caused, materially contributed to, or materially contributed to the risk of causing the Plaintiff Ring's Non-Hodgkin's Lymphoma.

[89] The Crown and Third Parties take no issue with a *prima facie* duty of care arising. However, the Crown submits that on the second stage of the *Anns* test, policy factors negate the existence of a duty where the Crown sprayed chemicals as a part of an annual brush control program. The Crown points out there is no allegation that the herbicides employed in the annual brush control program were not registered or approved for use by the appropriate regulatory authorities at the time nor any allegation that the herbicides were not applied in the manner prescribed at the time. The Crown argues that if the Court accepts that a claim could lie in negligence against the Crown for the use of approved or registered herbicides, applied in the prescribed manner, then everyone in Canada who had allowed a registered or approved herbicide to be used on their property from 1956 to the present could be liable to everyone who passed over it, or next to, that property within some undefined period after the application of a herbicide. The Crown submits that the unmanageable indeterminacy of such cause of action is precisely what the second stage of the *Anns* test is directed towards.

[90] In paragraph 65 of their Statement of Claim, the Plaintiffs allege that the Crown buried on the Base full barrels of chemicals as well as empty barrels which had stored the chemicals. I agree with the Plaintiffs that mere registration of a product does not create an exemption from liability. The method of use of the product, whether registered or not, will determine liability. Determination of whether the method of application of the chemicals and the method of disposal of full or empty barrels used for their storage was reasonable will require evidence. The onus is on the Crown to establish the existence of residual policy considerations to negate a private law duty of care. See, **Childs v. Desormeaux**, [2006] S.C.C. 18.

[91] In **Law Society of Newfoundland and Labrador v. 755165 Ontario Inc.** (2006) 260 Nfld. & P.E.I.R. 222 (NLCA), at paras. 19 and 22, Cameron J.A., on an application for leave to appeal, stated:

VAB

> The Trial Division judge noted that **Childs v. Desormeaux** had clarified that while the plaintiff had the burden of proof on the first stage of the *Anns* test, the defendant had the burden at the second stage: are there policy considerations which ought to negative or limit the scope of a duty, the class of persons to whom it is owed or the damages to which breach may give rise? He concluded that the plaintiff need only plead material facts to satisfy the first stage of the *Anns* test and, therefore, it would generally be inappropriate to consider the second stage of the *Anns* test on an application to strike. This is consistent with placement of the burdens of proof and the limits on what may be considered on an application to strike.
>
> ...
>
> Like the Trial Division judge, I believe that the issue of whether there is a duty of care in this case would benefit from an analysis by the Trial Judge who would have all of the facts and any evidence the defendant wished to submit on the second part of the *Anns* test, if that were necessary.

[92] I do not accept the Crown's submission that this case falls within the class of cases where a Court need not wait for a trial to determine if a claim fails to pass the second stage of the *Anns* test. The first case relied upon by the Crown is **Eliopoulos (Litigation Trustee of) v. Ontario (Minister of Health and Long-Term Care)** (2006), 82 O.R. (3d) 321, paras. 31-33 (C.A.). That case involved a motion to strike a statement of claim on the ground that it disclosed no cause of action, the plaintiff's allegation being that the Crown could and should have prevented the outbreak of West Nile Virus, which contributed to the death of Eliopoulos. The Ontario Court of Appeal decided it was plain and obvious that on the facts pleaded there was no proximity, either by statute or common law, sufficient to give rise to a *prima facie* duty of care under the first stage of the *Anns* test. The Court went on to decide that it would find under the second stage of the *Anns* test that there were residual policy considerations outside the relationship of the parties that negated the imposition of a duty. It adopted the statement in **Cooper v. Hobart**, [2001] 3 S.C.R. 537, at para. 37:

> These [residual policy concerns] are not concerned with the relationship between the parties, but with the effect of recognizing a duty of care on other legal obligations, the legal system and society more generally. Does the law already provide a remedy? Would recognition of the duty of care create the spectre of

> unlimited liability to an unlimited class? Are there other reasons of broad policy that suggests that the duty of care should not be recognized?

The Court accepted the Crown's submission that to impose a private law duty of care on the facts that had been pleaded there would create an unreasonable and undesirable burden on the Crown that would interfere with sound decision-making in the realm of public health.

[93] **Eliopoulos** must be distinguished from the present case because in that case there was no dispute over the opinions and evidence upon which the parties would rely in their submissions at the second stage of the *Anns* test. The plaintiffs were submitting that a statutory duty of care arose under the *Health Protection and Promotion Act*, R.S.O. 1990, c. H-7, and it was plain and obvious to the Court that the discretionary powers set out in the *Act* were not capable of creating a private law duty. As for a common law duty, the plaintiffs/respondents were relying on **Brown v. British Columbia (Minister of Transportation and Highways)**, [1994] 1 S.C.R. 420, where the Court, at p. 441, described the distinction between policy and operational decisions as follows:

> True policy decisions involve social, political and economic factors. In such decisions, the authority attempts to strike a balance between efficiency and thrift, in the context of planning and predetermining the boundaries of its undertakings and of their actual performance. True policy decisions will usually be dictated by financial, economic, social and political factors or constraints.
>
> The operational area is concerned with the practical implementation of the formulated policy; it mainly covers the performance or carrying out of a policy. Operational decisions will usually be made on the basis of administrative direction, expert or professional opinion, technical standards or general standards of reasonableness.

[94] The Court in **Eliopoulos** also referred to **Swinamer v. Nova Scotia (Attorney General)**, [1994] 1 S.C.R. 445, at p. 450, where McLachlin J. noted:

1813

> There is no private law duty on the public authority until it makes a policy decision to do something. Then, and only then, does a duty arise at the operational level to use due care in carrying out the policy. On this view, a policy decision is not an exception to a general duty, but a pre-condition to the finding of a duty at the operational level.

[95] The Court concluded that the plan adopted by the Ontario Ministry of Health and Long-Term Care was not a policy decision of the kind that would engage Ontario at the operational level. Also, to the extent that the plan amounted to a policy decision to act and created a duty of care, it was clear from the terms of the plan itself and from relevant legislation that any operational duties created by the plan resided with local authorities and local boards of health. Finally, the statement of claim essentially rested on the ground that Ontario failed to adopt adequate policies to prevent West Nile Virus and not on a failure to implement a plan in a non-negligent manner.

[96] It is clear from its analysis that the Court in **Eliopoulos** had all the evidence before it which it required in order for it to engage in the residual policy considerations outside the relationship of the parties that might negate the imposition of a duty of care under the second stage of the *Anns* test. In the present case, however, I do not have all the evidence before me which I need in order to determine whether the Crown's decision to spray herbicides at CFB Gagetown amounted to a policy or operational decision. On the facts which I do have, it would appear that this was an operational decision which had to be performed in a non-negligent manner.

[97] I also lack in the present case all the information regarding the manner in which the Crown applied the herbicides at various times. This information will bear not only upon whether there has been a breach of an operational duty of care but also upon whether imposition of a duty to care in the circumstances would create the spectre of unlimited liability to an unlimited class, part of the analysis on the second stage of the *Anns* test.

[98] Finally, **Eliopoulos** should also be distinguished because there the Court was not faced with questions regarding whether existing scientific knowledge was adequate to establish general causation in the circumstances. In the present case, the Plaintiffs wish to make a case that the advancing state of scientific knowledge has now arrived at the stage where they will be able to establish that the spraying of certain herbicides in a particular manner created an unreasonable risk to the health of individuals frequenting the area sprayed. They need the opportunity of a trial to properly present their evidence and expert opinions on this point.

[99] Another case relied upon by the Crown to support its view that I may proceed to the second stage of the *Anns* test on this certification application is **A.L. v. Ontario (Minister of Community and Social Services)**, [2006] O.J. No. 4673, at para. 28 (C.A.). This was an appeal by the Minister from an order certifying the action as a class proceeding. The respondent A.E.L. was a disabled child who had special needs. His litigation guardian sued on behalf of the child and on behalf of a proposed class of similarly-situated children and parents for damage, basing the claim upon the *Child and Family Services Act*, R.S.O. 1990, c. C.11. In allowing the respondents' appeal the Divisional Court had held that there was an arguable claim in negligence as the state was obliged to fund the services required by special needs children. It concluded it was arguable that the decision not to enter into an agreement with the parents was an operational decision that had to be made in a non-negligent manner. The Divisional Court had further found there was an arguable claim for misfeasance of public office. In allowing the appeal, the Court of Appeal, at para. 28, disagreed with the Divisional Court's conclusion that a trial was required to decide whether the respondents' claim rested on a policy or operational decision. The Court found that, as in **Cooper** and **Edwards**, it was "plain and obvious" from the statute and from facts pleaded that the decision to refuse to enter into an agreement fell within the definition of policy decisions described by the Supreme Court of Canada in **Brown**. The Court also found in **A.L.** that the law already provided a remedy by way of declaratory action or an application for judicial review. It concluded that to recognize a private duty of care would expose the Crown to claims for substantial damages by many families and individuals who believe they have not received adequate services. This was sufficient to permit the Court of Appeal to apply the second stage of the *Anns* test in **A.L.** and negate the imposition of any duty of care.

[100] In the present case I am not satisfied that it is plain and obvious that the decision to spray herbicides was not an operational decision. Neither am I satisfied that I have all the information I need to analyze any residual policy considerations.

[101] The third case relied upon by the Crown to support proceeding with the second stage *Anns* analysis is **Wuttunee v. Merck Frosst Canada Ltd.**, [2007] SKQB 29, at paras. 67-106. In that case the plaintiffs sued for damages resulting from ingestion of an arthritis drug, Vioxx, manufactured by Merck and regulated by Health Canada. The Court found that the Minister's discretion to issue a notice of compliance, thereby allowing Merck to sell Vioxx in Canada, was a policy decision and not an operational one. The Court, at para. 86, noted that the plaintiffs' claim of a relationship giving rise to a duty of care rested almost exclusively on the provisions of the *Food and Drugs Act*, R.S.C. 1985, c. F-27, and related Regulations. Accordingly, unlike the present case, the Court had before it all the evidence it needed to proceed with the analysis pursuant to the second stage of the *Anns* test.

[102] The Plaintiffs acknowledge that the availability of a remedy of medical surveillance and testing, a pure economic loss claim, is novel in Canada although recognized by American courts: see, **Ayers v. Jackson Tp.** (1987), 106 N.J. 557. In **Exploits Valley Air Services Ltd. v. College of the North Atlantic**, Cameron J.A. stated for the Court, at para. 45:

> As well, it could be argued that for cases where the expansion of negligence law is at issue and the *Anns/Cooper* test must be applied, it is preferable to await the presentation of the plaintiff's case because, as discussed above, the determination of duty of case requires an evidentiary basis. I believe this is one of those cases.

In my opinion the same should apply to attempts to expand negligence law by developing new remedies and it is preferable to await the presentation of the Plaintiffs' case so that the proper evidentiary basis may go before the court.

Lob

[103] I do not accept the submission of Pharmacia that the Plaintiffs who have not been diagnosed with a lymphoma have failed to establish a cause of action because they seek a remedy without having first established an injury. The injury the Plaintiffs say they have suffered is the absorption of toxic chemicals, which may cause lymphomas in the future.

[104] In summary, I conclude that this is a case where the Court should wait for the presentation of evidence at a trial to determine if the claim fails to pass the second stage of the *Anns* test.

A reasonable cause of action - statutory bars and exclusions

[105] The Crown submits that claims arising out of both the annual brush control program and the test spraying are subject to a number of statutory bars and exclusions, the net effect of which is to preclude an action against the Crown by anyone who suffered harm while serving as a member of the Canadian Forces or while working as a Crown employee.

(i) Section 8 of the CLPA

[106] Section 8 of the *Crown Liability and Proceedings Act* provides:

> 8. Nothing in Sections 3 to 7 makes the Crown liable in respect of anything done or omitted in the exercise of any power or authority that, if those sections had not been passed, would have been exercisable by virtue of the prerogative of the Crown, or any power or authority conferred on the Crown by any statute, and, in particular, but without restricting the generality of the foregoing, nothing in those sections makes the Crown liable in respect of anything done or omitted in the exercise of any power or authority exercisable by the Crown, whether in time of peace or of war, for the purpose of the defence of Canada or of training or maintaining the efficiency of the Canadian Forces.

The Crown submits that all of the things done or not done at CFB Gagetown were "for the purpose of ... training or maintaining the efficiency of, the Canadian Forces."

[107] The Crown accepts that the intended scope of s. 8 is a matter of some doubt. Some courts have held that s. 8 cannot have been intended to bar actions where the operation of the training exercise or other military activity is alleged to have been negligent: See, **Robitaille v. R.**, [1981] 1 F.C. 90. The Crown submits that even if this more restrictive interpretation were correct, s. 8 still provides additional support for the position that the consequences of policy decisions or management decisions on how best to maintain the efficiency of the Canadian Forces (such as the decision to use herbicides at a base rather than clear brush manually) cannot be made the subject of a claim. Here the Crown relies upon **Formea Chemicals Ltd. v. Polymer Corporation Ltd.,** [1967] 1 O.R. 546 (C.A.); aff'd on other grounds [1968] S.C.R. 754. Even if the decision to use herbicides at CFB Gagetown were a policy decision, decisions regarding the type of herbicide, the manner and frequency of application, and so forth, could be operational decisions which would have to be implemented in a non-negligent manner. The Crown has not established on the evidence before me that the Plaintiffs' claim should be barred by s. 8. Accordingly, I am satisfied s. 8 should not prevent certification.

(ii) Section 9 of the CLPA

[108] Section 9 of the *Crown Liability and Proceedings Act* provides:

> 9. No provisions lie against the Crown or a servant of the Crown in respect of a claim if a pension or a compensation has been paid or is payable out of the Consolidated Revenue Fund or out of any funds administered by an agency of the Crown in respect of a death, injury, damage or loss in respect of which a claim is made.

[109] The Crown notes that there is a complementary bar in the *Government Employees Compensation Act*, R.S.C. 1985, c. G-8:

10B

12. Where an accident happens to an employee in the course of his employment under such circumstances as entitle him or his dependents to compensation under this Act, neither the employee or any dependent of the employee has any claim against Her Majesty, or any officer, servant or agent of Her Majesty, other than for compensation under this Act.

[110] Relevant provisions of the *Pension Act*, R.S.C. 1985, c. P-6 are:

3.(1) In this Act,

"disability" means the loss or lessening of the power to will and to do any normal mental or physical act;

...

21.(2) In respect of military service rendered in the non-permanent active militia or in the reserve army during World War II and in respect of military service in peace time,

(a) where a member of the forces suffers disability resulting from an injury or disease or an aggravation thereof that arose out of or was directly connected with such military service, a pension shall, on application, be awarded to or in respect of the member in accordance with the rates for basic and additional pension set out in Schedule I;

(b) where a member of the forces dies as a result of an injury or disease or an aggravation thereof that arose out of or was directly connected with such military service, a pension shall be awarded in respect of the member in accordance with the rates set out in Schedule II;

...

(3) For the purposes of subsection (2), an injury or disease, or the aggravation of an injury or disease, shall be presumed, in the absence of evidence to the contrary, to have arisen out of or to have been directly connected with military service of the kind described in that subsection if the injury or disease or the aggravation thereof was incurred in the course of

(a) any physical training or any sports activity in which the member was participating that was authorized or organized by a military authority, or

LOB

performed in the interests of the service although not authorized or organized by a military authority;

(b) any activity incidental to or directly connected with an activity described in paragraph (a), including the transportation of the member by any means between the place the member normally performed duties and the place of that activity;

(c) the transportation of the member, in the course of duties, in a military vessel, vehicle or aircraft or by any means of transportation authorized by a military authority, or any act done or action taken by the member or any other person that was incidental to or directly connected with that transportation;

(d) the transportation of the member while on authorized leave by any means authorized by a military authority, other than public transportation, between the place the member normally performed duties and the place at which the member was to take leave or a place at which public transportation was available;

(e) service in an area in which the prevalence of the disease contracted by the member, or that aggravated an existing disease or injury of the member, constituted a health hazard to persons in that area;

(f) any military operation, training or administration, either as a result of a specific order or established military custom or practice, whether or not failure to perform the act that resulted in the disease or injury or aggravation thereof would have resulted in disciplinary action against the member; and

(g) the performance by the member of any duties that exposed the member to an environmental hazard that might reasonably have caused the disease or injury or the aggravation thereof.

...

(5) In addition to any pension awarded under subsection (1) or (2), a member of the forces who

(a) is eligible for a pension under paragraph (1)(a) and (2)(a) or this subsection in respect of an injury or disease or an aggravation thereof, or has suffered an injury or disease or an aggravation thereof that would be pensionable under that provision if it had resulted in a disability, and

(b) is suffering an additional disability that is in whole or in part a consequence of the injury or disease or the aggravation referred to in paragraph (a)

shall, on application, be awarded a pension in accordance with the rates for basic and additional pension set out in Schedule I in respect of that part of the additional disability that is a consequence of that injury or disease or aggravation thereof.

(6) A pension shall not be denied to a member of the forces under subsection (5) on the ground that, having regard to the disability for which the member was already receiving a pension, the member took part in any activities or went any place that he member ought to have known would cause the consequential disability.

111. (1) In this section, "action" means any action or other proceeding brought by or on behalf of

(a) a member of the forces,

(b) a person to whom this Act applies by virtue of any enactment incorporating this Act by reference, or

(c) a survivor or a surviving child, parent, brother or sister of a person referred to in paragraph (a) or (b) who is deceased

against Her Majesty, or against any officer, servant or agent of Her Majesty, in which damages are claimed in respect of an injury or disease or aggravation thereof resulting in disability or death.

(2) An action that is not barred by virtue of section 9 of the *Crown Liability and Proceedings Act* shall, on application, be stayed until

(a) an application for a pension in respect of the same disability or death has been made and pursued in good faith by or on behalf of the person by whom, or on whose behalf, the action was brought; and

(b) a decision to the effect that no pension may be paid to or in respect of that person in respect of the same disability or death has been confirmed by an appeal panel of the Veterans Review and Appeal Board in accordance with the *Veterans Review and Appeal Board Act*.

[111] Ring applied for a disability pension under the *Pension Act* and was refused on the basis that his illness was not one that "arose out of or was directly connected with his service at CFB Gagetown". The Crown submits that he is therefore estopped from bringing this action (and cannot be included in any class certified in this action) as is anyone else who has applied for a disability pension under the *Pensions Act* and been refused on the basis that the illness or injury did not arise out of service at CFB Gagetown. The Crown notes that the factual issues in this action are subsumed in the factual issues that must be resolved in a claim for a disability pension. To support its position that denial of a disability pension amounts to issue estoppel on the questions of causation and harm, the Crown relies upon **Danyluk v. Ainsworth Technologies Inc.**, [2001] 2 S.C.R. 460 and **Toronto (City) v. CUPE, Local 79**, [2003] 3 S.C.R. 77, at paras. 22-24, 33-37, 51.

[112] The purpose of Section 9 of the *Crown Liability and Proceedings Act* is to prevent double recovery. In **Sarvanis v. Canada**, [2002] 1 S.C.R. 921, at paras. 28-29, the Court stated:

> In my view, the language in s. 9 of the *Crown Liability and Proceedings Act*, though broad, nonetheless requires that such a pension or compensation paid or payable as will bar an action against the Crown be made on the same factual basis as the action thereby barred. In other words, s. 9 reflects the sensible desire of Parliament to prevent double recovery for the same claim where the government is liable for misconduct but has already made a payment in respect thereof. That is to say, the section does not require that the pension or payment be in consideration or settlement of the relevant event, only that it be on the specific basis of the occurrence of that event that the payment is made.
>
> This breath is necessary to ensure that there is no Crown liability under ancillary heads of damages for an event already compensated. That is, a suit only claiming for pain and suffering or for loss of enjoyment of life could not be entertained in light of a pension falling within the purview of s. 9 merely because the claimed head of damages did not match the apparent head of damages compensated for in that pension. All damages arising out of the incident which entitles a person to a pension will be subsumed under s. 9 so long as that pension or compensation is given 'in respect of', or on the same basis as, the identical death, injury, damage or loss.

Lo3

[113] The question has arisen as to when is a pension "payable"? In **Gustar v. Wadden, et al.** (1994) 91 B.C.L.R. (2d) 86, at p. 90, the British Columbia Court of Appeal stated:

> 'Payable' does not mean 'may be payable' depending upon the outcome of some future uncertain event. 'Payable' means a presently enforceable legal right to collect and corresponding legal obligation to pay.

To the same effect, see **Elliott v. Canadian Forces Housing Agency Kingston,** (2003) Can. LII 35396 and **Horvath v. Thring, et al.** (2003), 20 B.C.L.R. (4th) 370.

[114] In the present case it is not plain and obvious to me that Ring's pension is payable. Neither is it plain and obvious that, if the pension is payable, that the pension is "in respect of" facts on which the present action is founded. The Statement of Claim alleges that Ring, in addition to being on the Base for military purposes, was also there for recreational purposes, in the capacity of a hunter and woodsman.

[115] Nor do I find it plain and obvious that Ring's claim is bound to fail by reasons of s. 111(2). In **Frey v. B.C.E. Inc.,** (2006) SKQB 331, Gerein J. permitted a class action to proceed as the "only procedure" notwithstanding the otherwise mandatory stay required to be granted pursuant to the *Arbitration Act,* 1992, S.S., c. A-24, section 8 of which provided:

> 8. (1) Subject to subsection (2), if a party to an arbitration agreement commences a proceeding with respect to a matter to be submitted to arbitration under the agreement, the court in which the proceeding is commenced shall, on the motion of another party to the arbitration agreement, stay the proceeding.

[116] Gerein J. concluded that it would be unfair to deny a member of the class the advantage of the class action and, if a class action is preferable and is certified, then a stay should not be entered on the basis of an arbitration clause. Here the

Plaintiffs' claim that a class action is the preferable procedure for obtaining the costs of medical testing.

[117] As for the claims relating to the occurrence of lymphomas, the Plaintiffs' allegations include allegations relating to exposure to toxic herbicides while hunting and fishing. I am not satisfied that issue estoppel applies in those circumstances, where a pension relating to injury occurred during military service has been sought and refused.

[118] In summary, I conclude it is not plain and obvious that there are statutory bars to the Plaintiffs' action proceeding and I find that a reasonable cause of action has been alleged.

An Identifiable Class

[119] The Plaintiffs have proposed three alternative class definitions:

(i) all individuals who were at CFB Gagetown between 1956 and the present;

(ii) in the alternative, all individuals who were at Camp Gagetown between 1956 and the present and were subsequently diagnosed with a malignant lymphoma; or

(iii) all individuals who were at CFB Gagetown between 1956 and the present and were subsequently diagnosed with Non-Hodgkin's Lymphoma, Chronic Lymphotic Leukemia, Soft-Tissue Sarcoma, or Hodgkin's Disease.

[120] The purpose of the class definition is to identify the individuals:

(i) entitled to notice;

(ii) entitled to relief; and

(iii) bound by the judgment.

See, **Dutton**, at para. 38.

[121] The class definition should be comprised of "stated, objective criteria":

(i) by which members of the class can be identified;

(ii) which bears a rational relationship to the common issues asserted by all class members; and

(iii) does not depend on the outcome of the litigation or a determination of the merits.

See, **Dutton**, at paras. 38 and 52, and **Hollick**, at para. 17.

The class definition should not be unnecessarily broad in the sense of including those who have no interest in the resolution of the common issues: See, **Hollick**, at para. 21.

HAB

[122] The Crown's submission regarding the identifiable class is that, because Ring was diagnosed with cancer in 1995 and Williams was diagnosed with diabetes in 1975, it is clear that neither of them have a judiciable claim unless they can rely on the discoverability principle to postpone the running of the limitation period. The Crown submits that a court should not include in a class anyone whose claims depend on the application of the discoverability principle, because membership in the class is contingent on each of those potential class members establishing, on an individual basis, that the limitation period should be postponed. The Crown notes the following comment in **Knight v. Imperial Tobacco Ltd.**, [2006] B.C.C.A. 235, at para. 34:

> Limitation issues were not involved in the **Rumley** case as eventually certified because limitation defences are not available in sexual assault actions in this province. However, limitation issues clearly arise in the instant actions for transactions occurring prior to May 1997. The Chambers judge observed in her reasons, correctly in my opinion, that the limitations defence as a whole cannot be tried as a common issue. If that is so, I am of the view that it is not possible to decide on an award of damages to the class as certified since the composition of the class would be unknown. It would be possible for a class of individuals who entered into transactions after May 8, 1997, to be certified as a class, but I fail to see how claims related to transactions prior to that time could be litigated in a class proceeding. That is so because in order to have valid claims, individuals would have to be able to establish postponement of the limitation period.

[123] The Plaintiffs' Statement of Claim alleges that the Crown deceived the Plaintiffs by false, reckless and misleading representations about the extent of the contamination at CFB Gagetown and the risks it posed to individuals. At paragraph 84, the Plaintiffs allege that the full facts disclosing a cause of action against the Crown were not known until 2005. If a limitation defence is pursued, this will be tested at trial. For purposes of certification, I must accept as true the allegations set out in paragraphs 81 to 84 and, on the basis of the discoverability principle, the limitation period for all class members would run from 2005. Accordingly, the Crown's objection to Ring and Williams being included in the class is not valid.

[124] The Third Parties object to the class as being both over-inclusive and under-inclusive given the proposed common issues and the evidence filed by the Plaintiffs. Also Dow submits that, with respect to the second and third proposed class, the Plaintiffs have not filed sufficient evidence to demonstrate on a balance of probabilities that there are two or more persons in the resident Newfoundland class.

[125] A class must not be defined so as to be overly inclusive, that is, the class should not include persons who do not have a claim or who do not have an interest in the resolution of the common issues: see, **Hollick**; **Mouhteros v. Devry Canada Inc.** (1998), 41 O.R. (3d) 63 (Gen. Div.), at p. 68; and **Davis v. Canada,** [2007] NLTD 25, at para. 54. There must be a rational connection between the class definition and the proposed common issues: see, **Hollick**, at para. 19; **Cloud v. Canada (Attorney General)** (2005), 73 O.R. (3d) 401 (C.A.), at p. 412; and **Davis**, at para. 49.

[126] The Third Parties note that none of the proposed class definitions require exposure to toxic chemicals as a condition of class membership. The Third Parties submit that the class definitions proposed are virtually unrestricted and meaningless because they include anyone who was "at Gagetown" over a period more than 50 years, regardless of where on the Base they were, when they were there, and for how long and what kind of exposure they had if any. The Third Parties argue that many, if not all, of the members of the class as proposed by the Plaintiffs would have had little or no exposure to the contaminants in question on their visits to Gagetown and, accordingly, would have no interest in the resolution of the proposed common issues.

[127] I do not accept this submission. The entire thrust of the Plaintiffs' Statement of Claim is that individuals were unknowingly exposed to toxic chemicals. They now seek the cost of medical testing to determine whether or not they have absorbed a dangerous dose of chemicals into their systems as a result of this exposure. They may have an uphill battle to establish entitlement to what they acknowledge may be a novel category of relief but I am not prepared at this stage to say they are not entitled to seek it as a class. The concern of the Third Parties

that the first class definition may be too broad and may include individuals who have no concern about exposure may be met by adding to the first definition the words "and who claim they were exposed to dangerous levels of dioxin or HCB while on the Base". There is then a rational relationship between the stated, objective criteria of the class and the common issues. A proposed common issue seeks a determination of the minimum amount of dioxin and HCB that can cause a malignant lymphoma. All class members have a claim for the cost of testing. Each class member, whether at CFB Gagetown for one day or one year, may have the same concern about whether they are at risk of developing cancers with long latency periods and what proper precautionary steps they may take if a risk of cancer is determined early.

[128] The Third Parties also submit that the Plaintiffs' proposal to define the class on geographic terms is arbitrary since it includes some people who were in the geographic area but are unaffected by the alleged contamination and excludes people who were on adjacent property and may have been affected. They find support for their position in the decision of Nordheimer J. in **Pearson v. Inco**. As previously noted, the Ontario Court of Appeal questioned whether the approach of Nordheimer J. was sufficiently liberal. In any event, I am not satisfied that the Plaintiffs' geographic class definition is inappropriate where the Plaintiffs are seeking to determine by medical testing who may have been affected by the alleged contamination within the geographic area. I am not persuaded that the exclusion of people on adjacent properties, who may also have been affected, should invalidate the class definition. This was not a concern in **Hollick** and the Ontario Court of Appeal in **Pearson v. Inco** urged considerable caution in rejecting certification on this basis.

[129] The Plaintiffs' Statement of Claim alleges that a reasonably foreseeable consequence of the release of chemicals at CFB Gagetown was not only causing personal injury, including malignant lymphomas, but also causing individuals exposed to fear the possibility of this occurring and to incur economic loss, including the cost of testing for dioxin and HCB (hexachlorobenzene) poisoning, in order to determine if they should take preventative action against developing malignant lymphomas. The Plaintiffs allege that the spraying of chemicals materially contributed to the risk of causing lymphoid cancers and that, therefore,

anybody who may have been unknowingly exposed because of their presence on the Base are entitled to be tested to determine whether they have a dangerous level of dioxin or HCB in their systems. I believe the claim makes a rational connection between the proposed class definition and the proposed common issues. Anyone who was on the Base since 1956 may have an interest in knowing whether the spraying could cause malignant lymphomas. The fact different circumstances exist among different class members does not preclude certification. A class action proceeded in **Dutton** despite a long list of differentialities. The Court noted, at para. 54:

> The fact remains, however, that the investors raise essentially the same claims requiring resolution of the same facts. While it may eventually emerge that different subgroups of investors have different rights against the defendants, this possibility does not necessarily defeat the investors' right to proceed as a class. If material differences emerge, the court can deal with them when the time comes.

[130] The Third Parties also question whether the Plaintiffs have provided sufficient evidence to establish that there is an identifiable class of two or more persons in Newfoundland as required by Sections 3(1) and 5(1)(b) of the *Class Actions Act*. Paragraph 80 of the affidavit of Ring states that there are three "class members" who have been diagnosed with Non-Hodgkin's Lymphoma residing in Newfoundland. I am satisfied that this is sufficient to provide the "basis in fact" for the class as required by **Hollick**. I do not accept the Third Parties' submission that at the certification stage the Plaintiffs must prove on a balance of probabilities the existence of a class. But if they must, the uncontradicted Ring affidavit meets the requirement at this stage.

[131] The Third Parties also submit that there are only three class members in Newfoundland who have been allegedly diagnosed with a malignant lymphoma and this is too small a number to justify certification of a class proceeding. The affidavit of Tannis Marks shows that there are 18 class members who report having been diagnosed with Non-Hodgkin's Lymphoma and 6 with Hodgkin's Disease. There is a financial advantage to the Newfoundland residents to pool resources with non-residents to pursue their claims. So certification will promote improved access to justice.

[132] The Third Parties also object that the Plaintiffs have not put forward any proposed representative plaintiff for the non-resident class as required by the *Act* and class action Rule. I am satisfied that this should not bar certification if the other requirements are met. This is something which the Plaintiffs should be granted leave to rectify if a certification order issues. The affidavits of non-residents filed by the Plaintiffs establish the availability of many representatives for this class.

[133] Pharmacia argues that the definitions have the flaw of depending on the case outcome in that it is impossible for a person to know if he or she is a member of the proposed classes unless it is determined that a "toxic area" exists. This concern is met by amending the first proposed class definition so it will now read: "all individuals who were at CFB Gagetown between 1956 and the present and who claim they were exposed to dangerous levels of dioxin or HCB while on the Base.

Common Issues

[134] Our *Class Actions Act* requires that the claims of class members raise a common issue. An issue will be common "only where its resolution is necessary to the resolution of each class member's claim": See, **Dutton**, at para. 39. An issue will not be "common" unless the issue is a "substantial ... ingredient" of each of the class members' claim and must be such that its resolution will "significantly advance the action": see, **Hollick**, at paras. 18 and 32.

[135] By s. 5(1)(c), a common issue need not be the dominant issue but by s. 5(2)(a) whether common or individual questions predominate is a factor to consider under the criteria of preferable procedure.

[136] The Third Parties correctly point out that it is clear that the principal proposed common issue is the first one, which addresses the question of whether or not alleged "toxic areas" at CFB Gagetown constituted an unusual or unreasonable

danger of causing a malignant lymphoma. Common issues (2) through (5) cannot reasonably be resolved before the Court has made a determination on proposed common issue (1). The Third Parties point to the experts' affidavits and submit that the question of whether or not any particular class members' disease or condition was caused by their specific exposure at Gagetown, typically referred to as "specific causation", is an inherently individualistic inquiry which will require separate individual adjudication. The Third Parties see proposed common issue (1) in this case as the Plaintiffs' attempt at framing a "generic causation" question, that is, the question of whether or not a product in question "can" cause the injuries alleged.

[137] The Third Parties argue that common issue (1) is not "triable" in the sense of being capable of determination at trial. The Third Parties rely upon **Davis v. Canada**, where Orsborn J., on an application for certification of a class action on behalf of over 7,000 individuals of Mi'kmaq Indian ancestry, stated, at para. 109:

> The list of suggested common issues presented by the plaintiffs is long and unwieldy. Many of the issues are so broadly worded as to be incapable of a focus and proper determination at trial. If considered as pleadings they will be too broad to permit a proper defence. In short, and in non-legal terms, it is extremely difficult to 'know what you are dealing with'.

[138] Orsborn J., at para. 145, did, however, find that certain common issues could be "gleaned" from the list generated by the plaintiffs. He rejected certification because he concluded a class action was not the preferable procedure where the claims of the class could better be dealt with "by the more practical and efficient avenue of a test case involving a limited number of named individuals".

[139] The Third Parties point to the affidavits of experts filed in this case and submit that proposed common issue (1) is incapable of any focus or proper determination at trial. They say it seeks to determine whether or not there is a causal link between certain alleged "toxic areas" and particular diseases, not between a particular chemical and a particular dose and a particular disease. They argue it will be difficult for any trier of fact to resolve this issue without the

LAB

assistance of expert evidence on the medical and scientific facts relevant to the methods and procedures for determining generic causation and relevant for determining whether the "toxic areas" issue proposed by the Plaintiffs is meaningful given the diversity of chemicals and diseases claimed and the possibility of extreme variation in exposure and dosage.

[140] The Third Parties dispute that in this case there is any discrete question which can be divided from individual or "specific" causation. They say it is simply not possible to determine the smallest amount of a substance in a location which represents a specified risk for all persons. The fundamental defect they point to in the Plaintiffs' proposed generic causation question is that it fails to address key steps in the source-exposure-dose-disease toxicological chain of causation. They say that the Plaintiffs' "toxic areas" proposal completely ignores the role of exposure and dose in the toxicological assessment and the necessity to consider the dose of a specific chemical in relation to a particular disease.

[141] In particular, the Third Parties rely upon the affidavit of Dr. Guzelian, where he says it is a fundamental principle of toxication that there are no "toxic chemicals", only "toxic doses" and that the Plaintiffs' proposal to determine the existence of "toxic areas" is essentially meaningless with respect to toxicology because it fails to provide for collection and evaluation of data with respect to exposure or, more importantly, dose.

[142] The Third Parties submit the Plaintiffs' "toxic areas" proposal seeks a determination on causation based solely on the degree of contamination at the source, when experts have pointed out that the source contamination and the dose received by a person are two very different things and necessarily individual issues: "no two people would be expected to receive the same dose from such environmental sources". The Third Parties say the number and variability of factors which determine doses are simply too great. There could be no single uniform answer for all. Nor would the entire CFB Gagetown pose the same hazard in all areas to any person on the Base, however briefly or long, whatever the individual circumstances. The Third Parties submit there was no evidence that the "toxic areas" approach could even be used to separate class members into sub-

groups that had greater or less likelihood of receiving a significant dose of herbicide. Accordingly, submit the Third Parties, the question of whether or not a "toxic area" can cause or contribute to a particular disease is simply not capable of any meaningful determination. Such inquiry they say must, necessarily, be exposure and dose specific.

[143] The Third Parties rely upon Dr. Guzelian's statement, at para. 24 of his affidavit:

> The hidden assumption underlying the 'toxic areas' approach is that persons in the area would receive a roughly equivalent dose, whether there for a day visiting in an office or for decades outdoors on the training ranges, so long as some 'smallest amount' that poses a lymphoma hazard is present. Such an implausible assumption contradicts simple principles of toxicology.

[144] I do not agree that adoption of the "toxic areas" approach requires the hidden assumption described by Dr. Guzelian. The Plaintiffs are saying that the first step in their claim requires the successful resolution of the question of whether exposure to dioxin and HCB, at any dose, may contribute to the risk of persons receiving the dose developing a malignant lymphoma. The fact that the Plaintiffs acknowledge that certain aspects of the "general causation" issue will still have to be determined on an individual basis, because of, for example, the variations in the applications of the herbicides, the topography and vegetation at locations sprayed, and the persistence or degradation of the alleged contaminants as described by Dr. Giesy, does not detract from the fact that resolution of the question of whether reception of a certain minimum dose of the chemicals may materially contribute to the risk of developing a malignant lymphoma is a substantial ingredient of each of the class members' claims, is necessary for the resolution of each class member's claim, and will move the litigation forward to a significant degree. The complexity of the process for determining exposure and, ultimately dosage, as described by Dr. Giesy, indicates that the Plaintiffs' will have an uphill battle to make their case. This, however, does not entitle the Court at this stage, when the Plaintiffs have not yet had the opportunity to fully present their case, including expert evidence from qualified individuals whose supporting views they indicate will be available. To

LDB

accept the submissions of the Crown and Third Parties would be to decide on the merits of the claim before all the evidence has been heard.

[145] The fact that in this case there are references to three different herbicides, each of which may have a range of possible contaminants, including dioxin and HCB, and the fact that "malignant lymphomas" is a category of disease that incorporates at least 50 different distinct illnesses, each with different possible causes, adds to the complexity of the case. I do not accept, however, the Third Parties' submission that the Plaintiffs' common questions have the underlying assumption that all lymphomas have a common cause. The Plaintiffs accept that, if they are successful in their common questions, there will still have to be individual hearings to determine whether a Plaintiff received a minimum dosage which caused their particular malignant lymphoma. In the case of Plaintiffs who have not developed any lymphoma, they wish to recover the cost of testing to determine whether they have dangerous levels of dioxin or HCB in their systems. This is a pure economic loss claim, which our Court of Appeal, in **Exploits Valley Air Services Ltd. v. College of North Atlantic** (2005), 258 D.L.R. (4th) 66 (NLCA), has noted has been the subject of "a group of disparate cases" in which public authorities have been held liable.

[146] The Plaintiffs acknowledge the availability of the remedy of medical testing for those not diagnosed with a disease is novel in Canada but note it has been recognized by American courts. In **Ayers v. Jackson Tp.** (1987), 106 N.J. 557, Stein J. formulated the following rule:

> Accordingly, we hold that the cost of medical surveillance is a compensable item of damages where the proofs demonstrate, through reliable expert testimony predicated upon the significance and extent of exposure to chemicals, the toxicity of the chemicals, the seriousness of the diseases for which individuals are at risk, the relative increase in the chance of onset of disease in those exposed, and the value of early diagnosis, that such surveillance to monitor the effect of exposure to toxic chemicals is reasonable and necessary. In our view, this holding is thoroughly consistent with our rejection of plaintiffs' claim for damages based on their enhanced risk of injury. That claim seeks damages for the impairment of plaintiffs' health, without proof of its likelihood, extent or monetary value. In contrast, the medical surveillance claim seeks reimbursement for the specific

> dollar costs of periodic examinations that are medically necessary notwithstanding the fact that the extent of plaintiffs' impaired health is unquantified.

See also, **Potter v. Firestone Tire** (1993), 6C. 4th 965 (Cal. Sup. Ct.), where Baxter J. concluded for the majority:

> To summarize, we hold with respect to negligent infliction of emotional distress claims arising out of exposure to carcinogens and/or other toxic substances: unless an express exception to this general rule is recognized, in the absence of a present physical injury or illness, damages for fear of cancer may be recovered only if the plaintiff pleads and proves that (1) as a result of the defendant's negligent breach of a duty owed to the plaintiff, the plaintiff is exposed to a toxic substance which threatens cancer; and (2) the plaintiff's fear stems from a knowledge, corroborated by reliable medical or scientific opinion, that it is more likely than not that the plaintiff will develop the cancer in the future due to the toxic exposure. Under this rule, a plaintiff must do more than simply establish knowledge of a toxic ingestion or exposure and a significant increased risk of cancer. The plaintiff must further show that based upon reliable medical or scientific opinion, the plaintiff harbours a serious fear that the toxic ingestion or exposure was of such magnitude and proportion as to likely result in the feared cancer.

[147] I am not satisfied I should deny the Plaintiffs in the present case an opportunity to persuade a trial judge that our courts should take the same approach regarding the cost of testing to determine whether exposed individuals have dioxin or hexachlorobenzene in their systems. Both types of claims in this case rest upon satisfying the Court first of all that receiving a certain minimum dose of the chemicals may materially increase the risk of developing a malignant lymphoma. I note the strong opinions expressed by the Third Parties' experts. Similar opinions persuaded Nunn J. in **Palmer v. Nova Scotia Forest Industries**, [1983] N.S.J. No. 534, that spraying with phenoxy herbicides containing dioxin did not constitute a serious risk to health justifying an injunction. Also, the United States Court of Appeals for the Second Circuit on the basis of similar opinions, upheld the grants of summary judgment against Vietnam War Veterans claiming damages from producers of Agent Orange because the weight of scientific evidence at the time

did not establish they had been injured by Agent Orange: See, **In Re "Agent Orange" Products Liability Litigation** MDL No. 381 (1987), 818 F. 2d 145. Also, for a history of subsequent cases on Agent Orange, see **Isaacson and Stephenson v. Dow Chemicals** (2004), 304 F. Supp. 2d 404, dismissed on the basis of the Government's Contractor Defence. I have concluded, however, that, while these opinions will be difficult hurdles for the Plaintiffs to overcome, this is not the time for a decision on their merits. The Plaintiffs, by reference to the more recent Agent Orange studies arising from the Vietnam War and in the listing of scientific publications showing an evolving state of knowledge regarding the association between ingestion of dioxin and HCB and the developing of lymphomas, have shown a sufficient basis for the proposed common issues to entitle them to a trial to challenge the Third Party experts. The latter's views may be currently those of the mainstream in the medical and scientific community. But the Plaintiffs are entitled to challenge these by producing the experts they say are available with contrary views.

[148] As previously noted, proving their claims will be a complex and expensive process and the Plaintiffs should be entitled to the benefits of a class action to ensure their access to justice by a pooling of resources where individual plaintiffs probably would not be able to afford to proceed. As I stated in **Wheadon**, at para. 144: "A class proceeding promotes access to justice when people have the same or similar claims against a large corporate defendant which, on their own, are too small to justify individual litigation." As in that case, only a class proceeding will put the parties on a sufficiently even footing.

[149] Judicial economy would also be promoted by certification in the present case. Although individual hearings will probably be required with respect to each Plaintiff's claim, these hearings will be considerably shortened if the proposed common issue (1) has been successfully resolved. Indeed, if the common issue is resolved in favour of the Defendants and Third Parties, thousands of trials will probably be avoided.

[150] Proposed common issue (2) follows logically from the successful resolution of common issue (1) and its resolution would advance the claims of all Plaintiffs by

determining reasonable foreseeability of harm, one factor in determining whether a private law duty of care exists in the circumstances. For the duty of care analysis, see, **Martel Building Ltd. v. R.**, [2000] 2 S.C.R. 860; **Cooper v. Hobart**, [2001] 3 S.C.R. 537; **Edwards v. Law Society of Upper Canada**, [2001] 3 S.C.R. 562; **Odhanji Estate v. Woodhouse**, [2003] 3 S.C.R. 263; **Childs v. Desormeaux**, [2006] 1 S.C.R. 643, and, most recently, **Syl Apps Secure Treatment Centre v. B.D. (S.C.C., July 27, 2007)**. Proximity analysis, involving some policy considerations impacting upon the parties' relationship, their expectations, representations and reliance, also comes into play in determining whether a prima facie duty of care arises. This preliminary conclusion must then be examined under the second stage of the *Anns* test as previously discussed, to see whether there may be any residual policy reasons which make the imposition of a duty of care unwise. But issues (1) and (2) relate to the existence of a duty of care for all Plaintiffs and, accordingly, have the required degree of commonality.

[151] Dr. Mandel's affidavit states, at para. 8 (see Appendix A): "Drawing a conclusion regarding general causation between a collective *group* of exposures and a *group* of diseases is not an acceptable approach in epidemiological research. The Plaintiffs are entitled, however, to try and make the case that it is an acceptable approach in negligence law. While the approach may not "lead to a meaningful scientific answer with respect to a specific dose-response relationship", it may lead to a meaningful legal answer regarding the creation of unreasonable risks for the general public. Cross-examination of the Third Parties' experts at trial will help determine whether Dr. Mandel and other experts have focused on what they need for medical certainty rather than on what the law requires for proof in a civil case, namely proof on a balance of probabilities.

[152] Common issues (3), (4) and (5) could be resolved without individual hearings, if the Plaintiffs are successful in persuading the Court as a matter of law, on the **Ayers** and **Potter** approach, that failure to use reasonable care to prevent the risk of developing malignant lymphomas, whether or not those lymphomas actually occur, entitles individuals who are exposed to the toxic areas, whether or not they can prove they received a dose, to recover the costs of testing for the presence of dioxin and HCB in their system. Although the extent of the risk for each individual may vary, the Plaintiffs should be entitled to attempt to satisfy a trial judge that

under certain circumstances, which they may or may not be able to prove actually occurred, a risk of poisoning and disease may be created which it would be intolerable for the public generally to have to endure without appropriate testing and where potential polluters, who might otherwise assume their actions would not result in litigation, should be deterred. The novelty of the cause of action should not prevent the Plaintiffs having their day in court. See, **Operation Dismantle v. R.**, [1985] 1 S.C.R. 441 and **Abdool v. Anaheim Management Ltd.** (1995), 21 O.R. (3d) 453 (Ont. C.A.).

[153] On the matter of risk assessment, this will be for the trial judge to finally determine. But my reading of the affidavits of the Third Parties' experts leaves me with the impression that they are directed primarily to the ultimate question of whether the proposed common issues will advance a determination of whether the Plaintiffs will develop a disease as opposed to the Plaintiffs' claim that the actions of the Crown and Third Parties unreasonably contributed to the risk of this occurring. Dr. Guzelian's affidavit supports the view that, provided the toxicological claim of causation is met, one may prove a person's illness was caused by a chemical. The Plaintiffs alleged two steps in the chain, source and exposure. They will ask the trial judge to infer that the degree of exposure would lead to their receiving a dose of chemicals which resulted either in lymphomas developing (for the subclass allegedly including Edward Ring) or in an enhanced risk of lymphomas developing. The Plaintiffs say they will be able to present expert evidence to support the drawing of that inference as to dose and response. The experts' affidavits filed to date do not persuade me that establishing certain areas at CFB Gagetown had sufficient chemical residue to create an unusual danger of exposure to dioxin and HCB will not assist the court in moving along the toxicological chain of causation and in determining whether the actions of the Crown and Third Parties led to Plaintiffs receiving a sufficient dose of chemicals to create an enhanced risk of the Plaintiffs developing lymphomas. Deciding whether the Plaintiffs can prove such unusual danger will have to await the presentation of their expert evidence. Much of the Third Parties' affidavit evidence relates to reasons why the individual Plaintiffs will have had different degrees of exposure (because the exposure was never temporally or geographically uniform; different herbicides were sprayed at different times; the rate of deposition would have varied with different topography and vegetation; individuals were present at different times for varying periods; and so forth) and different doses (if any). This does not

take away from the fact that common to all claims is the allegation that the Crown and Third Parties materially contributed to the creation of an unusual danger for Plaintiffs by actions leading to the unreasonable depositing of dioxin and HCB in certain areas of CFB Gagetown. Resolving this issue will significantly advance the standard of care analysis in the litigation even though many individual issues remain. I do not understand the argument that there is no point to resolving common issues relating to, for example, whether depositing dioxin in any quantity may be dangerous to human health, because other individual issues, relating to the extent of exposure and dose will remain. As previously noted, thousands of individual trials may be avoided if the issue is resolved in favour of the Crown and Third Parties. If resolution is in favour of the Plaintiffs, there will not be a need to repeat fully in the individual hearings the battle of experts contemplated for resolution of the common issues.

[154] On the claim for the cost of testing an analogous case was certified as a class action in **Anderson v. Wilson** (1999), 44 O.R. (3d) 673 (C.A.), app. for leave to appeal dismissed, May 25, 2000. There the Ontario Court of Appeal allowed certification for a group of persons, claiming in nervous shock, who were notified of the possibility of infection after exposure to Hepatitis B. in an EEG clinic, were tested, and were uninfected. The Court held that, given the uncertain state of the law on tort relief for nervous shock, it was not appropriate that the Court should reach a conclusion on entitlement to damages for emotional suffering without psychiatric symptoms before a complete factual foundation had been laid. The Court found the nature of the claim lent itself to aggregate treatment because individual reactions to the notices would probably have been similar in each case – fear of a serious infection and anxiety during the waiting period for a test result. Resolution of the common issue as to the standard of conduct of the clinic would move the litigation forward. In the present case the Plaintiffs allege fear of dioxin and HCB poisoning and anxiety during the wait for funding to be tested.

[155] In summary, I am satisfied that all five of the proposed common issues meet the test of commonality required for certification.

A class action as the preferable procedure

[156] Section 5(2) notes some of the factors to be considered by a court in determining whether a class action would be the preferable procedure for the fair and efficient resolution of the common issues:

> (a) whether questions of fact or law common to the members of the class predominate over questions affecting only individual members;
>
> (b) whether a significant number of the members of the class have a valid interest in individually controlling the prosecution of separate actions;
>
> (c) whether the class action would involve claims that are or have been the subject of another action;
>
> (d) other means of resolving the claims are less practical or less efficient; and
>
> (e) the administration of the class action would create greater difficulties than those likely to be experienced if relief were sought by other means.

[157] No evidence has been presented to indicate that a significant number of the members of the class have a valid interest in individually controlling the prosecution of separate actions. Therefore, (b) is not significant on the present application.

[158] The Crown's and Third Parties' concerns with respect to (a), (d) and (e), are based upon the submission that resolution of the common issues will not "significantly advance the action". I have already dealt with this objection under the heading "Common Issues". Although the individual issues may require a large number of individual trials, where the class consists of tens of thousands of people, access to justice would be promoted and judicial economy achieved by having the common issues resolved at a single hearing. There may still be questions relating to both general causation and specific causation which remain. But it will be less costly and more efficient to have resolved in one trial the question of whether there is an association between dioxin and HCB and certain diseases, such as malignant

lymphomas, and whether there were areas of toxicity created by the spraying at CFB Gagetown which could cause medical problems for the Plaintiffs.

[159] The Third Parties argue that the certification requirements cannot be met in an environmental exposure case where exposure and dose vary significantly from one class member to the next. The Supreme Court of Canada, in **Hollick,** stated, at para. 37:

> While the appellant has not met the certification requirements here, it does not follow that those requirements could never be met in an environmental tort case. The question of whether an action should be permitted to be prosecuted as a class action is necessarily one that turns on the facts of the case. In this case there were serious questions about preferability. Other environmental tort cases may not raise the same questions. Those cases should be decided on their facts.

On the facts of this case I am satisfied a class action is the preferable procedure. Recovering the cost of testing would not be an economically viable claim to pursue on an individual basis and certification of the class action will promote access to justice. As previously noted, judicial economy would result from resolution of the common issues. A judicial finding in a class action on the association between dioxin and HCB and particular diseases would not have to be completely revisited, as argued by the Third Parties, in individual trials to determine whether any of the chemicals caused a specific illness. I am not persuaded that the existence of a regulatory scheme under the *Pest Control Products Act*, Stats. Can. 2002 c.28, adequately meets the goal of behaviour modification. This goal would be better promoted by certification in the present case.

[160] When this matter was argued, New Brunswick had enacted class actions legislation but had not yet proclaimed it. I have since been notified that on March 29, 2007, the Lieutenant-Government of New Brunswick in Council issued a proclamation declaring that the New Brunswick *Class Proceedings Act* would come into force on June 30, 2007. The Plaintiffs have already started actions in New Brunswick, arising from the spraying at CFB Gagetown, including real property claims and claims relating to occupiers' liability. This Court would not

have jurisdiction over the real property claims and actions in that regard will have to proceed in New Brunswick. New Brunswick law will apply to the occupiers' liability claims. In these circumstances, s. 5(2)(c) becomes significant, since the proposed class action will involve claims that are or have been the subject of another action, namely the New Brunswick actions. Therefore, it is appropriate that, if certification is granted, the order be stayed pending further submissions on the effect of the proclamation of the New Brunswick legislation.

Proper representative Plaintiffs

[161] I do not agree with the Third Parties that an unacceptable conflict of interest arises because the case has such a variety of alleged contaminants and diseases, and some will have an interest in alleging that a certain chemical caused a specific disease while others will have an interest in a different chemical. If this becomes a problem, it can be remedied through the creation of sub-classes on subsequent application. Neither do I accept the submission that Brigadier General Ring has another potential conflict of interest as a senior officer in the Canadian military who may have had responsibility for supervising some of the members of the class. There is no evidence that General Ring's own actions could have contributed to the government's alleged negligence as against other class members.

SUMMARY AND DISPOSITION

[162] In summary:

(a) The requirements for certification have been met in that

(i) the Plaintiffs' pleadings disclose a cause of action;

(ii) there is a properly identifiable class;

(iii) the Plaintiffs' claims raise a common issue;

(iv) (subject to a decision on the effect of the New Brunswick proclamation of a *Class Proceedings* Act) a class action is the preferable procedure; and

(v) there are proper representative Plaintiffs.

(b) An order for certification shall issue but is stayed pending further submissions on the effect of the proclamation of the New Brunswick *Class Proceedings* Act.

(c) The class definition shall read: "All individuals who were at CFB Gagetown between 1956 and the present and who claim they were exposed to dangerous levels of dioxin or HCB while on the Base".

Leo Barry, J.

LEO D. BARRY
Justice

Appendix A

Opinion of Jack S. Mandel, Ph.D., M.P.H.

7. From a scientific perspective, the proposed common question of "toxic areas" could not be given a meaningful answer. It would instead have to be broken down into multiple specific questions as to specific chemicals, diseases, and exposures, none of which would approach being common to the entire class. Labeling CFB Gagetown or parts of it generically as "toxic area(s)" without specifically relating it to any particular chemicals, diseases, or circumstances would have little if any scientific relevance for the individual trials that would follow, where the causation issue would be whether a person's particular exposure to particular chemicals under particular circumstances had caused a particular disease.

Association versus Causation

8. Elucidating the *association* between a specific exposure and a specific disease is methodologically challenging, but assessing *causality* is even more complex and requires among other things an evaluation of the weight of scientific evidence on a specific dose-response (e.g., chemical-disease) relationship. Drawing a conclusion regarding general causation between a collective *group* of exposures and a *group* of diseases is not an acceptable approach in epidemiologic research. This is particularly true when the exposures and the diseases are heterogeneous, and vary considerably among the persons being studied. A more systematic and scientific approach is to thoroughly evaluate the relationship between a *specific* exposure and a *specific* disease. Plaintiff's proposed common question of whether "toxic areas" at CFB Gagetown caused lymphoid cancers and perhaps other diseases improperly conflates exposures to numerous toxicologically distinct chemicals as well as a causally diverse group of diseases. As such, it cannot lead to a meaningful scientific answer with respect to a specific dose-response relationship.

9. Epidemiologists commonly use a generally accepted set of guidelines to assist them in making judgments about whether observed associations between a chemical and a disease are likely to be causal. The observed associations result from carefully designed and conducted epidemiologic studies of groups of individuals, or population samples.

10. One of the biggest challenges of epidemiology is to evaluate the weight of evidence based on data from observational studies in order to determine if a chemical causes a disease. Relative risk estimates help epidemiologists identify associations between a chemical and a disease. However, the existence of an association does *not* necessarily indicate that the association is causal, that is, that

VDB

the chemical caused the disease. One of the first considerations that should be addressed is the possibility of alternative explanations such as random error (chance) or systematic error (bias, including confounding). For example, if a physician's patients have an unusually high mortality rate, it could be attributed to negligence, but if the physician's patients are elderly their increased mortality might be entirely due to their age. The strong observed association between patient mortality and the treating physician is confounded by patient age, and thus is not causal.

11. To cope with the complexity of determining whether a particular association is causal, epidemiologists have developed a set of guidelines to assist them in making this judgment. Sir Austin Bradford Hill initially developed the following nine guidelines to evaluate the weight of evidence regarding an exposure-disease association: strength of association, consistency, specificity, temporality, biological gradient, biological plausibility, coherence of evidence, experiment, and analogy (Hill, 1965). Hill referred to these as nine "features to be specially considered" or "viewpoints" from which one should evaluate associations before declaring them causal. He did not assert that they all must be met in order to prove causality, nor did he state that any one guideline was a requirement for a causal association (Hill, 1965). Although other approaches for evaluating causality have been described, the Hill guidelines (in various revised forms) are commonly cited and implemented (Schlesselman, 1982; Mausner and Kramer, 1985; Hennekens and Buring, 1987; Lilienfeld and Stolley, 1994; Timmreck, 1998; Gordis, 2000). A common set of guidelines often cited are outlined below.

- *Is there a temporal relationship?* For an exposure to be causal, it must precede the disease.

- *Is the association strong?* This is measured by the magnitude of the relative risk or any other risk estimate. The stronger the association, the more likely it is to be causal.

- *Is there a dose-response relationship?* If the risk of disease increases with increasing dose of exposure, the relationship is more likely to be causal.

- *Has the association been replicated?* Consistent results in different studies in different populations provide strong evidence for causality.

- *Is the association biologically plausible?* This refers to the coherence of the association with the current biological knowledge.

- *Is the association consistent with other knowledge?* Are the findings consistent with other data, for example, the known distribution of the disease in the population.

- *Has bias and confounding been adequately considered?* This refers to the proper consideration and resolution of systematic error and other plausible explanations for the association.

12 The proposed determination of whether CFB Gagetown (in whole or in part) was a "toxic area" at various times since 1956 would be of little if any use in addressing these factors of causality. The answer would not provide information as to whether there was a dose-response relationship, whether the association had been replicated, or other such important questions, as discussed further below. Those questions would remain to be addressed in subsequent individual trials whatever answer be given to the generic "toxic area" determination.

13. Plaintiff's proposed common issue of whether presence in a "toxic area" causes lymphoid cancer is not a properly posed scientific question and does not have a meaningful scientific answer.

Potential Exposures at CFB Gagetown Are Numerous and Heterogeneous

14. As I have discussed previously, in order to evaluate a question of general causation, both the chemical at issue and the nature and level of exposure must be specified, and any potential confounding factors should be addressed. The only "definition" of exposure in the Application for Certification describes exposures as being "at CFB Gagetown between 1956 and the present." This vague and overly broad definition cannot be translated into a meaningful scientific question or hypothesis regarding causation. Indeed, no meaningful conclusions regarding causation could be drawn without specifying the chemical in question as well as the nature and degree of exposure.

15. Being in a "toxic area" at CFB Gagetown does not identify or define an exposure, and the evaluation of general causality requires specific information regarding exposure. The affidavit of John Giesy includes discussion of the varieties of herbicides, application patterns, environmental fate characteristics, bioavailability, and other factors affecting the likelihood that exposure might result in an absorbed dose in an individual in these circumstances.

16. In the list of "common issues" in the Application, three specific chemicals are mentioned: 2,4-D, 2,4,5-T, and picloram. The Williams Statement of Claim lists at pages 2-5, hexachlorobenzene ("HCB") and dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) as contaminants allegedly present in some of those

herbicides, as well as additional herbicides allegedly used at CFB Gagetown. Exhibit 10 to the ring Affidavit also cites additional chemicals allegedly used at CFB Gagetown. Each of these chemicals has its own body of epidemiological literature, some of which are extensive. In order to address whether any of these chemicals caused a disease, the potential association between each of these chemicals and each specific disease of interest would need to be evaluated individually in a systematic, scientific manner.

17. Inherent in that process is the evaluation of potential confounding factors which might have distorted the observed exposure-disease association. A *confounder* is a factor that is associated both with the exposure and with the disease under study. For example, age would confound the observed association between lung cancer and smoking since age is associated with lung cancer (the incidence of disease increases with age) and age is associated with the cumulative number of cigarettes smoked (in general, the older you are the more cigarettes you have smoked). In order to determine whether the chemicals alleged caused the diseases alleged, potential confounding factors would need to be investigated.

18. Information on other potential causes of the diseases, including possible exposure to other chemicals, both herbicides and non-herbicides, at CFB Gagetown and elsewhere, would need to be collected, and the potential association between each and the individual diseases of interest would need to be evaluated in a systematic, scientific manner. For example, there is documentation of contamination of various areas of CFB Gagetown with a wide range of residues of munitions, some at levels said to be of concern, and of controlled burns at CFB Gagetown, in areas that included not only brush and scrub, but also unexploded artillery, a process which could generate potentially toxic chemicals.

19. Determination of individual causation would also require an assessment of individual medical, family, and occupational history, and other data, such as use of tobacco, as to other potential causes of a disease.

20. In summary, a determination of whether any of this diverse group of chemicals and other potential confounding factors are scientifically established causes of disease is specific to each particular disease, exposure, chemical and factor. It cannot properly be addressed as a common question which could result in a common answer for all persons present at CFB Gagetown at any given time over the past fifty years.

The Diseases Claimed Are Heterogeneous With Respect To Cause

21. An evaluation of general causation also requires that a disease be identified and specified. Plaintiff proposes a common issue relating to causation

of "malignant lymphomas" or the following diseases, "Non-Hodgkin's Lymphoma, Chronic Lymphocytic Leukemia (CLL), Soft-Tissue Sarcoma, and Or Hodgkin's Disease." (Application for Certification, p.2) Presumably the "malignant lymphomas" include Hodgkin lymphoma and non-Hodgkin lymphoma (NHL, which includes CLL as one of its types).

22. As discussed in the affidavit being submitted by Dr. Peter Wiernik, lymphoma, non-Hodgkin lymphoma, and Hodgkin lymphoma each collectively designate groups of numerous distinct diseases that have been associated with different risk factors as well as different patterns of distribution according to age, race and sex, and over time. The Williams Statement of Claim at pages 3-4 identifies additional groups of diseases that are even more heterogeneous.

23. NHL in particular includes an exceptionally heterogeneous group of diseases. Population patterns and distribution of NHL types according to age, race and sex, and current epidemiologic studies of etiology indicate that established causal factors and risk factors vary among the numerous types of NHL. Some specific examples are discussed in the Wiernik affidavit. The recognition of the heterogeneity of the lymphomas grouped together as NHL is relatively recent, as larger epidemiological studies with sufficient statistical power to analyze disease rates for the various types of NHL (rather than for all types of NHL collectively) have documented clear differences. Thus, a leading cancer epidemiology text recently concluded that future epidemiological research should utilize studies sufficient to identify differences among the various types of NHL. (Melbye and Trichopolous 2002, p. 550). Similarly, another recent cancer epidemiology text concluded, "There is good reason to believe that distinguishing among the lymphomas will reveal etiology by histologic subtype" (Hartge et al. 2006, p. 911).

24. The application leaves open the possibility that additional diseases, not necessarily limited to cancer, may be included. For example, the Statement of Claim submitted by Mary Williams (June 23, 2006) lists a number of health conditions in the plaintiff and members of her family, including Type-2 diabetes, inactive thyroid gland, arthritis, gout, reproductive issues, seizures, brain tumor, and ovarian cancer (pp. 9-10). To the extent that any of these conditions are eventually included in the class definition, they would make the identification of any common medical or scientific question even more problematic.

25. Scientific determination of plaintiff's claims of causation will require detailed analyses of the available data for a specific disease and its possible association with a particular exposure to a specific herbicide or chemical. Potential confounding factor(s) must be addressed as well. The plaintiff's "toxic areas" proposal ignores the differences among the various lymphomas, wrongly suggesting that a single common answer can be given as to causation regardless of

the differences in specific chemical-exposure-disease relationships. Extending the inquiry beyond lymphomas to the wide range of other diseases alleged in some court filings would only exacerbate the problem as the medical, scientific and epidemiological literature for these various distinct diseases precludes a common answer to the proposed common questions.

26. Given the diversity of the potential class, the variation in exposure and circumstances over decades, and the numerous chemicals and diverse diseases at issue, in my opinion there is no medical or scientific issue with respect to causation that could usefully be answered for all chemicals and diseases in a common issues trial.