

 **uranium Mining**
is NOT in the
PUBLIC INTEREST

3131

Report
to
Royal Commission of Inquiry into Uranium Mining

by
Canadian Coalition for
Nuclear Responsibility
Box 1093, Kelowna, B.C. V1Y 7P8

STORAGE:
CANADIAN COALITION FOR NUCLEAR
RESPONSIBILITY.
Uranium mining is not in the
public interest. ...RN3131

Prepared by: John Moelaert

URANIUM MINING IS NOT IN THE PUBLIC INTEREST

Prepared for
Royal Commission of Inquiry
Health and Environmental Protection
Uranium Mining

by
John Moelaert
on behalf of
Canadian Coalition for
Nuclear Responsibility
(Kelowna branch)
P.O. Box 1093 Kelowna,
British Columbia Canada
V1Y 7P8

March 25, 1980

Copies of this report are available at \$5.00 each. Send your order and payment to CCNR(Kelowna) at above address.

Update:

On February 27, 1980, Premier Bill Bennett announced a seven-year moratorium on uranium exploration and mining in British Columbia. He also terminated the B.C. Royal Commission of Inquiry into Uranium Mining—about a year ahead of schedule.

The announcement was made only two days before a major anti-uranium rally was to have been held in conjunction with the official opening of the B.C. Legislature (See page 69)

The premier said people's concern about the radioactive contamination of their environment as a result of uranium exploration and mining was a major reason for his decision.

The Kelowna CCNR sees the B.C. Government's reversal on uranium as evidence that public opinion CAN be a major factor in the formulation of government policy. We urge the B.C. Government to conduct a major study on the effects of uranium and its daughter products on human health.

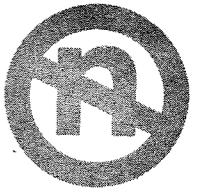
We hope this report will contribute to the understanding of nuclear politics and will serve as a source of encouragement for those engaged elsewhere in the fight for a non-nuclear future.

The members of the Kelowna CCNR feel privileged to be part of the grassroots movement that has succeeded in keeping uranium mines out of B.C. at least until 1987.

We dedicate this report to the people who at great personal sacrifice obtained and shared information that government and industry refused to voluntarily release to the public.



Canadian Coalition for Nuclear Responsibility



BOX 1093, KELOWNA, B.C., CANADA V1Y 7P8

1980 03 25

Royal Commission of Inquiry
Health and Environmental Protection
Uranium Mining
3724 West Broadway
Vancouver, B.C.
V6R 2C1

URANIUM INQUIRY REPORT

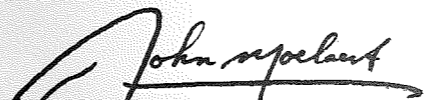
This is our report for the Community Hearings Phase of the Royal Commission into uranium mining. This phase was originally scheduled for April-May of this year, but has subsequently been re-scheduled for the fall.

We have decided to adhere to the original deadline — rather than the revised one — for two reasons. One is our hope that the report will receive greater distribution and thus more consideration than would be the case in the fall. The other is the lack of funds to cover the additional six months. Nevertheless we intend to monitor the balance of the technical hearings, primarily by relying on the transcripts and associated evidence. When the commission returns to Kelowna, we hope to give an oral update of this report.

We appreciate having had the opportunity to prepare this report. We recognize, however, that the report is not as long nor as detailed as its subject deserves. Grossly inadequate funding and serious difficulties in obtaining information from government and industry made that impossible.

We are grateful to many people for providing us with valuable information on the basis of which we have prepared this report. We are particularly grateful to Peter Chataway, Craig Paterson, Judy Smith and Ralph Torrie who on our behalf asked questions and expressed our concerns at the inquiry's technical hearings. We also wish to express our appreciation to the commission members and staff for their courtesy and the information they provided to us during the past year.

This report has been prepared and is submitted in the hope that the present moratorium on uranium mining in B.C. will be extended until such time that this mineral can be mined safely and for the benefit of all people.


JOHN MOELAERT - CHAIRMAN

"Better active today than radioactive tomorrow"

ABBREVIATIONS:

AECB	Atomic Energy Control Board
AECL	Atomic Energy Canada Limited
CCNR	Canadian Coalition for Nuclear Responsibility
EPA	Environmental Protection Agency (U.S.)
ICRP	International Commission on Radiological Protection
ITV/P	Inquiry Transcript Volume Page
KNSG	Kootenay Nuclear Study Group
RCUM	Royal Commission - Uranium Mining
mREM	milli REM: one thousandth of a REM
REM	Roentgen Equivalent Man: unit of absorbed dose of ionizing radiation in biological matter
RPS	Radiation Protection Service, B.C. Ministry of Health
UID	Uranium Inquiry Digest

CONTENTS

	<u>Page</u>
Letter of Transmittal	ii
ABBREVIATIONS	iii
INTRODUCTION	1
HISTORY OF INVOLVEMENT	1
Terms of Reference and Choice of Commissioners.	3
Participant Funding	4
Restricted Access to Relevant Information	5
ETHICAL CONSIDERATIONS.....	14
Key Questions.....	14
Nuclear Power and Nuclear Arms	16
Government Involvement	17
Uranium Exploration	18
Questions and Answers in Summary	21
ENVIRONMENTAL RISKS	22
Immediate Effects	23
Long-Term Risks	23
Radium-226	24
Radon-222	25
Tailings Management	26
Water Sources and Uses	28
HEALTH HAZARDS	31
ECONOMICS	35
SUMMARY	38
References	41
Appendix	42

INTRODUCTION

This report is the end result of our application for participant funding dated April 26, 1979 (Appendix P 43-44).

Our proposal for participation was approved by the commission on May 8, 1979, but the requested sum of \$19,000 was reduced to \$7,000, most of which was not paid to us until September 6, 1979, less than three weeks prior to the opening of the formal technical hearings in Vancouver.

This report is divided into five major areas:

- I History of involvement of the Kelowna branch of the CCNR in the uranium mining issue;
- II Ethical considerations regarding the mining and uses of uranium;
- III Environmental risks posed by uranium mining;
- IV Health hazards of uranium mining;
- V Economics of uranium mining

I. HISTORY OF INVOLVEMENT

The Kelowna Branch of the Canadian Coalition for Nuclear Responsibility was formed in November 1977 for the express purpose of informing the public about the hazards of uranium exploration, mining and milling, as well as the dangers involved in its utilization.

Our participation in the uranium inquiry was justified primarily on the basis of the educational value such involvement would produce for ourselves, our members, the public, and we hope, members of the Royal Commission into Uranium Mining.

Members of the Kelowna CCNR have spent literally thousands of hours studying books, reports, articles, statements of evidence prepared for the commission, inquiry transcripts, films, video tapes and slides on the subject of uranium mining and its uses. In addition we have listened to a wide variety of speakers, visited and investigated uranium exploration sites, and attended numerous meetings which dealt with the subject of uranium.

In the process we have exposed ourselves to a wealth of information, learned many things we did not know before and discovered that some of the information we had was correct and some was not. We have adjusted our views as a result.

The information examined was broad in scope and specific in detail, often contradictory, always containing some bias. We have endeavored to evaluate all of it objectively and examined our own views in the light of this information. Nevertheless, we have not found any evidence that our opposition to the mining and primary uses of uranium is not justified. Indeed, we are more convinced than ever as a result of our research that our position on this issue is not only justified, but thoroughly substantiated by the facts as presented by both proponents and opponents on this subject.

In order to place the information of this report in context, it is essential to point out that the extent of our own research and the detail of this report were severely limited by several factors:

Terms of Reference and Choice of Commissioners

In our view the commission's terms of reference as formulated by the provincial government, prevented it from addressing the most important question on this subject i.e. Is uranium mining in the public interest? The B.C. government, in charging the commission "to make recommendations for setting and maintaining standards for worker and public safety and for the protection of the environment as a result of the exploration for the mining and milling of uranium ores" in our view clearly exposes its bias in favor of uranium mining. The terms of reference clearly presuppose that uranium mining will be allowed by the B.C. government to go ahead in this province. The terms of reference do not allow an in-depth consideration of the cost-benefit aspects of uranium mining, nor, indeed, meaningful ethical considerations. At least not to the extent where such considerations would permit the commission to recommend against uranium mining.

Furthermore, the terms of reference clearly imply that uranium poses strictly scientific problems that can only be scientifically solved. This, in our view, represents a dangerously narrow view of the situation. The B.C. Government's narrow perspective is further indicated by its choice of commissioners. It is our view that it is not in the public interest to limit the choice of commissioners to people whose training and experience lie primarily in the field of science; nor do we see any justification for limiting the choice of commissioners to men only. The B.C. Government's obvious biases in these areas render a comprehensive inquiry, in the full meaning of the word, impossible. It is our view that the B.C. government, by deliberately limiting the scope of this inquiry, is more interested in serving the interests of the mining industry than those of the public.

It is important to note that the Kelowna CCNR was one of 21 organizations which in November 1978 produced a position paper for the B.C. government. The purpose of the paper was to help the government in formulating meaningful terms of reference and arrive at a choice of commissioners not as limited as the one it made. For the record, the B.C. Government for seven weeks completely ignored our request for discussing our position paper, and finally limited its response to a mere acknowledgment of receipt. In retrospect, it was the first indication that the government's public inquiry was to proceed with rules formulated without public input. The Public Interest Groups Position Paper on B.C. Uranium Inquiry appears in the Appendix P 45-48.

Participant Funding

On January 16, 1979, members of the Kelowna CCNR met with Jim Hewitt, then Mines Minister, in Beaverdell. At that time Hewitt told us that no funding for public interest groups would be made available. Two days later, on January 18, the government announced that \$50,000 would be made available for public interest groups to participate in the inquiry. That figure was subsequently increased to \$75,000 and in June of 1979 it was increased at the recommendation of the commissioners to a total of \$225,000. While it is obviously gratifying that the government did change its position on this matter in favor of public participation, it is regrettable and in our view counter-productive to the inquiry process, that so many delays in decision making on this subject took place. Worse, the Kelowna CCNR's requested grant was slashed from \$19,000 to \$7,000, most of which didn't reach our group until September 6, 1979, less than three weeks before the commencement of the technical hearings in Vancouver.

This uncertain, inadequate and delayed funding procedure appears to be aimed at limiting public interest groups' participation as much as possible, while creating the illusion that both sides on the uranium mining issue participate as equals in the inquiry process. The reality is that the proponents of uranium mining, both in government and in industry, have spent literally millions of dollars in order to present their case, while public interest groups by comparison have been able to spend very little.

Restricted Access to Relevant Information

The problem of obtaining sensitive information from government and industry is well-known among public interest groups. But in the case of uranium - related information it has proven far worse than originally anticipated by the Kelowna CCNR. We first brought this communication problem to the attention of the commission on March 6, 1979, during its inaugural meeting in Vancouver.

On September 17, 1979, when the commission's interim report on uranium exploration was released to the public, we were pleased this problem was recognized in paragraph 13 and 14. Paragraph 14 states in part "it is clear that an improvement of this aspect of the present situation should be a priority". Unfortunately the commissioners did not provide instructions as to how this objective could best be achieved.

We regret that no improvement in this process of obtaining relevant information from government and industry has been noted since the aforementioned recommendations were made. We have experienced particular difficulty obtaining information from B.C. government sources.

Some examples: Between June 14, 1979 and November 21, 1979, we exchanged a total of eight letters with Wayne Green, head of the Radiation Protection Service, Ministry of Health. This exchange concerned primarily radon and radium levels in the Columbia valley which had been studied by the RPS. Specifically, we asked if residents, in whose homes excessively high levels of radon had been found, were informed by health officials of what those levels were and what health risks they posed. And if not, why not?

When the question was not answered, we repeated it in a letter dated August 28, 1979, and were subsequently informed by Wayne Greene that this information was contained in a brief submitted to the Royal Commission during Phase 1. No title was given. However, since we could find only one RPS submission during the Overview phase, we read it, but still could not find the information we had requested. On November 1, 1979, we wrote Wayne Green again, repeating the question. A letter dated November 21, 1979, by Greene stated in part "I do not wish to become involved in a 'hearsay discussion' of what was or was not told to the residents of the Columbia valley." Greene then suggested we speak to him at the hearings to "reduce time and effort in communications." We can only deduce that like so many others in government and industry, Greene does not want to put answers to possibly controversial questions in writing.

We have had many similar experiences and are convinced that the public is kept deliberately in the dark by government and industry when it comes to information that proves that public health is endangered. We pursued the above question, because Kelowna CCNR Chairman, John Moelaert, personally had been told by a resident of the Castlegar area that his home had been tested for radon and that the results had been kept secret from him. How can people have faith in politicians and civil servants who treat them in such a contemptuous way?

We have also asked Greene and others how much (or how little) money has been spent by the B.C. Government on studying the health and environmental impact of uranium exploration and mining. We want this information to compare it with the millions of tax dollars that have been spent on geological surveys that have pinpointed uranium deposits in this province: another government gift to the already oversubsidized nuclear industry. Despite months of efforts we have been unable to obtain this information and can only assume the government is not very proud of whatever the sum is. In final desperation we wrote Premier Bill Bennett for this information. Our inquiry then found its way to former Mines Minister Jim Hewitt, the present Mines Minister Bob McClelland and present Minister of Health Rafe Mair. As this is being written 3½ months have passed. We have received several letters, but our simple question remains unanswered to date.

There is an interesting footnote to the correspondence with Wayne Greene. On May 17, 1979, John Moelaert wrote Bob McClelland, the then Minister of Health asking for radon levels as determined in a study by his ministry during the summer of 1978. (Appendix P 49). McClelland wrote that "the results measured in specific homes are not available," but that results of water tested for radium content "from locations within the public domain can be obtained from the Radiation Protection Service or from the local Medical Health Officer." (Appendix P 50) McClelland did not write why the results were not available.

The reader already knows the radon readings were never received by us. As for the radium results, David Clarke, Medical Director of the South Okanagan Health Unit, stated that he had been instructed by Wayne Greene not to make the data public! (Appendix P 51-52). The results were, however, leaked to us and on May 31, 1979 we released them during a news conference in Kelowna. The results showed excessively high readings for samples taken near Summerland.

It is our position that all data relevant to public health and safety obtained by government at taxpayers expense should be made available to the public without omissions and without delay. The fact that this is often not done proves our point that politicians and civil servants often deliberately keep the public in the dark in areas such as health hazards where instead they should provide all available information.

On the federal level communication is no better. Particularly notorious for its secrecy is the AECB. One example: We asked if a certain company was required to file a certain report with the AECB. We were told it was. We then asked for a copy of the report and were told "we can't comment on that." Since that did not tell us too much we asked if that report had, in fact, been filed with the AECB in accordance with this federal agency's own regulations. The answer? "We can't respond." (Appendix P 53). And so it goes — on and on. AECB is, of course, the federal agency that is supposed to control the nuclear industry and protect the public's interest. Can anyone seriously believe it is doing either?

We have had similar "communication problems" with the uranium mining industry. Norcen Energy Resources Limited, which heads a consortium of mining interests in the exploration and proposed mining of the Blizzard Claim near Beaverdell, was especially uncooperative in providing information to us. To illustrate our experience with Norcen, the following examples may suffice:

On September 27, 1978, John Moelaert, Chairman of the Kelowna CCNR, requested a copy of the report Norcen was required to file with the AECB under the terms of its surface exploration permit. This information included steps taken by Norcen to protect the health and safety of its employees and the public in connection with its uranium exploration work.

The request was directed by Moelaert to Don Sawyer, Manager Mineral Exploration for Norcen and Ken Wadsworth, Director of Corporate Affairs for Norcen. Both assured him that the report would be sent to him shortly.

Despite several repeated requests the report was not received by the Kelowna CCNR and on April 10, 1979, Moelaert requested the inquiry's assistance in obtaining a copy of this report. When no response was received from the commission a month later, another letter dated May 17, 1979, was sent.

On May 25, 1979, a letter was received from the commission in which D.M.M. Goldie, counsel for Norcen, was quoted as having informed the commission that "the information guide which Moelaert refers to in paragraph 2 of his letter was revised in 1978 and the first report on the revised guide is due by June 30, 1979. Prior guides did not contain the provision to which Moelaert refers, namely: health and safety information."

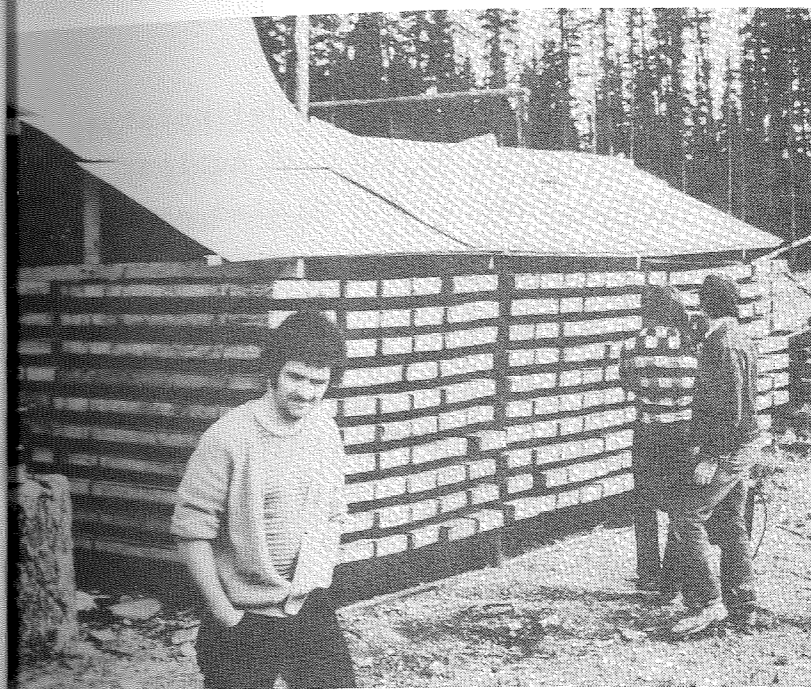
On May 30, 1979, Moelaert spoke to Sharon Blackman, AECB. Blackman informed him that the "health and safety information" section of the AECB's surface exploration permit information guide was in effect during all of 1978. She also contradicted Goldie's claim that the surface exploration permit requirements were revised during 1978. It is also interesting to note, at this point, that in the same letter from Goldie it was stated that another document requested, namely the baseline study conducted by Envirocon Limited could not be provided at that time (May 1979) because it "will not be completed until the late summer of 1979." When a copy of the Envirocon report was finally provided to us by the Royal Commission, we noted with interest a letter from Envirocon forming part of the report, which stated clearly that the report was submitted to Norcen on November 24, 1978, six months prior to Goldie's letter denying its existence.

The AECB report was sent to us by the law firm of Russell and DuMoulin by C.B. Johnson on behalf of Norcen. This report was accompanied by a cover letter dated July 16, 1979. We received the report a few days later — nearly 10 months after our initial request! The one-page report, which was undated, contained information, part of which was at variance with what members of the Kelowna CCNR had observed during their visits to the Blizzard exploration site. Specifically, this report (Appendix P 54) states in paragraph 3 that the uranium core samples were "stored at one location at least 100 meters from the camp living accommodation." Photographs taken at the time indicate the proximity of the core samples shed was considerably closer than 100 meters to the camp. (See P 11). Furthermore in paragraph 4 of the aforementioned report it states "All camp employees were issued with dosimeter badges in September 1978, which were worn by employees while on the Blizzard project site." While members of the Kelowna CCNR visited the Blizzard site on several occasions during the aforementioned period, they did not see any employee wearing the said dosimeter badges. Again photographs taken at that time verify this point. (See P 11)

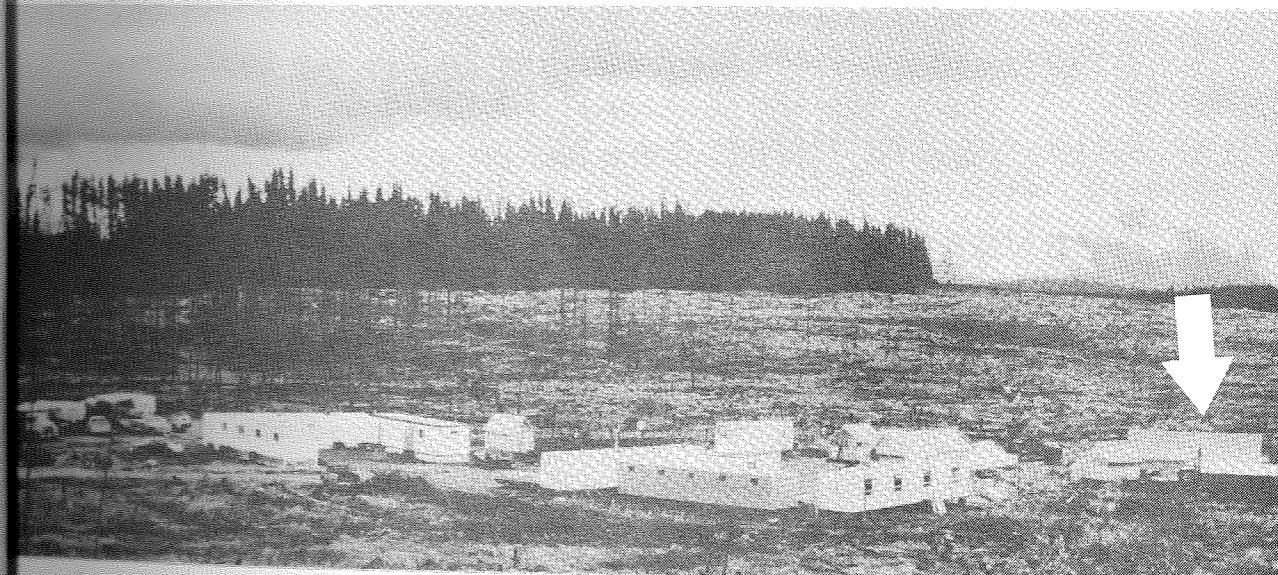
It is interesting to note also, that Norcen, at least in its initial dealings with the people in the Beaverdell and Kelowna areas boasted of its "open communication policy."

Copies of the letters written and received concerning this information problem appear in the Appendix P 55-66.

Many more examples could be cited to illustrate our difficulties in obtaining information from provincial, federal government departments and the nuclear industry. We trust, however, that the foregoing amply proves our point.



Contrary to Norcen's report to the AECB, employees at the Blizzard claim did not wear dosimeter badges. Top photo shows Project Supervisor, Terry Turner, in front of radioactive core samples. Right photo shows driller.



Radioactive core samples were stored late 1978 in flimsy shed shown in top photo. The proximity of shed (extreme right) to the camp. Norcen's report to the AECB stated shed was "at least 100 metres from the camp living accommodation." Photo clearly shows shed to be much closer than 100 metres from the camp. TV crew was offered coffee and cookies on table shared by radioactive core samples! There were no signs near core sample shed warning people that stored material was radioactive. When questioned about this Project Supervisor, Terry Turner, said there is no danger "if you stand back far enough." He did not say how far back a person had to stand back to avoid radiation exposure. (All photos by John Moelaert)

We are concerned not only about the nuclear industry deliberately keeping the public in the dark about the hazards of nuclear power, of which uranium mining is the front end, but also about the industry's own lack of knowledge in some crucial areas. Evidence of such scientific groping in the dark was presented by one of the commissioners of Australia's Ranger Commission which probed the pros and cons of uranium mining in that country. C.B. Kerr, a professor of preventative and social medicine at the University of Sidney, testified at the RCUM technical hearings (IT V 53/P 9344): "I have always regarded the International Commission on Radiological Protection purely as an administrative device to give some sort of respectability to standards — because of the lack of biological bases on which these standards are made. The numbers I think are totally arbitrary, we haven't a clue about the situation...."

It is because of evidence like this that the Kelowna CCNR sees all such so-called safety standards, including those to be formulated by the RCUM, as a callous form of gambling with people's lives.

Uranium mining experience shows that the most serious health and environmental problems often don't manifest themselves until 10 - 20 years after such mining starts. Indeed, the impact of such problems is frequently not fully understood until after a uranium mine has ceased operating. Invariably in such cases the cost in terms of human suffering and straight dollars and cents is borne — not by the companies that produced the problems — but by the public. Increased health care and long-term management of the radioactive tailings are always at taxpayers' expense.

The nuclear industry and the government regulatory agencies that are supposed to control it, not only keep the public in the dark about radiation hazards, but also deliberately mislead the public about nuclear risks by using a wide range of euphemisms. For their efforts to make bad things sound harmless, the industry was awarded the 1979 Doublespeak Award by the National Council of Teachers of English. Examples:

NUCLEAR JARGON:

WHAT IT MEANS:

Biological Changes*	Cancer
Infiltration	Radioactive Contamination
Excursion	Nuclear Reactor Accident
Device	Nuclear Bomb
Significant Events	Radioactive Leaks
Pressure increased monotonically without suppression	Reactor Explosion
Rapid Oxidation	Fire
100 per cent of subject biota exhibited mortality response	All the Fish Died
MAD (Mutual Assured Destruction)	Nuclear War
MUF (Material Unaccounted For)	e.g. Missing Plutonium

Another common acronym is ALARA, which stands for As Low As Reasonably Achievable. What is meant is what is reasonable in an economic sense to the industry — NOT what would be reasonable to a potential victim.

* From the Pamphlet "Questions and Answers About Uranium Mining in B.C. published by Mining Association of B.C. and B.C. and Yukon Chamber of Mines.

II. ETHICAL CONSIDERATIONS

It is the position of the Kelowna CCNR that the ethics involved in the mining and uses of uranium form the basis on which all issues technical and otherwise should be examined. Since even the mining industry itself recognizes that risks are involved in the mining and uses of uranium, it is clear that in order to determine whether or not those risks can be justified, we can do so only in a meaningful sense on the basis of value judgments that have evolved over many centuries.

For example, the question whether it is justified to mine and use uranium today, and thereby jeopardize the health of those working and living close to the mining and utilization areas of uranium, cannot be adequately answered on the basis of technical and scientific data alone. It must be dealt with first and foremost on the basis of human values.

In order to do this we have to have answers to the following questions:

Key Questions

Who benefits, who risks, who pays, who decides, and who assumes the responsibility?

In our view it is the corporations involved in the extraction and utilization of uranium who are the sole major beneficiaries of the process. We recognize that through royalties and taxes money will reach government coffers, but it is our position that when the long-range environmental, health, and social consequences are translated into dollars and cents, the government and hence the people of B.C. will not benefit monetarily from uranium mining.

As representatives of Norcen admitted under oath during their testimony at the Kelowna community hearings in June of 1979, as matters now stand the health and environmental costs, which will become increasingly evident after the mining companies have left the areas proposed for uranium extraction, will have to be borne by the public. (IT V3/P 141-144)

We are deeply concerned that the ethical considerations, which in our view supersede all other considerations in terms of importance, have received only marginal attention during the inquiry process. We are furthermore disturbed by indications that the ethical aspects of mining and uses of uranium will play a very minor role (if any role at all) in the formulation of the commission's final report.

It is alarmingly clear that the inquiry commissioners seek answers in the realm of science rather than ethics. Of nearly 10 months of technical hearings only four days have been set aside to consider the ethical aspects of uranium mining. We consider the commission's decision to allow so little time for ethical considerations sheer and, indeed, patronizing tokenism. While the decision is a profound disappointment to us, we are not surprised that the hearings have been structured so lopsidedly in favor of scientific data. After all, the commission is made up of a physiologist, a geologist and an engineer. As the Kelowna Conference position paper (P. . . .) points out, the issues in uranium mining go far beyond the realm of science and should therefore have been addressed by a commission not made up exclusively of people trained in science.

Discussions with technical advisers to the RCUM have convinced CCNR members of a strong pro-uranium bias among the advisers. While we have not spoken with all of them, it is significant to note that of those we asked not one expressed opposition to uranium mining. We believe such a one-sided bias makes objective recommendations very difficult, if not indeed impossible.

When scientific data are interpreted, as generally they must be, opinions inevitably contain personal biases.

It may be argued that people who would be involved in the further exploration, mining and milling of uranium take the risks associated with these activities voluntarily. Experience, however, shows that mine employees are generally very inadequately informed on the risks they face in their work. In addition, regulations covering their activities are generally inadequate and often not enforced. But an even greater dilemma exists for the public which is placed in a hazardous situation by decision-making executives in government and industry who are generally far removed from the risk areas. It is clear to us that the decisions on the mining and uses of uranium should not be made by those who stand to gain benefits from this process, but rather by those who will directly face the risks.

Since the potential hazards of uranium mining and its uses in nuclear power and nuclear arms will last for many thousands of years, who in our society has the right to decide on the question of placing countless generations in radioactive jeopardy?

Nuclear Power and Nuclear Arms

While we recognize that the scope of this report does not permit us to adequately deal with all the ramifications of nuclear power plants and nuclear arms, we must point out that the mining of uranium cannot be adequately examined in isolation, but must be seen in the broader context of its applications. We must recognize that for the first time in the history of the human race, the possibility of global genocide exists. Nothing threatens our world with greater potential devastation than nuclear arms.

There are no foolproof safeguards to prevent B.C. uranium from being used in the manufacture of nuclear weapons should the mining of uranium be permitted.

The generation of electricity by nuclear means at the present stage of technology is irresponsible in the extreme in our view. While we do not wish to enumerate all of our objections to nuclear fission reactors, we must point out the two major flaws in nuclear power technology. First, the technology to manage the nuclear power plants' high-level radioactive wastes safely and for the long periods required, simply does not exist at present. Furthermore, the problem of safely and effectively decommissioning nuclear power plants also remains unsolved.

It is our position, therefore, that it is unjustifiable and unethical to continue with high-risk nuclear power in order to generate a fraction of the electricity wasted every day in this country. It is well-known that Canadians waste between 30 and 40 percent of all energy used, while of the total energy produced in Canada less than 4 percent is produced by nuclear means. Furthermore, electricity represents only 14 percent of all energy used in Canada.

Government Involvement

The Canadian government's heavy involvement in the nuclear industry has grossly distorted its capacity to justly deal with nuclear issues. This is relevant since Canada's involvement in the international uranium cartel, which artificially raised the price of uranium from \$4 a pound in 1971 to about \$50 or more per pound in 1979, is responsible for the present interest of mining companies in the low-grade uranium thus far found in B.C.

We caution the readers of this report against the assumption that we are opposed to mining in general. This is definitely not the case. What sets uranium apart from the mining of any other mineral is that the mining waste material (tailings) remains a serious hazard to the environment as well as various forms of life to a degree and for a period of time far greater than the tailings of any other mining operation that does not involve radioactive material.

Uranium Exploration

The lack of ethics surrounding the uranium issue manifests itself in many ways, but perhaps nowhere more clearly than in the question of uranium exploration which the Royal Commission in its interim report described as potentially hazardous and governed by inadequate regulations. Yet, in spite of this the commission failed to recommend, and the B.C. government failed to order, a moratorium on uranium exploration which should have been placed into effect on September 27, 1978, when the inquiry was first announced. By the end of 1979 more than one million acres in B.C. had been staked for uranium (KNSG newsletter, December 1979). The refusal of the B.C. government to order a moratorium on uranium exploration is clear evidence to us that it is predisposed to allowing the mining of uranium to proceed in British Columbia as soon as the commission has filed its final report. The government's claim that it has not yet decided whether to allow uranium mining in B.C. is rendered ridiculous by its refusal to call a halt to the exploration for uranium until that decision has been made public.

Uranium mining representatives have repeatedly stated before the RCUM that they do not know whether they will be allowed to mine uranium in B.C.

The veracity of that statement is challenged by the millions of dollars uranium interests have spent, not only on exploration, but even on engineering studies and development plans. Their confidence of getting the green light from government, despite their protestations that they have received no government assurances in this regard, perhaps showed nowhere more clearly than on November 23, 1979, when it was revealed in the Toronto Globe and Mail that Norcen Energy Resources and their joint venture partners had signed a contract with the Korea Electric Company for seven million pounds of B.C. uranium, i.e. the Blizzard Claim uranium near Beaverdell. For the companies to offer to sell uranium they don't even own yet shows blatant contempt for the rights and wishes of the people of British Columbia and the Royal Commission of Inquiry into Uranium Mining. Government claims that it has not yet decided whether uranium mining will be allowed in B.C. stretch our credulity to the breaking point in view of the fact that Premier Bill Bennett has been quoted by the press that he is favorably disposed to selling B.C. uranium abroad. Our suspicion in this regard is reinforced by the fact that the government has allowed uranium exploration to continue in this province in the absence of health and safety standards which the commission still has to formulate.

The B.C. cabinet for sometime has suffered from the musical chairs syndrome: the faces are the same, but the labels keep changing. In the space of only about a year we have had three Environment Ministers and three Mines Ministers! These cosmetic cabinet changes give new appearances to old problems and as a result the government's position on certain crucial issues is difficult to determine. For example, on April 28, 1979, Rafe Mair, then Environment Minister, said at a news conference in Kelowna that uranium exploration undermines the purpose of the Royal Commission into Uranium Mining.

When asked when the cabinet would make a decision on whether to halt any further exploration, Mair said the decision was "imminent." He explained that by imminent he meant "in a matter of days"! All of this was said 12 days before the provincial election. After the election a Canadian Press wire story quoted Mair as saying that "no action will be taken" until the end of August. That's imminent? As it turned out the present government failed to order a halt to uranium exploration, despite Mair's earlier claim of being in favor of it.

Using B.C. Government figures, some \$2.5 million of public funds were spent on geological surveys in this province in search of uranium and 13 other elements. In other words a straight gift to the mining industry at the expense of Canadian taxpayers. This exploration work took place during the years 1976 to and including 1979. The program during 1976 and 1977 was a federal-provincial joint venture known as the Uranium Reconnaissance Program. Cost to taxpayers was nearly \$1.9 million of which the federal government contributed \$1.5 million. The Accelerated Geochemical Survey and the Regional Geochemical Survey took place in 1978 and 1979 respectively at a combined cost of \$603,000 (Source for all figures in this paragraph is the Overview Report prepared for RCUM by the Geological Division, Mineral Resources Branch, Ministry of Energy, Mines and Petroleum Resources, P 52).

It remains our hope that by participating in a province-wide public education program on this vital issue, we can mobilize sufficient public opinion against uranium mining that no politician can afford to ignore. In this way the public, rather than a few members of government, will decide whether or not uranium mining will be permitted in this province. This obviously is not the way the government has planned to deal with the issue, but it is the only proper way.

It is called democracy. We strongly believe that the well-being of the public is far more important than that of the nuclear industry. Anyone examining uranium mining objectively will be able to see that the benefits are few and of very short duration. Furthermore, these benefits are heavily outweighed by the risks faced by many people for a very long time. It is also our experience that those who have a vested interest in uranium mining have their views influenced, if not indeed shaped, by their sources of income. Hence, they favor uranium mining. Fortunately, the people of B.C. in general do not suffer this handicap. May they speak accordingly.

Questions and Answers in Summary

To recapitulate, we stated at the opening of this section that the key ethical questions in the uranium debate are: who benefits, who risks, who pays, who decides, and who assumes the responsibility? The answers, in our view, are these:

The only major beneficiaries — in a monetary sense — are those who have a financial interest in the nuclear industry, which, of course, includes the uranium mining companies. The health risks are faced primarily by those who work at or live near a uranium mine. It is the public at large which pays for the health and environmental consequences of uranium mining. It is the B.C. Government that has the power to decide whether uranium mining will be allowed in this province. But the decision should be made by the people who directly face the health and environmental risks. Anything less represents gross injustice and violates the essence of real democracy.

Finally, neither government nor industry assumes full responsibility for the adverse effects of the mining and uses of uranium.

It is even worse in Canada than in the U.S. where at least the possibility of class action suits exists. We are not aware of a single court case in Canada where a person has successfully sued either the government (provincial or federal) or the nuclear industry for liability for cancer or birth defects resulting from nuclear negligence.

III ENVIRONMENTAL RISKS

Evidence presented at the commission's community hearings and technical hearings makes it very clear that the environmental risks are both serious and real. These risks are magnified in the Kelowna area by two factors: proximity (in the case of the Hydraulic Lake deposits) and magnitude (in the case of the Blizzard deposits).

The Hydraulic Lake deposits are less than 10 air miles from Kelowna and in an area that is a major source of drinking and irrigation water for East Kelowna residents. Indeed, one would be hard pressed to find a location anywhere in B.C. where the environmental and health risks would be as severe to as many people as would be the case if uranium mining were allowed to proceed in this area. Proposed for this area is in situ leaching of the uranium rather than open pit excavation. The introduction of leaching materials would in our view inevitably lead to a change in the pH levels of both underground and surface water which could prove very destructive to aquatic life in ways similar to those experienced in Ontario's Serpent River system.¹

The extraction and processing of uranium ore in the Beaverdell area would pose environmental risks on a much larger scale. The effects of uranium mining in this area can be divided into immediate and long-term effects.

Immediate Effects

Excavation procedures involved in open pit mining would inevitably create dust conditions that will allow radioactive particles to enter into the atmosphere and be carried over considerable distances by prevailing winds. This problem would be worse if blasting were to be part of ore extraction. In addition, underground water routes would be changed and result in radioactive and other forms of contamination. The subsequent transportation and milling of the ore on site would further contribute to the creation of the aforementioned dust conditions.

Long-Term Risks

We have read much information on the subject of tailings management but not found any evidence of a single proven method that would prevent the escape of radioactive contaminants in these tailings from entering into the environment outside the mining site and subsequently into the food chain.

It is significant to know that even pro-nuclear interests recognize the seriousness of this problem. For example the U.S. Nuclear Regulatory Commission has stated "Uranium mining and milling are the most significant sources of radiation exposure to the public from the entire uranium fuel cycle — far surpassing nuclear reactors or high level radioactive waste disposal."

The fact that no safe uranium tailings management as yet exists is further underscored by the Atomic Energy Control Board which in licensing document No. 23D states: "it is recognized that present technology may not be adequate."²

Since various studies have shown that at least 85% of the ore's radioactivity remains behind in the tailings and that these tailings will remain unacceptably radioactive for a period of up to 800,000 years (on the basis of ten half lives for thorium-230) we are obviously dealing with a very serious problem.

The limited scope of this report does not allow us to go into detail about all the decay products of uranium. However, we wish to deal with two: radium-226 and radon-222.

Radium 226

With a half-life of 1,622 years radium-226 obviously has to be isolated from the environment for a very long period of time. Even if most of the radium present in tailings can be prevented from escape beyond the tailings area, the potential hazards remain very great since very small quantities can cause major problems. For example, one major study has shown that as little as one-millionth of a gram of radium can induce bone cancer in humans.³ The potential seriousness of this problem is perhaps best understood when we realize that the extraction of the estimated 12 million pounds of uranium in the Beaverdell area would produce in excess of 100,000 grams of radium.⁴

A further concern is the capacity of radium to work its way through the environment into the food chain both by air and more likely through water. A U.S. environmental protection agency study on the Animas River in Colorado, which passes old tailings ponds, shows radium levels 500 to 1,000 times higher in algae than in the river water itself. This upward concentration of radium levels is particularly dangerous since, like strontium-90, it combines with calcium in animals and people on an accumulative basis and so increases the risk of bone cancer and leukemia.

Radon-222

Radon has a half-life of 3.8 days, much shorter than radium of which it is the daughter product. While its half-life is short it must be remembered that it is continuously being replenished by the tailings' radium content. A particular concern is radon's daughters (polonium-218, lead-214, bismuth-214, and polonium-214) which over the years have been responsible for the many fatal lung cancers in uranium miners. The lung cancer rate observed among uranium miners between the period of 1955-72 is more than three times that of Ontario male residents during the same period of time.⁵

It is estimated that a 250-acre tailings pond will cause between 60 and 200 fatalities per century.⁶

The congressional seminar on low-level ionizing radiation held in May 1976 and reprinted by the Environmental Policy Institute (317 Pennsylvania Avenue, S.E. Washington, D.C. 20003) warns that the health effects from chronic low-level radioactive pollution from uranium tailings may be far worse than was previously thought. Despite its short half-life, radon has been known to travel distances of hundreds of kilometers at measurable concentrations.⁷

The significance of this is underscored by the fact that wind directions covering the Beaverdell area are predominantly moving toward the north and northwest, thus potentially affecting the Kelowna area with radioactive dust should uranium mining be permitted to proceed.⁸

Tailings Management

From all information we have studied on the subject on radon management it is clear that no technology presently exists to prevent the escape of significant quantities of radon into the environment. According to a Los Alamos Scientific Laboratories report,⁹ "research indicates that 12 feet of clay are required to reduce the radon exhalation rate by 99% and the remaining 1% is still four times the typical soil exhalation rate." A study by the Utah Department of Health shows that in order to reduce radon to background level, tailings must be covered by between 22 and 30 feet of soil or 8 feet of cement. Even these costly measures do not guarantee long-term protection.

It has been suggested in the Cluff Lake report that concrete vaults with asphalt roofs be used to store high-level radioactive tailings. While this may seem preferable to the method of tailings ponds, it must be understood that each vault will have a life expectancy considerably shorter than many of the radioactive contaminants it is expected to keep isolated from the environment. Radium alone requires to be isolated for at least 16,000 years on the basis of ten half-lives. It is unlikely that the aforementioned concrete vaults will remain completely intact for more than 100 years and thus the question arises, how will the contents of these vaults be transferred to new ones, time and time again, and who will pay for the bill? While we do not have the answer to the first question, we do know the answer to the second one: the taxpayers.

Another proposal for tailings management, discussed during the commissioners visit to the Norcen site June 4, 1979, is through lining the tailings pond areas with clay and submerge the tailings material by a layer of water. In retrospect it now seems incredible that this proposal was actually made since maintaining the minimum water level over the many centuries necessary practically invites environmental disaster.

As for traditional tailings pond management methods as practiced in Ontario and indeed at most uranium mining sites, scientific records describe many failures to contain these wastes within prescribed boundaries.

As recently as July 16, 1979, some 100 million gallons of radioactive tailings spilled through a ruptured dam at the United Nuclear-Homestake Uranium mill site near Grants, New Mexico. Some 250 acres of land and 75 miles of the Rio Puerco River are contaminated for an undetermined length of time. According to William Paul Robinson, an environmental analyst from New Mexico who testified before the RCUM, this dam was licensed in 1977 and was of the same type proposed by Norcen for the Blizzard property. Robinson added that groundwater was contaminated to depths of 30 feet, at least 15 miles downstream. Robinson told the commission that United Nuclear has managed to clean up only about one per cent of the volume of the spill using men with hand shovels and 55-gallon drums. Other evidence presented early at the inquiry by B.C. Ministry of Mines officials shows that tailings dams have a far higher failure rate than water storage dams.

The report of the Royal Commission on Electric Power Planning in Ontario, chaired by Arthur Porter, and released September 12, 1978, reminds us that "uranium mill tailings will constitute an increasing health and environmental problem." The report further recommends that an independent review committee be established to monitor progress on waste disposal techniques. The measure of importance the report attaches to this problem is clearly illustrated by the following statement: "If the committee is not satisfied with progress by 1985, a moratorium on additional nuclear power stations would be justified."

Larry Henry, PhD experimental physics, is manager of waste management with AECL.

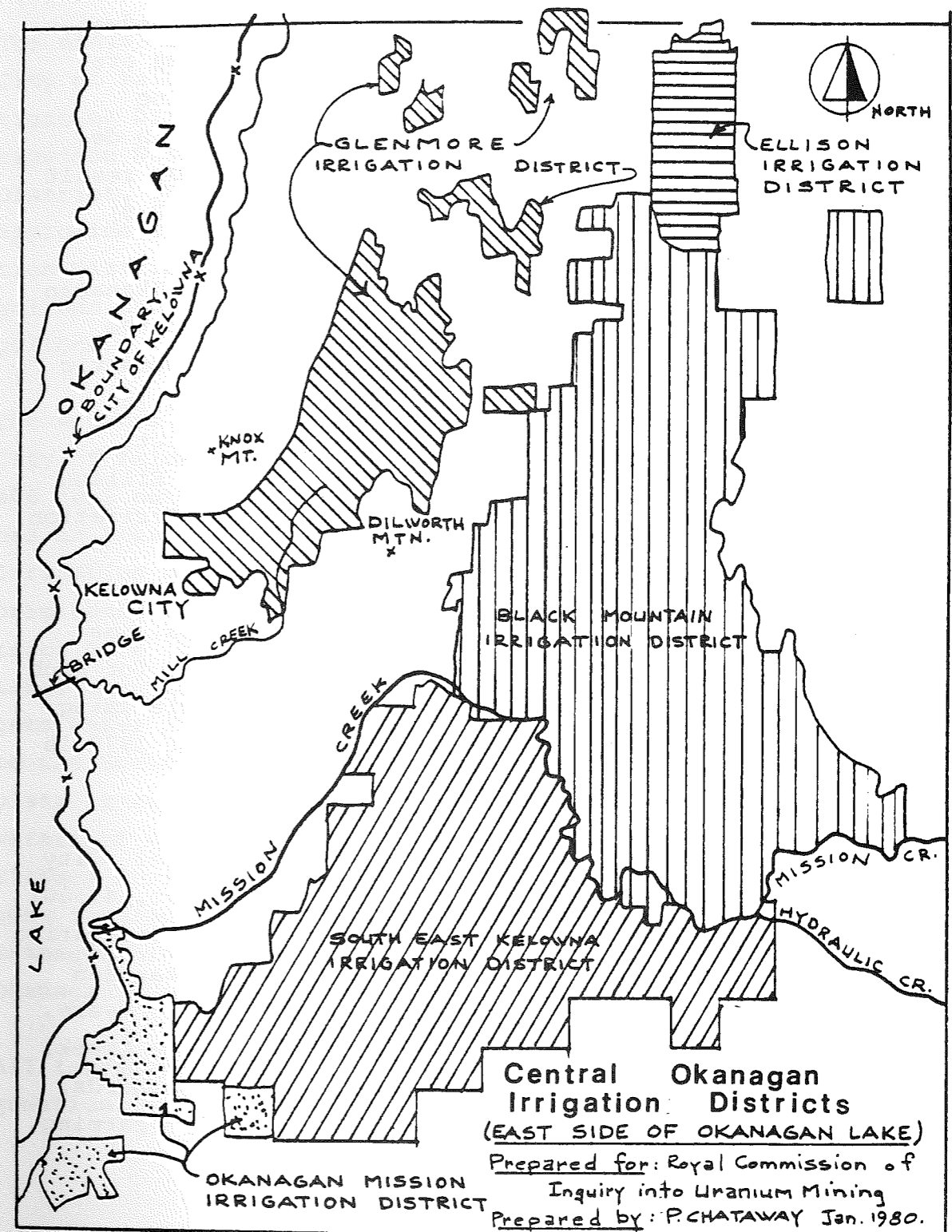
Henry testified at the waste management phase of the RCUM's technical hearings. He admitted under cross-examination that technology hasn't solved the problem of safely disposing of radium-226, one of the most lethal byproducts of uranium mining that ends up in the tailings (UID No. 6, P 5).

Cyril Barkved, chairman of The Concerned Citizens for the Removal of Radioactive Wastes from Surrey, B.C., pointed out that the AECB had failed to arrange the removal of the radioactive waste material, despite the fact that Surrey citizens for several years have urged the AECB to do so.

Henry said AECB officials had misled the public (UID No. 6, P 9), and that so far no one has been able to find a place to store them nor an agency willing to accept them (UID No. 6, P 8) Responded Barkved: "... if the AECB cannot look after 85 tons of radioactive waste (in Surrey), what the devil is going to happen if uranium mining happens in the province of British Columbia?" (IT V38/6384) The answer is obvious.

Water Sources and Uses

The area between Beaverdell and Kelowna has an excessively large number of bodies of water such as ponds, lakes, creeks and so on. This fact combined with complex underground water movements assures the means of moving tailings contaminants away from the mining site into other areas. It is important to note that the largest tributary of Okanagan Lake is Mission Creek which in turn is fed by Hydraulic Creek (See map P 29) Whether these radioactive contaminants are moved directly by water or indirectly by air, the sources for drinking and irrigation water for Kelowna and Kettle River Valley residents are bound to be affected by them.



Water is a vital resource for the Kelowna area. Some 7½ billion gallons a year are used for drinking and irrigation. Radioactive contamination of this water supply would be inevitable if uranium mining were to take place in areas such as the Greystokes and Hydraulic Lake. Note how Hydraulic Creek joins Mission Creek, the principal tributary of Okanagan Lake. Uranium mining would last only a few years: the resultant pollution would last for centuries.

Franklin D. Patton, PhD University of Illinois, a groundwater specialist told the inquiry "our groundwater resources are too valuable to treat lightly." Significantly, he also stressed the importance of the public having a voice in decisions that involve potential health hazards that may result from uranium-related water contamination. (UID No. 7 P 9)

The vast majority of water users on the east side of Okanagan Lake in the greater Kelowna area are served by one of the following water authorities: City of Kelowna, 6072 domestic users, 832 commercial users; Southeast Kelowna Irrigation District, 650 users; Black Mountain Irrigation District, 3200 users; Glenmore Irrigation District, 700 users; Ellison Irrigation District, 76 users; and Okanagan Mission Irrigation District, 1600 users.

The R. & E. system also served by the City of Kelowna, has 150 users. A "user" usually refers to a residence so for each user there may actually be at least one or more people using the water. The total number of users as of September 1979 is 13,280.

The number of acres under irrigation for each area are: City of Kelowna, 129; Southeast Kelowna Irrigation District, 4,500; Black Mountain Irrigation District, 6,000; Glenmore Irrigation District, 2,500; Ellison Irrigation District, 780; Okanagan Mission Irrigation District, 74; and Amalgamated Water Users, who receive their water from the lower part of Mission Creek, 1,434. This totals 15,417 acres, most of which is orchards, but also includes land used for vegetables, hay, turf farming, parks, and golf courses.

The annual amount of water used by the major areas in 1978 was: City of Kelowna, 1,971,000,000 gallons; Southeast Kelowna Irrigation District, 2,904,333,635 gallons; Black Mountain Irrigation District 2,125,498,000 gallons; Glenmore Irrigation District, 56,845,100 gallons; Ellison Irrigation District, approximately 16,000,000 gallons; and Okanagan Mission Irrigation District, 388,040,000 gallons. The approximate total of gallons used by these areas in 1978, then, was 7,461,716,735 gallons.

The sources of water for the various areas are as follows: City of Kelowna, Okanagan Lake with an intake at Poplar Point 400 feet out and 75 feet deep; R. & E. also served by the city has an intake in the same general area. Southeast Kelowna Irrigation District gets its water from Hydraulic Creek which originates in Hydraulic Lake. Black Mountain Irrigation District gets its water from Mission Creek, originating at Belgo Lake, Greystoke Lake, Fish Hawk Lake, and Loch Long. It also gets water from Trapper Lake. This water serves what used to be the Scotty Creek Irrigation District. Glenmore Irrigation District gets its water from Postill Lake and from the headwaters of Mill Creek. Most of it comes from Postill Lake. Ellison Irrigation District shares the part of the water that goes to Glenmore Irrigation District from Postill Lake. The Okanagan Mission Irrigation District gets its water from Okanagan Lake with an intake opposite Eldorado Road.

All foregoing data was obtained from the water authority in question.

IV HEALTH HAZARDS

In the context of uranium mining, health hazards are a direct result of environmental pollution.

Once radioactive contaminants such as radium and radon gas escape into the environment and away from the mine site, they will enter into the food chain which, combined with possible pollution of air and water, make the ingestion in one form or another by human beings practically inevitable.

While business people are generally fond of assets and less enthused about liabilities, the fact is that in this life the greatest asset people have is their health. Any serious threat to human health must therefore be seen as a major liability.

There is no doubt in our minds that the mining and primary uses of uranium represent a major liability in terms of their potential threats to human health and conceivably human survival (i.e. nuclear conflict).

We do not wish to review all the literature that is available on the subject of low-level radiation and its effects on human health, because we know the commission has received many documents detailing these risks, from various sources.

We believe that the important facet here is that regardless what side of the nuclear issue one is on, there is general agreement that radiation is capable of producing cancer and birth defects. The main area of disagreement is essentially that of numbers rather than that of cause and effect. Hence, it follows that any increase of radioactivity into our environment, regardless of source, inevitably goes together with a potential increase in cases of cancer and genetic defects. As Dr. Karl Morgan, father of health physics, has pointed out repeatedly there is no evidence that there is a safe threshold for radiation below which there are no adverse effects on people.

This is widely supported in the scientific community and therefore makes a mockery of terms such as permissible levels and acceptable risks when it comes to formulating standards. Even if we accepted, and we wish to emphasize we do not, that safe levels of radiation are possible, we find ourselves with standards which are neither safe nor to us acceptable. For example, the U.S. military troops which in the 50's were exposed to radiation from nuclear bomb tests received exposures of less than one REM and have now been found to have leukemia rates double the national average.¹⁰ On the basis of that evidence, present standards of 5 REMS per year for uranium miners are obviously not safe and therefore should not be permissible.

It is generally agreed that a chest x-ray results in an exposure rate of between 25 and 50 mREMS. On that basis the present 5 REM standard for uranium miners in Canada is equivalent to between 100 and 200 chest x-rays per year. From that alone, it should be obvious that an exposure rate of 5 REM per year may be economically acceptable to the nuclear industry, but it cannot be justified on medical grounds.

It may be argued that miners take these risks voluntarily, but it must be understood that uranium miners are generally not aware of the full implications of such an exposure rate. In addition, since reproductive organs are particularly sensitive to radiation, the health and well-being of the miners' children — and even their children — are endangered.

The record of the uranium mining industry has convinced us that safety regulations are both inadequate and frequently not enforced. Even worker safety in general, leaves much to be desired. That the latter is a serious problem in B.C. was underscored by a statement by B.C.'s Assistant Deputy Minister of Health, John H. Smith: "the whole area of surveillance and qualifications in the field of occupational health in the province is not well developed" (UID No. 8, P1)

The new hazards involved in uranium exploration leave both workers and the public largely unprotected. To the best of our knowledge and at the time of writing the final draft of this report (March, 1980) there are no safety regulations in B.C. specifically formulated for uranium exploration hazards.

M. Wayne Greene, head of the Radiation Protection Service, B.C. Ministry of Health, under the cross examination by Kelowna City representative Robin Luxmore, admitted before the RCUM that he doesn't have the money, equipment or staff to do his job properly. It is our understanding that the RPS has a staff of only four, three of which are engaged with checking hospital equipment.

Can the people of B.C. expect rapid improvement in the area of worker and public safety should uranium mining be permitted in this province? Let's consider Ontario's experience. That province has mined uranium for 25 years. Jan Muller of Ontario's Department of Labor, gave the RCUM some eyeopening evidence. (IT V 58/P 10424-10486 and IT V 59/P 10487-10559).

Here are a few of the highlights: 1959 recommendations by the ICRP to reduce uranium miners radiation exposure by 70 percent were not put into effect by Ontario's Department of Labor until 1975: some 16 years later! This callous disregard for miners health was partly explained away by Muller by pointing out that the uranium industry in 1960 had peaked and faced an economic slump. We quote: "The situation in 1960 of the prospect of future mining looked pretty difficult. As a matter of fact by 1961, seven mines of the 14 had already closed down. So at the time Ontario was facing a situation of a shrinking market for uranium. Mines were closing down. In most mines, more than 60 percent of the mines, the 12 working level months per year were exceeded at the time, and only one of these 14 mines, probably met the standard or guideline for four working level months."

It is sometimes suggested that the risk rate of the public is smaller than that of miners. However, we wish to point out that miners may work in a mine for only a short period of time. But people living in and near uranium mining communities, while possibly receiving less radiation per day, often do so for far longer periods of time and thus face even greater risks than those who work for shorter periods of time in the mine.

Nor are the radiation risks limited to the immediate vicinity of a uranium mine. The possibility of radioactive pollution of irrigation water by a uranium mine is very real. Hence, agricultural products grown on land irrigated by such water could conceivably become contaminated as well. Thus the risk range would extend as far as such agricultural products are used.

This is of particular significance in the case of irrigated grasslands that support dairy cattle, since radium concentrates as it works its way up into the food chain. It is easily transferred to human beings through milk and other dairy products. The dairy industry in the Okanagan is an important one and its products travel far and wide. The two main dairies in the Okanagan are Noca Dairies and Dairyland. The well known Armstrong Cheese is an Okanagan product.

V ECONOMICS

By the time the reader reaches this point of the report it should be clear that the four areas of concern, ethics, environment, health and economics are very closely related. In fact, some of the information could as easily and justifiably be put under one heading as another.

We are dealing with the question of economics primarily because this is generally used by the mining industry as an argument in favor of uranium mining. It is our position that close examination of the economic aspects of uranium mining in context and in detail refutes any belief that there are economic advantages to the public in the mining of uranium.

As shown in the evidence submitted to the commission both at the community hearings and the technical hearings, the longest life expectancy of any uranium mine in B.C. at this point is estimated to be about 10 years, while all other proposed uranium mines would last considerably less. The largest number of employees has been estimated to be between 130 and 140. Both these maximum figures apply to the proposed mine near Beaverdell. The annual payroll for Norcen, once the mine and mill are in operation, was estimated by Wilfred Loucks, General Manager of Mineral Development for Norcen, in a speech to the Chamber of Commerce in Kelowna November 1, 1978, to be \$2.6 million per year.

So in terms both of payroll and expected duration of mining activity, the economic benefits are very limited. This takes on particular significance in view of the fact that in the Okanagan there are two main industries: tourism, estimated to be worth well in excess of \$100 million and fruit, estimated to be worth around \$100 million. These two key industries, with proper management could go on practically indefinitely. Indeed they are closely related since fruit is one of the main tourist attractions in the Okanagan. It ought to be self-evident that if uranium mining were to proceed, the environmental and health effects would severely damage these two industries. Consider the Big White Ski resort. It is only about 10 KM from the proposed mine near Beaverdell.

So the question arises: is it worth generating a payroll worth \$2.6 million a year for a maximum period of about 10 years and thereby jeopardize two other industries which are worth more than \$200 million a year?

The Okanagan area during 1978 employed a total of 1,100 full-time and 650 part-time employees in the travel industry.¹¹ (Appendix P 67). These employment figures do not include people employed in restaurant and dining places which do not provide accommodation. If traveller expenditures on other goods and services estimated to support an equal number of jobs according to the aforementioned study are taken into account, the total number of jobs generated by tourism was 3,500 in the Okanagan during 1978.

The difference between the 130-140 uranium mining jobs for a few years and the 3,500 tourist industry jobs, which uranium mining could threaten, is too great to ignore.

We were unable to get reliable estimates for the total number of jobs created by the fruit industry, but obviously this figure is also very much larger than the number of jobs that would be created by a uranium mine.

What is known is that there are some 2,100 fruit growers in the Okanagan area according to the B.C. Fruit Growers Association. A general rule of thumb is that for every grower there are at least 10 other people employed. A total of some 26,000 acres are under Production. (Appendix P 68)

In January, 1980, the B.C.F.G.A. passed a resolution at its Kelowna convention opposing both the exploration for and the mining of uranium. In doing so the association joined more than 100 other organizations in B.C. which have expressed opposition to uranium mining in this province.

This list of opponents includes the B.C. Medical Association, the B.C. Federation of Labor, the United Church (B.C. Conference), the B.C. Teachers Federation, the B.C. Branch of the Canadian Public Health Association, the Union of B.C. Indian Chiefs, the West Coast Environmental Association and many others.

SUMMARY

We wish to express our sincere appreciation to all persons who have given us nuclear-related information which government and industry refused to provide. We are particularly grateful for the leaked documents which have given us invaluable insight into what goes on behind closed doors in government and industry.

It is our opinion that all information concerning health hazards and environmental quality, obtained by government and industry, should be made available to the public completely and without delay.

Our position is that from an ethical, health, environmental, and economic point of view the mining of uranium in B.C. in general and in the Kelowna area in particular cannot be justified. We believe that the health and well-being of people are far more important than the short term profits of the uranium mining interests that have staked claims in B.C. and almost all of which are headquartered outside this province.

We harbor no illusions about the contents of the Royal Commission's final report. We fully expect that report to contain conditional approval for uranium mining in B.C., subject to certain standards. The evidence presented to the commission has convinced us that any such standards are incapable of preventing serious and long-term consequences from being inflicted on the uranium miners and the public.

As experience in Ontario and elsewhere has shown, uranium regulations are inherently and inevitably inadequate where they deal with problems for which as yet there are no proven solutions. Furthermore, we know — again from experience — that uranium mining regulations — however formulated — are not only inadequate, but are often violated by industry and rarely rigidly enforced by governments.

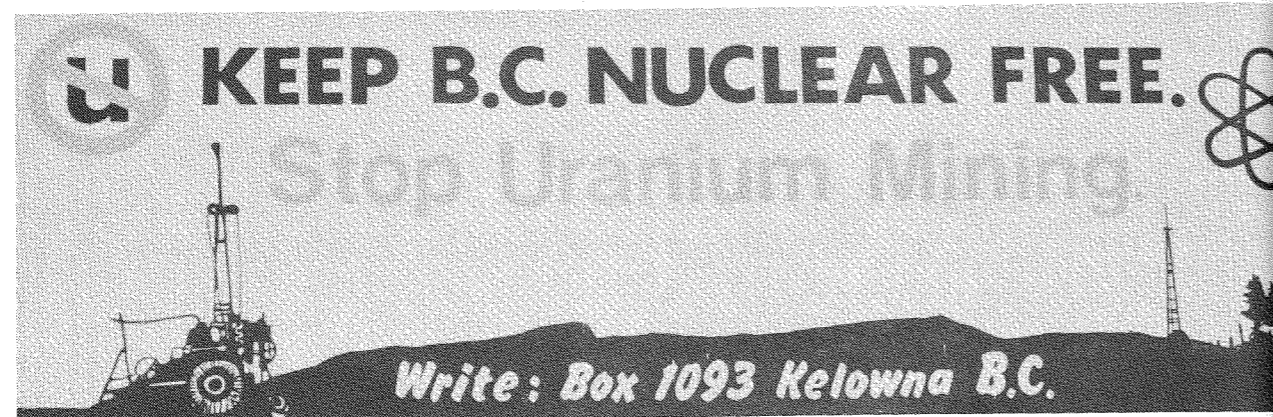
We recognize the possibility that at some point in the future, it may be possible to mine and use uranium safely and for the benefit of the people of this province. However, all evidence indicates that such a possibility does not lie in the foreseeable future.

The seriousness of the risks involved in the mining and uses of uranium, as well as the long-term nature of those risks, place this problem in a category incomparable to any other. We are dealing with possible effects that cover not merely years or even human life-times but hundreds of centuries. It is significant that no insurance company in Canada is prepared to insure property owners against possible loss or damage caused by radioactive contamination.

While it may be argued that we are entitled to take risks for ourselves, surely we cannot morally justify taking such risks for countless generations yet unborn. More importantly, in the present social structure, the people who face the greatest risks involved in uranium mining have the smallest share in making the decision.

We firmly believe that the decision on uranium mining should not be up to politicians least affected by it, let alone by those who would stand to gain the largest benefits, i.e. the mining corporations.

That crucial and irreversible decision should be made exclusively by the people whose health and environment would be threatened by a uranium mine. Anything less would be a gross injustice to the people involved.



REFERENCES

1. Status Report - Water Pollution in the Serpent River Basin 1976, Ministry of Environment, Ontario
2. Facilities for Retention of Uranium Mine - Mill Waters Atomic Energy Control Board
3. Report Advisory Committee on Biological Effects of Ionizing Radiation - National Academy of Sciences, U.S. November 1972
4. CCNR (Vancouver) brief to Ministry of Environment September 1, 1977 P 2
5. Report of the Royal Commission on the Health and Safety of Workers in Mines, P 77 (Ontario: HAM Report)
6. EPA Report, Part 1, P 73 - Bulletin of Atomic Scientists, P 45, September 1975
7. Nuclear Waste - What me Worry? P 16, Gordon Edwards
8. Environmental and Socio-Economic Feasibility Report, Prepared by Envirocon Ltd. for Norcen Energy Resources, P 67
9. Uranium Mill Tailings, Environmental Implications, February 1978
10. MacLean's, August 20, 1979, P 44
1. Employment and Immigration Canada report, August 11, 1979

A P P E N D I X

April 26, 1979

Brig. Gen. E.D. Danby (retired)
Executive Secretary
Royal Commission of Inquiry
Health and Environmental
Protection - Uranium Mining
3724 West Broadway
Vancouver, B.C. V6R 2C1

Dear Sir:

The Kelowna Branch of the Canadian Coalition for Nuclear Responsibility was formed in November 1977 for the express purpose of informing the public about the hazards of uranium exploration, mining and milling as well as its uses.

During the past 18 months we have organized numerous public meetings, featuring slides, films and guest speakers. We have perused countless articles, books, reports, documents and inspected various exploration sites. As a result we are convinced that the health and environmental impact of uranium mining in the Kelowna area would be of major adverse proportions. One of the three major exploration areas is only about 10 miles from Kelowna and situated in a major watershed area.

We would like to study the likely consequences of uranium mining in detail and produce the results of our investigation in the form of a brief to your Inquiry. To this end we would require 'Participant Funding' and we hereby request you accept this letter and the attached budget as our application for same.

Ms. Pat Munro, 321 Robin Way, Kelowna (PH 763-5367), our treasurer, is willing to take on the task of administering the funds you may grant us. We expect our study and the preparation of the report to take five months. If funding is assured by mid-May we should have the brief ready for submission to your Inquiry during the fall hearings in Kelowna.

We look forward to what we hope will be a positive response to the above request.

Sincerely,

John Moelaert, Chairman
Canadian Coalition for
Nuclear Responsibility
Kelowna, Branch
P.O. Box 1093
Kelowna, B.C.
V1Y 7P8

PHONE: 764-4949

URANIUM INQUIRY BRIEF BUDGET

Salary one Full-time coordinator of information @ 1200/mth	. . . . .	\$ 6000.00
Office rent, equipment, phone, utilities, supplies	. . . . .	3000.00
Consultants, incl. geologist, physician, hydrologist	. . . . .	6000.00
Part-time secretary	. . . . .	2500.00
Travel	. . . . .	<u>1500.00</u>
		\$19000.00

PUBLIC INTEREST GROUPS POSITION PAPER ON B.C. URANIUM INQUIRY

The organizations, whose names are appended to this document, unanimously agree that:

1. an immediate moratorium on uranium exploration must be enacted and remain in effect until The B.C. Inquiry into Uranium Mining is complete;
2. a full public judicial inquiry is required to ensure a fair and thorough examination of all relevant questions can be carried out;
3. the terms of reference of the judicial inquiry must be formulated during preliminary hearings in which public interest groups must be permitted to participate. Funding formulas for such groups must also be arranged.

CONTENT

1. The inquiry must address itself to the question of whether it is in the public interest to permit uranium mining in B.C.
2. The setting of uranium policy involves matters of fact and matters of value judgment. Matters of value judgment must be addressed.
3. The full range of technological, medical, social impact and environmental evidence must be investigated.
4. The record of standards enforcement must be addressed.
5. Questions pertaining to uranium exports, finances and the full range of regional and national economic impacts must be confronted.
6. The inquiry should address itself to the process by which the decisions on uranium exploration and mining are made.
7. Matters relating to the injurious effects of the exploration, mining and use of uranium, which are as yet unresolved, must be closely examined.

STRUCTURE AND PROCESS

1. The inquiry commissioner(s) should have a record of independence on the nuclear and uranium mining issues and no member of the inquiry may have direct links with uranium mining or the nuclear industry. Women should be represented on the commission.

2. The commissioner(s) must be given adequate authority, time and funds to call expert witnesses, and to receive, clarify and assess all submitted information and, subsequently, to prepare the commission's report, including written reasons for their recommendations.
3. The inquiry should be advertised daily for a week in all media and participants should be given a full six months to prepare. Additional advertisements should be placed one month prior to the start of the inquiry.
4. The inquiry must hold sittings throughout the province, giving special attention to communities where citizens have indicated that uranium exploration and mining is a local concern.
5. All groups and individuals must have the opportunity to make presentations at the inquiry's community hearings whether or not they have given prior indication of their desire to do so.
6. All groups and individuals must have the opportunity to make presentations at the formal part of the inquiry and have intervener status. Notification of intent to appear should be by letter one month before. Briefs should be available from all those making presentations two weeks prior to the date of presentation whereupon they shall be duplicated and distributed to all the interveners.
7. In order to ensure a balanced input to the inquiry the commissioner(s) must be empowered to fund public interest groups to such an extent that these groups may
 - a) secure the expertise required to interpret, understand and evaluate the technical information presently available and that which will be presented to the inquiry.
 - b) produce documentation for presentation to the inquiry and for public distribution.
 - c) participate fully in the inquiry, including continuous representation by legal counsel.
8. Daily summaries or minutes of inquiry proceedings must be made available to anyone requesting them.

THE FOLLOWING ORGANIZATIONS ENDORSE THE POSITION PAPER:

- Argenta Resource Group - Argenta, B.C.
Canadian Association of Industrial Mechanical and Allied Workers
5648 Imperial St., Burnaby, B.C.
Canadian Coalition for Nuclear Responsibility - Box 673, Kelowna, B.C.
Committee for a Clean Kettle Valley - RR 2, Rock Creek, B.C.
First Step Alliance - Box 311, Powell River, B.C.
Genelle Concerned Citizens - Box 68, Genelle, B.C.
Grand Forks Nuclear Study Group - Box 1926, Grand Forks, B.C.
Kelowna Energy Group - 321 Robinway, Kelowna, B.C.
Kootenay Nuclear Study Group - Box 205, Nelson, B.C.
Mobilization for Survival - Texada RR 1, Vananda, B.C.
Pacific Life Community - 1603 West 4th Ave., Vancouver, B.C.
Solar Alternatives to Nuclear Energy - Box 56, Crofton, B.C.
Slocan Valley Resource Society - Box 81, Winlaw, B.C.
SPEC Central - 1603 West 4th Ave., Vancouver, B.C.
SPEC Kelowna - Box 673, Kelowna, B.C.
Texada Island Community Society, Gillies Bay, B.C.
Union of B.C. Indian Chiefs - 440 West Hastings St., Vancouver, B.C.
Voice of Women - 3360 East 5th Ave., Vancouver, B.C.
West Coast Environmental Law Assn.-#1012 - 207 W. Hastings St. Vanc., B.C.
Yellowhead Ecological Society (Clearwater)-Box 23, Clearwater, B.C.
Yellowhead Ecological Society (Kamloops)- c/o L. Isert, RR 3, Kamloops, B.C.
Preventive Medicine Centre - 3743 W. 10th Ave. Vancouver, B.C. V6R 2G5
Komox Valley Nuclear Responsibility - RR 1, Fanny Bay, B.C. V0R 1W0
Women's International League for Peace and Freedom (Vancouver Branch)
Greenpeace - 2108 West 4th Avenue, Vancouver, B.C. V6K 1N6
North Shuswap Environment Cte. (Sierra Club)- Celista, B.C. V0E 1L0
B.C. Honey Producers' Assoc. (Kamloops Div.) - 1128 Bentley Pl. Kamloops, B.C.
Kamloops & Dist. Garden Club - 1594 East Lorne St., Kamloops, B.C.
Hospital Employees Union (Local 180) -c/o H. Theobald RR 3 Kamloops, B.C.
Registered Nurses Assoc. of B.C. (N. Thompson Chapter)-Box 304 Clearwater
Beaverdell Concerned Citizens - Box 113, Beaverdell, B.C. V0H 1A0
Kamloops & District Labour Council - Box 562, Kamloops, B.C.
Brotherhood of Locomotive Engineers (Div.855)-119 Elm St. Kamloops, B.C.
Pulp & Paper Workers (Loc. 10) - #1 - 618 Tranquille Rd., Kamloops, B.C.
ARRADA - 760 Arbutus, Kamloops, B.C.
UPE (Local 900) - 203 - 225 Tranquille Rd., Kamloops, B.C.

THE FOLLOWING ORGANIZATIONS ENDORSE THE POSITION PAPER (cont'd):

YWCA (Kamloops) - 419 Fourth Ave., Kamloops, B.C. V2C 3P2
Sierra Club (Okanagan) - RR 2, SUMMERLAND, B.C. V0H 1Z0
IWA (Loc. 1-417) - Kamloops, B.C.
Cariboo College Student Society - Box 860, Kamloops, B.C. V2C 5N3
Save the Kootenay Committee - Box 205, Nelson, B.C.
SPEC (Vernon) - Box 733, Vernon, B.C.
Canadian University Press - Simon Fraser University, Burnaby, B.C.
Vancouver Monthly Meeting (Quakers) - 1090 W 70th Ave. Vancouver, B.C.
New Family Society - Winlaw, B.C.
Eric Clough Environmental Design - Box 52 Winlaw, B.C.
Paradise Valley Land Lease Holding Ltd.- Winlaw, B.C.
Vallican-Winlaw Food Co-op- Box 16 RR# 1, Slocan Park, B.C.
Theatre Energy - Box 67, Winlaw, B.C. V0G 2J0
Arrow Credit Union - P.O. Box 45, Edgewood, B.C.
Confederation of Canadian Unions (B.C. COUNCIL)- 5648 Imperial, Burnaby, B.C.
Penticton Energy Group - Box 894, Penticton, B.C.
South Okanagan Environmental Coalition - Box 188, Penticton, B.C. V2A 1G8
The Whole School - Box 48, Winlaw, B.C. V0G 2J0
Kamloops Outdoor Club - Box 526, Kamloops, B.C. V2C 5L2

May 17, 1979

Bob McLelland
Minister of Health
Parliament Buildings
Victoria, B.C.

Dear Bob McLelland:

The Kelowna Branch of the Canadian Coalition for Nuclear Responsibility will take part in the uranium inquiry. We intend to prepare a brief on the subject and to this end would appreciate receiving from you the report on the radon gas background levels as determined by your ministry during the summer of 1978.

We also would appreciate a copy of the study your ministry conducted in co-operation with the ministry of mines and petroleum resources on drinking water standards in communities where mining of uranium may take place.

Your early attention to this matter is hereby courteously requested.

Sincerely,

John Moelaert, Chairman
CCNR (Kelowna)
P.O. Box 1093
Kelowna, B.C.
V1Y 7P8

/dd

June 4th, 1979.

Mr. John Moelaert,
Chairman,
CCNR (Kelowna),
P.O. Box 1093,
KELOWNA, B. C.
V1Y 7P8

Dear Mr. Moelaert:

Thank you very much for your letter of May 17th, 1979, in which you requested information on environmental radiation levels measured at various locations throughout British Columbia.

Radon gas background levels and radon decay products were measured in several communities along the Columbia River Valley during 1978 and are continuing in 1979. These values were measured in private dwellings. The preliminary results are inconclusive because of the known variations of radon as a function of temperature, barometric pressure, time of year, etcetera. The results measured in specific homes are not available but I am sure that Dr. M. W. Greene, of our Radiation Protection Service, would be happy to discuss the general trends observed.

A study of heavy metals including radium in drinking water has been contracted by the Ministry of Energy, Mines & Petroleum Resources. This study started in February, 1979, and will continue for twelve months at which time a report on the results will be available. This report will be available to all levels of government and to all interested parties. It would be premature at this time to discuss preliminary results due to the well known time variations and water flow variations.

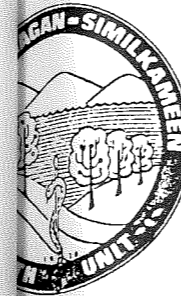
Many water samples have been measured for total radium content and results from locations within the public domain can be obtained from the Radiation Protection Service or from the local Medical Health Officer.

Again, I would like to thank you for your interest in this important matter.

Yours truly,



R. H. McClelland,
Minister.



SOUTH OKANAGAN-SIMILKAMEEN UNION BOARD OF HEALTH

Office of the Secretary

390 Queensway Avenue
Kelowna, B.C.
V1Y 6S7

Office of the Chairman

Telephone: 762-2704

May 23, 1979

Directors, South Okanagan
Similkameen Union Board of Health

Dear

RE: Uranium Water Quality Study - S.O.S.H.U.

Analytical data for the first two months of a twelve month Uranium Watering Monitoring Program in the S.O.S.H.U. is now available from Dr. W. Greene of the Ministry of Health and Dr. P. Doyle of the Chemex Labs Ltd. who are undertaking the \$40,000 project.

Eight water sources from Summerland and five from the Hydraulic Creek/South East Kelowna/Kelowna areas are submitted monthly for emission levels of gross alpha particles and gross beta particles, as well as uranium in parts per billion. (see Table I)

You will recall that the Summerland area had been identified in the National Geochemical Reconnaissance Survey 1976 (Canada - B.C. agreement) to have the highest natural levels of uranium in stream waters within our health unit.

The analytical results for February and March 1979 show high uranium values (13 - 27 p.p.b.) in the Darke and Eneas Creek areas northwest of Summerland. The values are equal to or greater than the 20 p.p.b. recommended maximum for Canadian drinking water. However, the radiation levels as measured by gross alpha and beta particles per litre are below the Canadian Drinking Water Standards of 7.0 picocuries per litre.

Dr. Patrick Doyle, Geochemist, has suggested because these high uranium values are approaching the toxic limits it would seem useful to ascertain whether in fact residents of these high uranium areas show effects of elevated uranium exposure. He suggests that blood and hair samples from ten residents from the high exposure areas of Summerland and ten residents from the low exposure area of Hydraulic Creek/Kelowna be tested, and if strong affirmative results were obtained, to carry out specific medical studies.

Directors, S.O.S.H.U.
page 2
May 23, 1979

I bring this information to your attention for further direction at this time realizing the following:

1. The study was undertaken on the understanding that all data would be made available to the Board.
2. That Dr. Doyle through Dr. W. Greene has asked that the data is preliminary and not to be made public.
3. That a B.C. Royal Commission on uranium mining has been appointed and Briefs will be held in Kelowna on June 5 & 6, 1979.
4. Environmental groups have requested the sampling data.
5. Does the Board Directors wish me to present the preliminary data before the B.C. Royal Commission on June 5 & 6 to Dr. D. Bates?
6. If a follow-up study is to be carried out - a request for funding for staff coordination and legwork must be submitted at an early date.

I am enclosing a copy of Dr. Doyle's letter of May 9, 1979 to me as Director as well as a table of the Water Quality Data for February and March 1979.

Yours truly,

D.A. Clarke, B.Sc., M.D., M.P.H., C.R.C.P. (C)
Medical Director and
Secretary, S.O.S.H.U.
Board of Health

DAC/twg

Enclosures

1. Letters May 9/79 - Dr. P. Doyle/Dr. D.A. Clarke
2. Water Quality Monitoring Data February/March 1979
3. Map of Test Sites - Summerland/Kelowna Area

Atomic Energy Control Board
Commission de contrôle de l'énergie atomique
OPERATIONS DIRECTORATE
Safeguards & Nuclear
Materials Branch

Your file Votre référence

Our file Notre référence

22-0

May 31, 1979

Mr. John Moellaert
P. O. Box 1093
Kelowna, British Columbia
V1Y 7P8

Dear Sir:

With reference to our telephone conversation of yesterday, enclosed for your information and review is a summary, by licensee, of the areas in which surface exploration activities are being conducted in the province of British Columbia. D. G. Leighton and Associates is the most recent addition to this listing.

We regret that we cannot respond to your questions concerning the information submitted by Norcen Energy Resources under the health and safety condition of their Surface Exploration Permit. However, we trust that you understand that Section 26 of the Atomic Energy Control Regulations issued pursuant to the Atomic Energy Control Act prevents disclosure of information which has been obtained by the Board by virtue of these Regulations with respect to any business without the consent of the person carrying on such business. As the Surface Exploration Permit is a licence issued by the Atomic Energy Control Board under authority of the AEC Act and Regulations, any information obtained in the work reports submitted by S.E.P. holders is thus covered by Section 26.

Yours sincerely,

Mrs. N. S. Blackman
Licensing Officer

:sb
Enc.

P.O. Box 1046 C.P. 1046
Ottawa, Canada Ottawa, Canada
K1P 5S9 K1P 5S9

AN OUTLINE OF GENERAL HEALTH AND SAFETY PRINCIPLES
IMPLEMENTED AND MEASURES TO PROTECT HEALTH AND SAFETY
OF EMPLOYEES FROM HARMFUL EFFECTS OF RADIATION

- BLIZZARD URANIUM PROPERTY

A requirement of AECB Uranium and Thorium Surface Exploration
Permit MX 11/77

1. All employees working on the Blizzard Project site were advised prior to working on the Blizzard Project that all work on the Project was involved with uranium exploration.
2. All uraniferous drill cores were quickly removed from drilling sites and transported to a field camp located two kilometres south of the Blizzard Uranium deposit.
3. Drill core was logged and sampled by geologists in a well ventilated area either in a tent facility or outside. Core was then stored at one location at least 100 metres from the camp living accommodation.
4. All camp employees were issued with dosimeter badges in September, 1978 which were worn by employees while on the Blizzard Project site.
5. Independent radiological monitoring stations were placed on the Blizzard Project site throughout the latter part of 1978.

COPY

March 1, 1979

Ken Wadsworth, Dir.
Corporate Affairs
Norcen Energy Resources
715 - 5th Ave. S.W.
CALGARY, Alta.
T2P 2X7

Dear Ken:

According to AECB Norcen is required under its Surface Exploration permit to submit to the Board "within the first six months of each calendar year, a report in duplicate to include ...policies applied to protect the health and safety of employees and the general public in connection with the exploration."

In the spirit of Norcen's 'open communication policy' could you send me copies of each of the reports filed? Furthermore, Don Sawyer told me last fall that copies of the baseline studies of Envirocon would be available. I very much would appreciate a copy of that as well. If for whatever reason you should not be willing to give a copy of the COMPLETE report, please let me know the reason(s).

Finally, I would like to know if Norcen intends to submit a brief to the Public Inquiry into Uranium Mining.

I look forward to hearing from you.

Sincerely,

John Moelaert, Chairman
CNR (Kelowna)
P.O. Box 1093
KELOWNA, B.C.
V1Y 7P8

P.S. Have you determined 'the validity' yet of Dr. Helen Caldicot's statements?

April 10, 1979

Dr. David Bates, Chairman
Royal Commission of Inquiry
Health and Environmental Protection
Uranium Mining

Dear Dr. Bates:

I hope you had a productive visit to Europe and were aware of the strong opposition to nuclear power that exists there. Harrisburg certainly made the headlines in Europe.

At your suggestion I hereby request the Inquiry's assistance in getting copies of the report Norcen Energy Resources is required by law to have submitted to the AECB as outlined in the Surface Exploration Permit's information Guide, particularly as this applies to "Policies applied to protect the health and safety of employees and the general public in connection with the exploration. (The quoted material is from the aforementioned guide).

Also copies of the baseline studies carried out by Envirocon of Vancouver on behalf of Norcen in the latter company's claim area commonly known as the Blizzard Property.

I have requested the above since last Sept. 27 when I was assured by Don Sawyer, Manager Mineral Exploration for Norcen, that it would be sent. Similar assurances were subsequently made by Norcen's Director of Corporate Affairs Ken Wadsworth.

Though I have repeatedly asked for this information and have repeatedly been assured that it would be sent, I still have not received these reports. Norcen's 'Open Communication Policy' seems to be limited to what the company wants the public to know rather than include what the public wants to know.

I enclose a copy of the most recent letter sent by me to Norcen in this regard. The most recent assurance that it would be sent was made by Mr. Wadsworth at the CONIC conference held in Vancouver about five weeks ago.

I look forward to hearing from you in this regard.

Sincerely,

John Moelaert, Chairman
CCNR (Kelowna)
Box 1093
KELOWNA, B.C.
V1Y 7P8

May 17, 1979

David V. Bates, M.D.
Royal Commission of Inquiry
Health and Environmental Protection
Uranium Mining
3724 West Broadway
Vancouver, B.C. V6R 2C1

Dear Dr. Bates:

Further to my letter of April 10th, I would appreciate learning whether the commission is complying with our request in ordering complete copies of the reports from Norcen as described in my letter to you.

Now that we have received word from the commission that our application for participant funding has been approved, we hope that access to the various studies in existence on the uranium situation in Kelowna will be made available to us, preferably directly, but otherwise through the intervention of the commission with a minimum of delay.

Please let me know at your earliest convenience whether you have approached Norcen energy resources in this matter and what the company's response has been. We certainly would like to know as soon as possible when we can expect to receive the foresaid documents.

I look forward to hearing from you.

Sincerely,

John Moelaert, Chairman
Canadian Coalition for Nuclear
Responsibility (Kelowna)
P.O. Box 1093
Kelowna, B.C. V1Y 7P8

/dd



Province of
British Columbia

ROYAL COMMISSION OF INQUIRY
HEALTH AND ENVIRONMENTAL PROTECTION
URANIUM MINING

ADDRESS ALL CORRESPONDENCE TO THE SECRETARY

COMMISSIONERS:

DAVID V. BATES, M.D., CANTAB., F.R.C.P., F.R.C.P.(C), F.A.C.P., F.R.S.(C), CHAIRMAN
JAMES W. MURRAY, PH.D., F.G.S.E., F.G.S.A., F.G.S.
VALTER RAUDSEPP, P.ENG.

EXECUTIVE SECRETARY:

BRIG.-GEN. E. D. DANBY (RETIRED)

COMMISSION COUNSEL:

RUSSELL J. ANTHONY, B.A., LL.B., LL.M.

May 25, 1979

Mr. John Moelaert, Chairman
Canadian Coalition for Nuclear
Responsibility (Kelowna)
P.O. Box 1093
Kelowna, B.C. V1Y 7P8

Dear Mr. Moelaert:

Reference is made to your letters dated April 10th and May 17th, 1979.

In response to our request to the points raised in your letter we received the following reply from Mr. D.M.M. Goldie, Counsel for Norcen Energy Resources Ltd.

"The information guide to which Mr. Moelaert refers in paragraph 2 of his letter was revised in 1978 and the first report under the revised guide is due by June 30th, 1979. Prior guides did not contain the provision to which Mr. Moelaert refers, namely:

"Health and Safety Information

- i) Policies applied to protect the health and safety of employees and the general public in connection with the exploration;
- ii) An outline of procedures to be followed, should ore containing in excess of 0.3% U₃O₈ be encountered to protect the health and safety of employees and the general public from radiation hazards."

I am instructed that concurrently with filing the 1978 report with the Atomic Energy Control Board, a copy of the information given in response to the above section will be sent to the Royal Commission.

While I am advised that Norcen has, as noted, an "open communication policy" this does not and cannot extend to supplying base line study reports which are in the course of completion. A year-long base line field study is being conducted by Envirocon Ltd., which will not be completed until the late summer of 1979. It is Norcen's intention to submit the results of this study at the formal hearings of the Inquiry which we understand will take place in the late fall of 1979.

. . . 2

Prior submissions to the Atomic Energy Control Board in compliance with the then current "Surface Exploration Permit Information Guide" will be sent you by Envirocon Ltd."

As soon as reports are received by the Commission you will be advised.

Yours sincerely,

E. D. Danby
Executive Secretary

DD/rb

c. Mr. Russell J. Anthony
Commission Counsel

May 31, 1979

Brig. Gen. E. D. Danby
Executive Secretary
Royal Commission of Inquiry
Health and Environmental Protection
Uranium Mining
3724 West Broadway
Vancouver, B.C. V6R 2C1

Dear Mr. Danby:

Further to my letters of April 10th and May 17th, and in response to yours of May 25, 1979, I hereby wish to inform you that on May 30th I spoke to Mrs. Sharon Blackman, Atomic Energy Control Board. Mrs. Blackman informed me that the "Health and Safety Information" section of the AECB's Surface Exploration Permit Information Guide was in effect during all of 1978. She further contradicted Mr. D. M. M. Goldie's claim that the aforementioned document was in any way changed during 1978.

In the meantime the documents to which I referred in my previous letters, and which I have been promised by Norcen since last September, still have not reached me. More than eight months have passed in the interim and this fact combined with Mr. Goldie's claim that the Health and Safety information was not required during 1978, while in fact it was, makes it painfully clear to us that Norcen is frustrating the CCNR's efforts to meaningfully participate in the Royal Commission's Inquiry.

Last March 6th, during the Royal Commission's pre-hearing in Vancouver, Dr. Bates assured me that documents to which our organization are entitled and which are deliberately withheld by companies involved in uranium exploration, would be ordered released by the commission if requested by me. Such a request was made in writing to the commission on April 10th and nearly two months have now gone by and the documents are still being withheld by Norcen.

. . . Cont'd

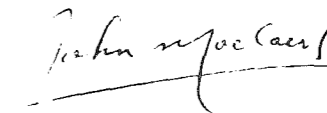
Brig. Gen. E. D. Danby
Page 2
May 31, 1979

In my view the inquiry's process will be rendered completely ineffective, unless all uranium exploration companies operating in B.C. are instructed by the Royal Commission that all documents relevant to the health and safety of their employees and the public, and the quality of the environment, should be made available without delay and without omissions to all participants in the Royal Commission's Uranium Inquiry.

I hope the members of the commission concur with this view and that they will notify the aforesaid companies of this policy forthwith.

I look forward to hearing from you in this regard.

Sincerely,



John Moelaert, Chairman
Kelowna Branch
Canadian Coalition for
Nuclear Responsibility
P.O. Box 1093
Kelowna, B.C.
V1Y 7P8

/dd

RUSSELL & DUMOULIN

BARRISTERS AND SOLICITORS

DOUGLAS MCK. BROWN, O.C.
R.E. OSTLUND
R. BRUCE HARVEY
BENJAMIN B. TREVINO
SHERMAN W. HOOD
JOHN T. STEEVES
ANTHONY P. PANTAGES
W. S. BERARDINO
MICHAEL W. HUNTER
C. B. JOHNSON
H. LAING BROWN
NORMAN W. DOWAD
PETER R. SHEEN
GARY J. MAY
KEVIN P. O'NEILL
KATHERINE J. HELLER
GARY R. SOLUS
STEPHEN D. HOLMES

A.M. RUSSELL, O.C. (1974)
E. D. H. WILKINSON, O.C.
DONALD A. WILLIAMSON
R. H. GUILLE
ARTHUR E. HARVEY
GEORGE W. FORSTER
JOHN B. L. ROBERTSON
RAE A. ROSS
GAVIN H. G. HUME
J. M. MCCORMICK
CHRISTOPHER HARVEY
BRYCE A. DYER
MERRILL W. SHEPARD
ALLAN McDONELL
ROBERT A. GODDRICH
BRUCE R. CRIST
MARION J. ALLAN
JAMES B. RAMSAY
JOHN W. STELMASZCZUK

L. ST. M. DUMOULIN, O.C. R. T. DUMOULIN, O.C.
HON. J. O. WILSON, O.C., LL.D.

REPLY TO C. B. Johnson
FILE NO. NOR-1103

July 16, 1979

COPY

Royal Commission of Inquiry
into Uranium Mining
3724 West Broadway
Vancouver, B. C.
V6R 2C1

Attention: Brig.-Gen. E. D. Danby (Retired)
Executive Secretary

Dear Sirs:

Enclosed is a copy of a document entitled "An Outline of General Health and Safety Principles Implemented and Measures to Protect Health and Safety of Employees from Harmful Effects of Radiation - Blizzard Uranium Property". This document forms part of the report of Norcen Energy Resources Limited to the Atomic Energy Control Board as required by Permit MX11/77 issued to Norcen Energy Resources Limited.

Mr. Moelaert of the Canadian Coalition for Nuclear Responsibility has requested a copy of the document and by copy of this letter I am sending the same to him.

Mr. Moelaert has also contacted us regarding document number 177 on Norcen's List of Documents. The said document is entitled "Blizzard Uranium Project Environmental and Socio Economic Feasibility Report". I will obtain a copy of the said report to be lodged in the Commission's offices.

Yours very truly,
RUSSELL & DUMOULIN

Per: 

encl.
cc: Canadian Coalition for Nuclear Responsibility
Attention: John Moelaert
CBJ/cs

TELEPHONE: 688-3411 • AREA CODE 604

CABLE ADDRESS: "RUSSELLCO"

TELEX 04 53197

TELECOPIER

17TH FLOOR, MACMILLAN BLOEDEL BUILDING

1075 WEST GEORGIA STREET

VANCOUVER, B. C.

V6E 3G2

1979 08 16

Jim Neville
Project Manager
Norcen
Energy Resources Limited
715 - 5th Avenue S.W.
Calgary, Alberta
T2P 2X7

TAILINGS POND & AECB REPORT

During the visit of the Royal Commission and company to the Blizzards Claim June 4th, you mentioned that the proposed location for the tailings pond was right at a divide of two watersheds.

We would appreciate learning why this is seen Norcen as an advantage since by locating the tailings pond that way, two rather than one watershed would be threatened by possible pollution.

From your Vancouver law firm we have received what is reported to be a copy of a report filed with the Atomic Energy Control Board under the requirements of Permit MX11/77. In this report it is stated, among other things, that all your employees were issued with dosimeter badges in September 1978, which were worn by employees while on the Blizzard property. We have film footage as well as slides taken during and after September 1978 of employees involved in drilling and other exploration activities which do not show any dosimeter badges. Could you explain this apparent contradiction to the statement made in the formentioned report.

It is also stated in the same report that core samples were stored "at least 100 meters from the camp living accommodation." Photographs of the Norcen camp clearly show that the distance between the core sample shed appears to be considerably closer to the camp trailers than 100 meters. In fact, we had coffee in one building that was not only considerably closer than 100 feet from the storage shed, but also had some uranium-bearing material in the same building.

CONT'D

Jim Neville
Page 2
1979 08 16

We would appreciate receiving an explanation about these apparent contradictions with what was reported to the AECB.

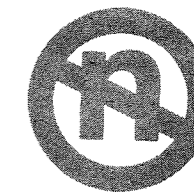
I look forward to hearing from you.

JOHN MOELAERT - CHAIRMAN

dd



- 65 -
**Canadian Coalition for
Nuclear Responsibility**



BOX 1093, KELOWNA, B.C., CANADA V1Y 7P8

79 09 14

General Manager
Norcen Energy Resources
715 - 5th Ave. S.W.
Calgary, Alberta
T2P 2X7

URANIUM INQUIRY PARTICIPATION

I would very much appreciate learning from you whether Norcen's participation in B.C.'s uranium inquiry includes providing information to other participants, such as our organization.

As you may be aware one report we requested last September was not sent to us until nine months later, after repeated requests for same were made.

At present my Aug. 16 letter to Jim Neville is still unanswered. Obviously, unless requested information is provided accurately, completely and without unnecessary delay among major inquiry participants, the inquiry process will be seriously undermined. I like to think that is not Norcen's aim.

I look forward to your early response.

John Moelaert
JOHN MOELAERT—CHAIRMAN

t1

cc Dr. David Bates, Chairman
Royal Commission into Uranium Mining

"Better active today than radioactive tomorrow"

Norcen

Energy Resources Limited

NORCEN TOWER,
715 - 5th Avenue S.W.
CALGARY, ALBERTA T2P 2X7
Phone (403) 231-0111

1979 September 21

Canadian Coalition for Nuclear Responsibility,
Box 1093
Kelowna, British Columbia
V1Y 7P8

Dear Sirs:


I am sorry to be so long in responding to your letter to Jim Neville but it has been bouncing between Vancouver and Calgary.

We will deal with the reasons for the proposed location of the tailings pond in Phase V and I expect that the answer to your questions will be found in our filed material for that Phase. If it isn't, we will have a panel of witnesses available to deal with your concern.

As to the other two points, we are treating these as "notice" of questions you will be asking during the Hearings and we will hopefully have the answers you seek. It would be useful if you could send along copies of the slides you refer to, but if this is not possible, please let me know the dates you took the film footage and slides of employees without dosimeter badges. This will help us considerably.

Yours truly,

NORCEN ENERGY RESOURCES LIMITED


D. A. Sawyer, P. Geol.,
Manager, Minerals

DAS/lt

EMPLOYMENT AND INCOME ESTIMATES TRAVEL INDUSTRY, OKANAGAN VALLEY 1978

Employment Estimates (1)	Full Time	Part Time	Total (3)	(%)
Okanagan-Similkameen Regional District	500	275	775	(44.3)
Central Okanagan Regional District	325	200	525	(30.0)
North Okanagan Regional District	275	175	450	(25.7)
Total, Okanagan Valley	1100	650	*1750	(100.0)

Total, 1971 (2) 942 419 1361

*Approximately 2.5 per cent of total employment, Okanagan Valley

- (1) Employment in government approved tourist accomodation -- does not include employment in restaurants and dining places which do not provide accomodation.
- (2) Source: Employment and Investment in B.C. Government Approved Tourist Accomodation, Department of Industrial Development, February, 1973.
- (3) Traveller expenditures on other goods and services estimated to support an equal number of jobs according to above study, which would raise total employment generated by tourism to 3,500 in 1978.

Employment Income Estimates (1)

Okanagan-Similkameen Regional District	\$6,300,000
Central Okanagan Regional District	4,300,000
North Okanagan Regional District	3,650,000
*Total, Okanagan Valley	\$14,250,000

*Adding employment income of workers on jobs generated by traveller expenditures on other goods and services would approximately double the direct income estimate of \$14,250,000.

- (1) Estimated earnings employees in hotels, motels and restaurants, establishments with 20 or more employees.

D. M. Roussel, Economic Services Branch
Dept. of Employment & Immigration
Kamloops, B. C. 13 August, 1979.

Preliminary Report of the Contribution of
Agriculture on the central Okanagan

According to Don Cheyne of the B.C.F.G.A. there are 2100 fruit growers under the auspices of the B.C.F.G.A. including Creston and Keremeos and Oliver and Osoyoos. He estimates that for every grower, another 10 people are employed. They have 26,000 acres under production.

The breakdown of tree fruit growers and acreage in the central Okanagan is as follows:

<u>Area</u>	<u>No. of growers</u>	<u>Acreage</u>
Winfield - Okanagan Centre	128	1710
Oyama	87	909
Glenmore	62	1263
Rutland-Ellison	144	2897
Southeast Kelowna-Okanagan Mission	<u>164</u>	<u>3317</u>
Total	585	10,096

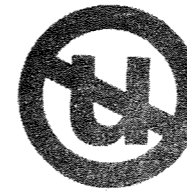
According to Judy Heck of the B.C. Grape Marketing Board in Kelowna, there are 168 grape growers in the Okanagan. They have 3,123 acres under grapes.

For the central Okanagan the breakdown is as follows:

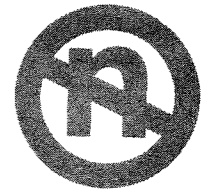
<u>Area</u>	<u>Acreage</u>
Okanagan Centre	112 3/4
Winfield	38
Ellison	50 1/2
Belgo-Rutland	66 3/4
Southeast Kelowna	402 1/2
Okanagan Mission	<u>280</u>
Total	950 1/2

For the remainder of the valley, the breakdown is as follows:

<u>Area</u>	<u>Acreage</u>
Vernon	49
Lakeview Heights-Westbank	339 3/4
Peachland	48 1/2
Summerland	59 3/4
Penticton-Okanagan Falls	120 3/4
Oliver-Osoyoos	1474 3/4
Cawston	<u>90 3/4</u>
Total	2183 1/4



Canadian Coalition for Nuclear Responsibility



BOX 1093, KELOWNA, B.C., CANADA V1Y 7P8

NEWS RELEASE

PLEASE DO NOT RELEASE
BEFORE FEB. 20, 1980

ANTI-URANIUM RALLY PLANNED FOR VICTORIA

There will be more than the usual interest in the official opening of the B.C. Legislature Friday, Feb. 29. People opposed to uranium mining in B.C. will stage a rally at the parliament buildings to coincide with the opening ceremonies.

Demonstrators are expected from Vancouver Island, the Lower Mainland various interior points such as Clearwater, Kamloops, Kelowna, Penticton and Nelson, and from as far north as Atlin.

Musicians and speakers from various organizations will be at the rally. More than 100 organizations to date have publicly expressed opposition to uranium mining in B.C. The organizations include the B.C. Medical Association, the B.C. Federation of Labour, the B.C. Teachers Federation, the United Church and many others.

"We have a message for the Government of B.C.," said rally co-ordinator, John Moelaert of Kelowna: "If you want to stay in, keep uranium mines out."

Rally organizers expect a good turnout and said the public is invited to join the rally. The opening ceremonies of the B.C. Legislature have been scheduled to begin at 2 p.m. The anti-uranium demonstration will start one hour earlier.

FOR FURTHER INFORMATION CONTACT: JOHN MOELAERT AT 764-4949 (Kelowna)

"Better active today than radioactive tomorrow"