

keep it in the ground
international stop
uranium mining news
february 1982

SUBSCRIPTIONS

A subscription to the Keep It In The Ground costs f25 for individuals (\$5.00, \$12.50) and f50 for institutions per year (10 issues).

Up until this stage the KIITG expenses have been financed by the Smiling Sun Foundation, Novib and NCO. This year we are facing the big problem: they are most likely unable to continue funding us. This means that to continue to publish KIITG, we have to ask our friends and readers for more assistance. Several donations of f100 would be very wonderful.

GIRO: 4088285

Look on the back cover for your nearest relay. If there is no relay in your area, subscribe direct via WISE Amsterdam.

ABOUT THIS NEWSLETTER

This is a newsletter linking together in an information chain people all round the world working to stop uranium mining. It is a participation publication, and all people are invited to send articles to us. We also publish scientific information which groups can use in their campaign. An amazing amount can be shared, and there is a lot to be gained from learning from the knowledge and experience, solidarity and support of others.

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wise

World Information Service on Energy

WISE was set up by safe energy activists in 1978 to function as an international switchboard for local and national safe energy groups around the world who want to exchange information and support one another.

WISE now has relays in 11 countries and a worldwide network of grassroots contacts.

We are funded by the anti-nuclear movement through sales of the Smiling Sun symbol 'Nuclear Energy? No Thanks'.

For information on WISE publications and on how to become a member or give financial support contact:

WISE-Amsterdam, Blasiusstraat 90,
1091 CW Amsterdam, The Netherlands,
Tel.: 020-924264, Post Account:
40.88.285

This issue of Keep It In The Ground is the combined work of the Amsterdam staff, the Australia and Washington relays, and information from other relays and friends. Lin Pugh is the editor.

Please freely re-publish our news, that's our purpose! BUT...please say that the news is from KIITG. Thanks. Copyright 1982.



the yellowcake road

THE YELLOWCAKE ROAD is one which many activists at this time are studying and plotting - to find those weak links in the chain of the nuclear industry to stop the industry at the very beginning. Transport action is a strategy which has been talked about for many years, and there have been actions on location. Now there seems more interest in uranium "consumer" countries - Europe - to also do something about the transports. In this section of KIITG we publish several action and several background stories on transports. If your group is doing research and comes up with some important facts, please send them to KIITG so we can publish them, that others may also benefit from your work.

BANS ARE BROKEN: URANIUM BEING LOADED IN DARWIN

The union ban on uranium leaving the wharf in Darwin, Australia, which was begun in October, has been forced to a halt. The uranium is now being loaded by union labour onto two ships, the Pacific Sky and the Perkins Barge. Reliable sources in the anti uranium mining movement say that loading will be completed within the month of January.

The uranium comes from two mines, one Ranger, the other Queensland Mines, Nabarlek. The shipment is crucial for several reasons:

- the Federal Australian government, and the Northern Territory Administration, need to get Ranger working smoothly. Its the biggest of current mines and has already experienced delays due to Aboriginal protests and the Ranger Enquiry (Fox Report). Ranger's production, planned to level out at 3000 tons per year, is partly taken up by Japan, South Korea, and the European Economic Community.
- the Australian government thinks it has laid to rest opposition to mining from Northern Territory Aborigines, and wants new mines opened at Jabiluka, Yeelirrie (Western Australia), South Australia and in Queensland. Any prolonged delays at Ranger will call into question again, the Australian decision to become one of the west's biggest providers of uranium in the eighties.
- the Fox Report warned against severe environmental contamination, should the tailings at Ranger not be neutralised using the best possible technology. Yet, in the last week of November 1981, the mine was temporarily closed because an 'island' started appearing in the tailings dam - a clear breach of basic environmental standards which is potentially lethal for the land and waters around the mine.

Forty-two of the containers being loaded at Darwin are from Ranger, and they are expected to travel to Britain for the hexing process, perhaps also enrichment. It is quite likely some of the uranium will also be handled by Eldorado (Canada Crown corporation), will travel to the USA (Kerr McGee) and lastly Japan. An action is being planned for when the uranium comes into the various ports. The Queensland mines shipment will go at least to Singapore, but after this is unknown to outsiders.

WHY IS IT NOW BEING LOADED?

The Australian Council of Trade Unions (ACTU) Executive voted at a meeting in Melbourne, December 8 1981, not to uphold the bans. The decision affects both the actions at Darwin, and the Seamens Union (Queensland) ban on uranium exports which has operated since February. Up until now, the ACTU policy is not to participate in the mining and export of Australian uranium until solutions to the many problems surrounding uranium have been resolved. The trade unions had pretty well stood out alone to hold back the flood of multinational mining companies into the outback of Australia. The picture looks ominous. If the ACTU policy is officially changed in the next Executive meeting in February (at this stage it is dropped, and the next meeting will determine if it is written out of ACTU policy), there will be no holds barred to multinationals wanting to cut up vast areas of (mostly) Aboriginal Australia. It also means that strikes and transport blockades by unions in future, for whatever good reason, will get little support.

The unions were under pressure to change their policy. A Federal Court put an injunction on the Seamens Union in

Queensland last October. The injunction was called for by Mary Kathleen Uranium and the Queensland Attorney General, and was granted on a temporary basis, pending a final hearing under Section 45D of the Trade Practices Act, to be heard early next year. The provision under which this injunction was granted was introduced late in 1980, presumably just for this purpose. The penal provisions include fines on union members and officials, and possible deregistration of the union.

Sources indicate that a strong pro-mining faction in the ACTU Executive was using the threat of more, similar injunctions to lobby for an ACTU policy favouring uranium mining.

INTERNATIONAL SUPPORT STILL NEEDED

The evening before the ACTU decision was taken, activist groups in Europe were contacted by Les Russell of the Aboriginal Mining Information Centre in Melbourne, asking for immediate messages of support of the old policy. Within the space of a few (night) hours, networks of people were contacted and as a result telegrams were sent from all over Europe and America. The great Peace Movement (CND) in the United Kingdom, Friends of the Earth in the Netherlands, representatives of the Swiss anti nuclear movement, a group called European Parliament Members of Parliament against Nuclear Arms, various German anti nuclear groups, and the London office of European Nuclear Disarmament are among the many groups who sent messages. All this may not have had a lot of effect on the meeting of December 8, but may have an effect on the February meeting's decision. Pressure from around the world can help, especially from other unions, and more messages of support have been requested by people working on sustaining the old policy. John Speight of the Amalgamated Metalworkers and Shipwrights Union, who can be contacted via the Movement Against Uranium Mining, should be sent all the messages for proper distribution.

From Boolidit-Booliditba, the following message:

" We, the Aboriginal people of Australia, are totally opposed to the mining, handling, and shipping of uranium from our land. We don't want our sacred land ripped up and the dangerous elements extracted to be sent to other peoples where it may cause death or injury. We ask for your support".

contact: Movement Against Uranium Mining
250 George St, Fitzroy 3065, Australia.

Sources: CANP newsletter Nov 81, plus talks with several Australian activists per telephone.

background

TRACING AUSTRALIAN URANIUM TRANSPORTS

Contracts for the sales of Australian uranium have so far been arranged by three companies - Mary Kathleen Ltd, Queensland Mines Ltd (Nabarlek) and Energy Resources of Australia Ltd (Ranger). Mary Kathleen recommenced yellowcake production in 1976, Nabarlek began in 1980, and Ranger began producing at the end of 1981.

Queensland Mines has arranged sales to Japan, Finland, and South Korea, and ERA has arranged sales to Japan, West Germany, South Korea, USA Sweden and Belgium. Details of the volume of each sale, the period of delivery and the customer company follow in this article. Mary Kathleen's sales contracts, which were arranged in 1972, cover exports of about 7000 tons U308 to Japan, West Germany and the USA.

The nuclear power stations in these countries to which uranium is being exported are almost all of the light water type. The uranium yellowcake will therefore pass through three stages of processing before it is used to fuel these power stations. These stages are:

1. conversion to uranium hexafluoride
2. enrichment (to about 3% U235)
3. fabrication of fuel rods.

Shipments of uranium leaving Australia are likely to be destined for a uranium conversion plant or for the customer country to be stockpiled.

Neither the Australian government nor any of the uranium companies have released details of the processing plans of uranium customers. Nor do they make public the destination of particular shipments. But there are not many uranium conversion plants around the world to choose from.

A table setting out present and planned commercial conversion capacity, by country, is following. It is therefore possible to make an educated guess as to the destination of a particular uranium shipment if the customer country is known. For example, a shipment of uranium for sale to a Japanese utility is likely to be destined for the Eldorado plant at Port Hope or the Comhurex plant at Pierrelatte in France. It is somewhat less likely to be headed for BNFL at Springfield or to the USA.

RANGER PROJECT - URANIUM SALES CONTRACTS

IMPORTING COUNTRY	VOLUME OF URANIUM (tons U3O8)	PERIOD OF DELIVERY	CUSTOMER COMPANIES
Japan	14,176	1982-1996	Kansai, Kyushu and Shikoku electric power companies and C.Utah &Co Ltd
West Germany	18,479	1982-1996	RWE A.G., Urangesellschaft, Saarberg-Interplan Uran GmbH
South Korea	2,270	1983-1992	Korea Electric Company
U.S.A.	2,043	1982-1990	Indiana and Michigan Electric Company (wholly owned by American Electric Power Company)
Sweden	3,150	1982-1996	Oskarshomnsverkets Kraftgrupp Aktiebolag (electricity utility)
Belgium	1,429	1982-?	Synatome Societe Anonyme
Australian Govt Stockpile Replacement	1,011	1982-1984	
TOTAL	42,558	1982-1996	

Total production = 45,000 tons. Thus sales contracts 95% of expected production.
Value of foreign sales US\$2,844 million (at US\$31 per lb U3O8)

NABARLEK PROJECT - URANIUM SALES CONTRACTS

Japan*	2,926	1975-1985	Kyushu/Shikoku Electric Power Utils.
Finland	815	1981-1986	Toellisuuden Voima Oy Industrins Kraft
South Korea	1,359	?	?

* Another 1621 tons has been committed for sale to Japan under firm letter of intent.

Nabarlek reserves estimated by Queensland Mines at 12,000 tons

Total volume contracted for sale = 6721 tons. 56% of reserves are committed

ESTIMATED PRESENT AND PLANNED CONVERSION CAPACITY BY COUNTRY

COUNTRY	OWNER	LOCATION	Nominal Present Capacity	Planned Capacity
USA	Allied Chemicals	Metropolis, Ill	12,700	.....
USA	Kerr McGee	Sequoyah, Okla	9,100	.....
Canada	Eldorado	Warman, Sask	.....	9,000
Canada	Eldorado	Port Hope, Ontario	5,500	14,000('85)
Canada	Eldorado	Blind River, Ontario	.....	9,000
France	Comurhex	Pierrelatte	13,000	15,000('85)
UK	BNFL	Springfield	8,000	9,500
Brazil	Empress Nucleares Brasileiras	....	.....	500('84)
Japan	Power Reactor & Nuclear Fuel	Ningyo Pass, Okayama	.....	200('81)
USSR	V/O Techsnabexport	(information not available)		

(These figures and facts supplied by the Australian government, 1980/81)

In May 1980 Doug Anthony, Australian Minister for Trade and Resources, stated "Commercial conversion plants normally operate on a continuous basis, with no attempt being made to segregate uranium from other sources, or according to its destination".

In other words, Australian uranium loses its nationality at the conversion stage. Batches of Hexafluoride proportional in volume to the Australian supplied proceed to the enrichment stage.

Enrichment services are provided by four groups, the United States Dept of Energy, the Soviet Union through Techsnabexport, the French-led consortium Eurodif, and URENCO, the British-West German-Dutch consortium.

The United States enrichment plants, which are used for both weapons production and commercial enrichment, are located at Oak Ridge Tennessee, Portsmouth Ohio, and Paducah Kentucky. There are no details on the location of the Soviet plants, they too are used for military production and are not open to international safeguards inspection. The Eurodif plant is located at Tricastin in Southern France, and the URENCO plants at Capenhurst in England and Almelo in the Netherlands. Most likely uranium supplied to Finland will be enriched in the USSR, and uranium supplied to Japan will be enriched in the USA.

Still to be researched is where Australian uranium is likely to be made into fuel rods - people having that information, please send to Frank Muller, who has compiled this information. Almost certainly, uranium enriched in Almelo is made into fuel rods in Lingen, West Germany (just over the border from Almelo).

contact Frank Muller
c/o Tom Urens Office
10 Bridge Street
Granville, NSW 2142
Australia

THE YELLOWCAKE ROAD IN CANADA

Uranium from all the producing mines in Northern Saskatchewan (Cluff Lake, Rabbit Lake and Uranium City) is transported to Saskatoon, where the major mining and trucking companies have their head offices. From here, some is transported directly (unrefined) to the U.S., but most goes by rail to the Port Hope refinery in Ontario. (see story on Eldorado in this issue).

The uranium leaving Port Hope goes to Argentina, Finland, France, India, Italy, Belgium, Pakistan, Russia, South Korea, Spain, Sweden, Switzerland, Taiwan, the United Kingdom, the United States and West Germany. Yellowcake from all over Saskatchewan may expose communities all over the world to the dangers of uranium transportation before reaching its final (at which stage is it final?) destination. For example, Saskatchewan uranium bought by a West German customer, RWE, is sent to Port Hope for refining, then to Russia for enriching, to Exxon-Nuclear's facility in Richmond, Washington, to be made into fuel pellets, and then across the ocean again to West Germany's reactors.

Also located in Saskatchewan is a mini uranium mill and a Slowpoke nuclear reactor. The reactor is, among other things, to analyse microscopic samples. The fine degree of accuracy provided (in quantities as small as parts per billion) allows uranium mills to be "fine tuned" for maximum output. The mill is used to experiment with methods for improving the Cluff Lake operation; it is expected to operate for six months, ending about now. Liquid wastes from the mill are dumped into the South Saskatchewan River and solid wastes are taken to the Cluff Lake waste area.

HAZARDS

Yellowcake is radioactive, but will not result in immediate death on contact, nor will it burn or explode. The danger to people and other animals lies in the possible inhaling, ingesting, or absorbing of yellowcake carried by winds or lost through leakage or accident. A study on the effects of the inhalation of uranium dioxide (UO₂) dust on dogs, rats and monkeys found uranium dioxide to be four or five times more effective than plutonium in inducing tumours (Health Physics Pergamon Press, 1973, Vol 25, Sept. pp 239-258)

According to the U.S. Nuclear Regulatory Commission:

"The most severe potential accidents are those involving shipment of yellowcake. Under a worst accident scenario in a relatively populated area, total exposures are predicted to be as much as 10 times what occur from a single mill's annual operation" (1979, Draft Generic Environmental Impact Statement on Uranium Milling)

Provincial, federal and corporate responsibilities for clean up in case of a yellowcake spill is unclear. The Federal Department of Transport operates the



Canadian Transport Emergency Centre (CANUTEC) in Ottawa, and invites people to collect call day or night. (613-996-6666). CANUTEC can be called for information on transportation of hazardous materials as well as what to do in the event of an accident, but will not travel to the scene themselves.

Transportation of uranium is hazardous, but there are greater hazards where the uranium is coming from and where it is going.

contact: Miles Goldstick
CCNR, PO Box 236
"Snowdon", Montreal, Quebec
H3X 3T4 Canada tel (514) 842 1471

GERMAN URANIUM COMPANIES

Interest in Germany and surrounding countries in transport action prompts us to publish the following information, culled largely from industry sources:

Reederei und Spedition "Braunkohle" GmbH
This transport and loading company handles uranium oxide uranium hexafluoride, radioactive elements and all classes of dangerous goods. They have offshoots in Amsterdam, Rotterdam, Basel, Heilbronn, Karlsruhe, Ludwigstein, Mannheim, and Würzburg, with main offices at
Kölnerstrasse 38-44
D-5047 Wesseling 1, BRD
telephone (02236) 704-1
telex 08 886 957

Their montreal (Canada) subsidiary is Braunkohle Transport Canada Inc
465, Rue Saint Jean
CDN Montreal, Que H2Y 2R6
telephone (001514) 843 5839
telex 002 155 60379

Transnuklear GmbH is also a transport company. Address:
Postfach 11 00 30
D-6450 Hanau 11
BRD tel (06181) 500-1
telex 04184123 inf.

This is a subsidiary of NUKEM. Other relations are:
Transnucléaire S.A. Paris
Transnuclear Inc, White Plains, NY, USA
Transnubel SA, Brussels
Transnuclear SA Madrid
Nuclear Transport Ltd, Risley, Warrington, UK.
Also linked to the name Transnuklear are Nulux, Hobeg, Decatox.

SAARBERG-Interplan
Address: Stengelstrasse 1
D-6600 Saarbrücken BRD
telephone (0681) 5008-1
telex 4 421 216 sbip d
Saarberg-Interplan is involved in prospecting, exploration, geology, mineralogy, geochemistry, drilling, analysis, mining, "environment", clean-up.

Uranit
Postfach 1411
D 5170 Jülich, BRD
telephone (02461) 65-1

This is a subsidiary of VEBA/Gelsenberg AG (40%)
Hoechst AG (20%)
Nukem GbmH (40%)
It is involved in uranium enrichment development and practice. It is the German part of the URENCO partnership, representing the West German interests. It has 43.75% participation in the Almelo, Netherlands, Ultracentrifuge uranium enrichment plant.

Urangesellschaft

Address: Postfach 1 44 09
D-6000 Frankfurt am Main 1
telephone (0611) 21 69-1
telex 0413 199

This is a uranium mining company, it also deals in uranium sales in the form of ore, concentrates, and combinations. It is joint subsidiary of Metallgesellschaft AG, Frankfurt, of STEAG AG, Essen, and VEBA AG, Bonn/Berlin.

It has business in Canada, Australia, Niger, the USA, Brazil, Indonesia, and West Germany.

Uranerzbergbau GmbH

Postfach 170210
Bonn 1
telephone (02221) 5571
telex 8869 670

This is a subsidiary of C.Deilmann AG in Bentheim, and Rheinische Braunkohlenwerke AG in Cologne. It is also involved all over the world in uranium mining. Some 50 places are affected by this company - in Australia, the USA, Canada, Switzerland, Austria, West Germany, and Togo.

WHERE DOES ALL THE EUROPEAN URANIUM COME FROM?

In 1980	
Australia	1,1561 tons/U
France	2,650
Gabon	1,033
Canada	7,050
Namibia	4,000
Niger	3,880
South Africa	6,146
USA	16,460



earliest mine

The earliest known mining operations were in the Ngwenya Hills of the Hhohho District in northwestern Swaziland, where hematite (iron ore) was mined for body paint about 41,000 B.C.

ACTION

TRI-STATE ANTI-URANIUM ORGANISERS CONFERENCE

Over 70 anti-uranium organisers from Minnesota, Wisconsin and Michigan met in northern Wisconsin in September last year to learn research and organising skills and to share strategies on how to stop uranium mining before it starts in the tri-state region. This was a giant step forward for the growing movement against uranium development in the region.

At Friday's opening session, panelists from South Dakota, Wisconsin, Minnesota and Upper Peninsula Michigan talked about their experiences with uranium mining and organising in their regions.

Deb Rogers, former staff ecologist with the South West Mining Center and now working with the Technical Information Project in North Dakota, raised many key issues confronting all uranium organisers in her presentation.

Deb stated that while the large mining companies run the game, "there's only one type of power we have access to that they really don't. We have people's self

interest on our side. We're essentially right when we say that the uranium industry won't help communities. In fact, it will actually hurt communities".

Saturday and Sunday were filled with workshops on research, organising, and strategy. The workshops were led by regional and national resource persons including Paul Robinson of the Southwest Research and Information Centre in Albuquerque, New Mexico. Statewide coalition building, researching leasing and exploration activity, grass roots fundraising, local zoning ordinances and statewide legislation on mining, uranium mining on Indian reservations, citizen intervention in the regulatory process, and educational outreach, were some of the topics covered.

Coming out of the conference were the following ideas:

- organising around water quality and establishing good groundwater protection rules
- more local controls on uranium developments
- lobbying for good statewide legislation on uranium mining.

- establish good solid network of activists. The Mining Center will help make sure this can happen. They will also make a resource directory.

The entire conference proceeding were recorded on cassette tapes. Copies are

contact: David Weiss
Center for Alternative Mining
Development Policy
1121 University Avenue/Madison
Wisconsin 53715 tel 251 7246

PLANS FOR A THIRD EUROPEAN CONFERENCE AGAINST URANIUM MINING

Dear Friends,

It is a new year, and we are working on the plans for the 3rd European conference against uranium mining. But the development during past weeks has been unfavourable in some ways, even though our plans can still be of use.

This is the situation. On the 2nd conference in the Fichtelgebirge, Germany, we were asked to arrange the conference for 1982. The main reason for asking us was that it would be close to the time of the World Conference on the Environment, scheduled to be held in Stockholm in June 1982, sponsored by the United Nations. Now the UN has withdrawn its support economically - \$100,000 are not coming in to the organisers. The Stockholm conference can therefore not be a worldwide arrangement, and will instead become a Nordic event.

Therefore the stimulating advantages of holding the uranium conference in Stockholm in June no longer exist. We now want to know whether you still agree to the idea of the conference being held in Stockholm. It is far away and expensive travel for many, especially Southern Europeans. We do have plans drawn up, for locality and programme. These are:

The conference will be held in Flämslätt, near Skövde, in South Central Sweden. This is near a large, closed down open-pit mine.

Friday: Introductions in evening

Saturday: Visit to Ranstad mine, information on Uranium Mining in Sweden

Sunday: Group discussions on different topics

Monday: Summaries, press conference, etc.

A public meeting will also be held in Skövde on Saturday. The main theme for the discussions is suggested to be international coordination of actions, information etc.

Please react quickly to these plans. Do

you have suggestions for speakers? reflections on the programme? reactions?

Hope to see you in the summer
Göran Eklöf
Enrisvägen 20
S-702 34 Orebro, Sweden.

(I for one wouldn't mind a change: at least having Saturday and Sunday for international discussion, so we can really get down to planning - Ed)

A GOOD START FOR PARTIZANS - AND NOW?

Mining is the world's second most important economic activity. says the Financial Times - food comes first. Yet, while we can all name half a dozen important food corporations, can you think of three or four mining companies? You may know where the contents of your food cans come from - but have you the faintest idea who made the tins?

The realities of "resource extraction" are concealed from the consumers of its final product for several reasons. We in PARTIZANS accept the greater difficulty involved in targetting a mining company than boycotting (say) Nestlé or Brooke Bond. But the Problems aren't insuperable. Already, in the first full year of PARTIZANS campaigning, we've held the first international tribunal on a multi-national corporation to be addressed solely by its victims. During the WEEK OF ACTION in May 1981, demonstrations, film-shows and seminars in Britain were joined by actions in Australia, Spain, northern Ireland and elsewhere.

Now, the long-term disinvestment campaign is taking root, with dis-investments of RTZ (Rio Tinto Zinc) shares already from: the Salvation Army, National Children's Homes, Baha'i Spiritual Assembly, a major Cork (Eire) newspaper, Tyne Wear Council and several churches. We also know of dis-investment campaigns in Durham, and at York and Cambridge Universities. Over the next few months, supporters will be concentrating their energies on nuclear free zones, asking councils who still hold RTZ shares to dis-invest.

But we're under few illusions. Disinvestment isn't an end in itself. Nor is Rio Tinto Zinc the world's only target. Our immediate, "issue oriented" campaigning surely only makes sense in the context of a worldwide shift in economic power, from the few to the many. That's a lifetime's work. Let's live it!

Partizans badly needs funds, by the way.

Contact: PARTIZANS, 218 Liverpool Rd, London
N1 Great Britain. tel (1)6091852

ANTI APARTHEID AND ANTI NUCLEAR GROUPS
JOIN TO OPPOSE NAMIBIAN URANIUM IN THE
NETHERLANDS

On November 28 a seminar entitled "No Nuclear Collaboration with South Africa" was held in Utrecht, the Netherlands. The day was called together collectively by the Dutch anti nuclear and anti apartheid movements.

Urenco uranium, enriched in Almelo in the Netherlands, plays a central role in the Dutch involvement in the South African nuclear complex. South African and Namibian uranium is enriched at Almelo -- this uranium is delivered via West Germany from France. Clearly then, the Netherlands is seriously violating binding international laws decreed by the United Nations Security Council. Although the Netherlands has ratified the internationally accepted Decree Number 1 (Namibian Commission), the Dutch state is working in complete opposition by tolerating the enrichment of Namibian uranium at Almelo.

The seminar participants demanded an immediate halt to the import and processing of Namibian uranium on Dutch soil and will organise actions to ensure an immediate halt. They also declared their concern and uneasiness over the development of South Africa as a nuclear state and the support which this is getting from the Western world. France and the United States have been particularly willing to help:

- the French firm Framatome supplied some uranium for the two Koeberg reactors (actions in the Netherlands prevented enriched uranium coming from that country)
- Framatome delivered fuel rods
- nuclear parts were supplied by France.

Considering the long term military aggression of South Africa towards neighbouring countries, this all represents a serious threat to peace in Southern Africa, and to world peace. Telegrams were sent from seminar participants to the French government, the Socialist and the Communist parties of France, with copies to the French anti apartheid movement, anti nuclear movement, churches, trade unions, as well as to Euratom, several Dutch political parties and the Socialist International.

contact: Landelijk Energie Komitee
2e Weteringplantsoen 9,
Amsterdam 1017 ZD, the Netherlands

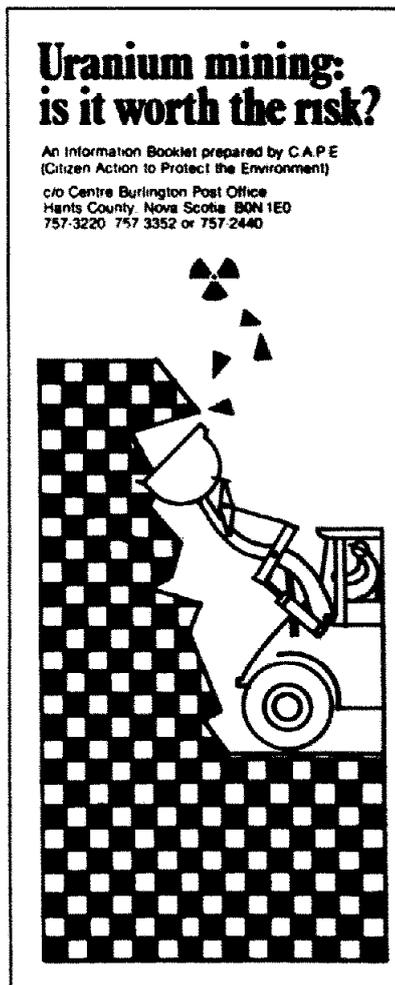
NOVA SCOTIA CITIZENS REACT AGAINST
URANIUM MINING

Nova Scotia citizens are becoming increasingly concerned about the level of exploration activity by uranium mining concerns in that province.

Uranium exploration permits have been issued for sites throughout this Canadian province, including a game sanctuary and a location in the watershed of the river from which Halifax town draws its drinking water. At one site school children on tours were being given samples of uranium to take home with them, until a local medical authority pointed out the possible dangers from ingestion.

In response, a number of meetings have been held to discuss the issue and to press for a moratorium on uranium exploration and mining. One group, Citizens Action to Protect the Environment (CAPE), has published a detailed, footnoted pamphlet entitled "Uranium Mining; is it worth the risk?".

CAPE
c/o Centre Burling Post Office
Hants County, N.S., Bon 1E0



ACTION ALERT: URANIUM MINING AT ROXBY

DOWNNS

Diana Maddocks and Ashley Campbell have requested your immediate and urgent action. They stress the crucial importance of international support in their Campaign Against Nuclear Energy (CANE) campaign against uranium mining. Readers of KIITG will remember that CANE is working on a boycott of British Petroleum, the company involved in developing Roxby Downs uranium deposit. Roxby Downs has the potential of being the largest uranium, copper and gold mine in the world, and is situated in South Australia.

They now need a campaign from outside Australia. The Pacific Concerns Resource Centre in Hawaii is organising Pacific support. They need "international resistance to be expressed so that our State government can be made aware that other areas of the world with a nuclear experience are knowledgeable of its intentions so that the issue becomes less domestic and parochial than it is at present", write Diana and Ashley.

In early December an Indenture Bill was introduced in the South Australia parliament. What exactly is happening with that we have not yet heard. An Indenture Bill is an agreement or contract between the government and the mining companies which sets the terms and guarantees the services of both organisations. The Indenture Bill will detail services and facilities to be provided by the government, like roads and water, as well as the royalties the mining companies will pay. An Indenture Bill is not necessary for the mining to go ahead, but it is necessary to allow the government to go ahead to develop the infrastructure to support such a project. In brief, then, the people's taxes will be used to build the roads and supply the water so that the mining company can gain greater profit while they contaminate the workers, the environment, the water system and while they are stockpiling uranium for even more destructive purposes.

Diana and Ashley request three letters to be written and sent as soon as possible:

1. The Indenture Bill is introduced by the ruling conservative Liberal Party. Write to protest the proposed development of Roxby Downs
Rt Hon Mr David Tonkin
Leader of the Parliamentary Liberal Party
Parliament House, Adelaide 5000 SA

2. The Indenture Bill is likely to be opposed by the major opposition party, the Labor Party. BUT the degree of opposition is not clear, because the lack of unanimity within the Labor Party at this time of high unemployment in South Australia. Therefore, write to support a NO vote to the proposed Bill:

Mr John Bannon
Leader of the Opposition Labour Party
Parliament House
North Terrace, Adelaide 5000 SA
Australia

3. The balance of power in the Senate is held by an Australian Democrat. His Party opposes the sales of uranium and is likely to oppose the Bill. Make sure he doesn't approve the mining but not the sales

Mr Lance Milne
Australian Democrats
Parliament House
North Terrace, Adelaide 5000 SA.

And when you have written the letters, tell Diana and Ashley about it, at

CANE
310 Angas St, Adelaide 5000 SA
Australia.

WORLD BIKERIDE FOR A NUCLEAR FREE FUTURE

Twenty people brought together by Friends of the Earth in Australia are about to start an epic bike ride for Peace. It begins in February, in Melbourne, and then to Canberra where the Parliament will be visited. After this they will visit, it seems, every nuclear installation in the country, covering thousands of kilometres, going right up north to Townsville (Ben Lomond uranium mine), all the way west to Kakadu National Park (Ranger uranium mine) and other mines along the way. The group will carry slides and films, and will perform street theatre and concerts en route.

Leaving Australia, they ride on to Bataan and Manila in the Philippines, protesting the use of Australian uranium in the Bataan nuclear reactor. By August 6 the bikers will be in Hiroshima, for the peace actions, and then travel 800 kilometres to Tokyo. From there to ride the Trans Siberian Railway to Moscow, to bring the Soviet government messages of peace.

Exhausted already? They not. On to Finland, where Australian uranium is contracted for use in Finnish nuclear programmes. Across the Baltic to Sweden, down to Denmark, and from there to the

International Court in the Hague, Holland, where they will present a world petition. Over to England, and a visit to Windscale and Dounreay, back over the channel to France and the Super Phoenix. The date by this is 1984.

Along the route, the twenty riders will be joined by local activists, and their activities in each country will be organised in cooperation with the local movement. They are looking now for contacts, funding, publicity. They hope to improve information channels and networks for the message of peace to flow freely. Contact them -- maybe they'll come visit you.

contact: World Bikeride Planning Group
101 Cleveland Street, Chippendale,
2008, NSW, Australia tel 6984114.

LILLJUTHATTEN VETO URANIUM?

In February the local government of the Krokum municipality will discuss a proposal from the anti nuclear Centre Party to say NO to all uranium mining at Lilljuthatten (see story in the last KIITG, where we told of secretive plans to develop uranium mining in this far northern mountain in Sweden). The municipality has the power to veto plans such as uranium mining, so a NO vote would be a great victory at this stage. But the mining interests have a campaign in the area promising new jobs. In the referendum in March 1980 more than 50% of the people in Krokum said no to nuclear energy (voted for line 3). So there is hope...

source: WISE Stockholm,
Lillbybacken 5²tr
163 72 Spanga, Sweden
tel (08) 36 21 52

UPSTATE NEW YORK NUCLEAR OPPONENTS

Gulf Oil has a lease on 420 acres in Sullivan County, Upstate New York, and Atlantic Richfields 600 acres, both with a plan to mine uranium. Since New York City's water could be endangered, the Council on the Environment, an advisory group to the City Council, has asked Sierra Club physicist Marvin Resnikoff, for information about uranium in the state. The Sierra Club is a well respected environment protection group. Communities upstate are trying to pass local bans, to aid a State law being introduced banning uranium mining. Assurance of success can never, however, only come through legislative channels. People power will have to win in the

end...

contact: Ann Spanel
210 Riverside Dr., New York
NY 10025, USA tel 662-4923.

ORANGE COUNTY FIGHTING URANIUM

I am writing on behalf of a group of citizens of Orange County, Virginia, called the Uranium Information Organisation. We are seriously concerned about the possibility that uranium is going to be mined in or near our county. The Marline Corporation has leased over 50,000 acres in Virginia for uranium development.

We have a very substantial base of support in Orange County: we are in the process of obtaining more than 3000 signatures of Orange County adult residents on a petition to the Virginia Coal and Energy Commission opposing uranium mining. Unfortunately, there have been few other groups in other areas of the state taking similar initiatives. Some of the leased land drains into streams that run into to Rapidan River, which supplies water to the town of Fredericksburg, with a population of 15,000 people. Other communities are also endangered by radiation pollution in the water system. There is a large farming population in the area, so thousands of acres of land, plus livestock, will be affected also by the lowering of the water table (draining of the aquifers, a typical occurrence in uranium mining areas, because the water is redirected for use in the uranium milling ponds). This is not even to mention the increased risk of cancer and birth defects associated with the uranium mining industry.

Therefore, we are asking you to publicise this issue. Support through passage of a resolution opposing uranium mining in Virginia would be extremely effective.

A brief history:

1978, October Marline Uranium Corp signs lease for mineral rights in Pittsylvania county.
1980, February, Orange County first lease signed. In that same year more leases in other counties followed.
1981, February, Virginia General Assembly passes resolutions requesting the Virginia Coal and Energy Commission to make a state study on uranium mining.
April, first public hearing, in Richmond. There followed several forums and hearings. In September the Culpeper Soil and Water Conservation District board passes resolution supporting moratorium on uranium mining.

contact: 150 Belleview Avenue
Orange, VA 22960, USA

MINE CLOSURE HITS CANADIAN WORKERS

Eldorado Nuclear Ltd has announced plans to close down Canada's oldest operating uranium mine next January 30. Closure of the 28 year old Beaverlodge mine and mill at Uranium City, Saskatchewan, will put 850 people out of work in a community of 2,500. Eldorado is the only major employer in Uranium City, located 850 kilometres north of Saskatoon (near the Northwest Territories and Alberta border), and its mine is the only reason for the town's existence.

"This is a bombshell on us", was the appropriate comment from Pierre Amyotte, president of the United Steelworkers America local 913. Amyotte said company officials had told the union that the mine would continue operations for at least 5 to 10 years.

Eldorado President N.M. Edgar flew into Uranium City December 3 to notify town officials of the closure, then flew out again on board a company jet. Company official David Smith said declining world prices for uranium (from \$50 to \$27 per pound in two years) were behind the decision, along with 40% drop in ore quality and rising production costs. The company claims it costs \$60 for a pound of uranium mined at Beaverlodge while open-pit mines in Saskatchewan produce the same product for \$5-\$10 (Canadian) a pound. "The mine has simply run out", Smith said, adding that the company was only keeping the site open another seven months "because of social considerations".

In response to news of the closure plans, the Greenpeace Foundation, which had called for Eldorado to close down its northern Saskatchewan operations this past autumn because of pollution concerns, is being cautious with its enthusiasm. Greenpeace is concerned about the radioactive wastes Eldorado is leaving behind. "That stuff will be there for years," warned Greenpeace communications director Bob Cummings, saying that the public must be adequately protected from radiation hazards.

The union, understandably, is less than enthusiastic. Faced with an uncertain future for its Beaverlodge members, Amyotte and the union have demanded a full government inquiry. What the province will do to ease the situation is yet to be determined. Saskatchewan Premier Allen Blakeney says, however, he is doubtful the provincial government can impose

any conditions on Eldorado governing how the closure is implemented. The government is negotiating with the union on relocation assistance.

Meanwhile, Mineral Resources Minister Elwood Cowley claimed before the legislature last week that Eldorado's decision to close Beaverlodge mine is no reflection on the viability of provincial mines elsewhere. But provincial liberal leader Ralph Goodale and others disagree, saying Saskatchewan has risked hundreds of millions of dollars in uranium development in what is turning out to be a very risky and uncertain venture. According to Goodale, Cowley has been painting a glowing and lucrative picture for the uranium industry there, while evidence shows it is anything but that.

contact: Saskatchewan Environmental Society,
PO Box 1372, Saskatoon,
Saskatchewan, S7K 3N9 Canada

LAWRENCE LONG SPEAKS AT THE 36th ATOMIC BOMB DISASTER ANNIVERSARY CONFERENCE

Brothers and sisters, I bring you greetings from the Navajo people. It is indeed an honor and a privilege to be here speaking to you today. Your hospitality has been overwhelming.

This problem may not be as serious as a direct hit from an A- or H-Bomb or the threat of nuclear waste dumping, but we are the people that are feeling the effect of these things.

Since 1940 the Navajo nation has yielded thousands of tons of uranium. The costs have always been high. Navajo miners who worked in the uranium mines in the Shiprock region in the period 1945-1964, fragmently incurred lung cancer as a result of that employment, and many have died.

In recent years, a dramatic increase in the price of yellowcake (refined ore) has resulted in a new wave of exploration and development of the uranium resources of this region far greater than anything else the southwest has ever seen.

Development activity is now centering on the Crownpoint-- Grants region of northwestern New Mexico, an area which is estimated to contain at least half of the nation's (USA) power resources of this dangerous mineral. That same region is also home to many thousands of Navajo Indians.

This area was the original homeland of the Navajos in the southwest, and it was nice

and beautiful until the uranium and other mining came in. In the last ten years, literally thousands of acres of this region have been quietly leased, bought, or staked by the giants of the energy industry, such as Exxon, Phillips, Conoco, Gulf, Kerr-McGee, United Nuclear Corp., Mobil and Arco, all focusing on the search for uranium. That search first involved the drilling of tens of thousands of exploration holes, which yielded evidence that there was, indeed, a fortune in uranium throughout the southwest region. Now several companies are preparing to commence or have commenced mining, and others are living up behind them. The terms and conditions under which they proceed will leave a permanent impact upon the Navajo who live on the land, and who watched events unfold with concern and fear.

Uranium mining under the circumstances present in the Crownpoint region has these principal sets of impacts: on the aquifer where the ore is found, on the air quality in the vicinity of the mines, and on the socio-economic and cultural features of the area. Milling of the ore also affects water, the lifeblood of the southwest region desert.

The water from which these uranium deposits precipitated is still locked into the Morrison formation, and indeed, is recognized as the highest quality aquifer in the region.

Unfortunately, while the Morrison water is in many ways the lifeblood of the southwest, it is merely a nuisance to the uranium miners. A mine shaft sunk into the ground in search of uranium will quickly fill with water unless the water is constantly pumped out to the surfaces. The water pumped from the mine, however, is merely released into a nearby drainage feature, and it is lost as evaporation, runoff, or seepage into the surface. Some of the polluted water has been accidentally spilled onto the Navajo land.

While the rupture of the United Nuclear Corporation's tailing's dam received some media coverage the event did not capture the attention of the general public. This is true despite the fact that the spill caused and continues to cause severe damages to the Navajo people and their land.

For the thousands of traditional Navajos in the southwest area, they have filed suit in courts intaking control of the activities which could destroy their lives if it proceeds unchecked. They have nowhere else to go, and nowhere else to look for help. For them this is an all or nothing struggle. People who for generations have lived peacefully and in harmony with the land are suddenly finding themselves at the center

of one of the most awesome undertakings of an energy hungry world since the Trinity project first demonstrated the feasibility of fission. The companies are not concerned about the legal rights or well-being of the Navajo People. They are only interested in the incredible wealth lying beneath the earth.

In closing, I would like to state that since President Reagan has cut our budget to zero we are without funds to fight these billion dollar corporations; and I'm afraid that if nothing is done the Navajo Nation will go through silent A- and H-Bomb results. So I came here to Japan for financial and spiritual support from the World. Also to stop the nuclear build-up by stopping it at its source.

Leave uranium in the ground. That is where it belongs. WALK IN BEAUTY

ENRICHMENT

A LONG, HOT SUMMER DRAWS ANGRY RESPONSES TO ELDORADO, CANADA

Eldorado Nuclear Ltd, long embattled by citizens and environmental groups for its chronic mismanagement of radioactive and toxic pollutants, has recently found opposition from an unexpected quarter, the Atomic Energy Control Board.

After a summer in which fluoride emissions from Eldorado's Port Hope uranium refinery exceeded the maximum allowable level by twenty-five times, the AECB refused Eldorado permission to start construction of a new refinery in the town. The federal agency told Eldorado that it must demonstrate a long term, effective method to reduce its heavy fluoride emissions before any further licences will be granted. A re-evaluation is expected in February.

This was not the only bad news for Eldorado. In mid-June, published financial statements revealed that the federal crown corporation suffered a \$200,000 loss in the first three months of 1981, leaving the firm's long-term debt at almost \$100 million.

In July Eldorado its name in the headlines again, following a report by Greenpeace Vancouver that the company had been refining uranium from Namibia, ignoring a United Nations decree against such arrangements. An Eldorado spokesperson confirmed in newspaper interviews that Eldorado had processed Namibian uranium, which was then re-exported to Japan.

Then in September a federal provincial government task force released a bombshell. The report confirmed that maximum concentrates in Port Hope harbour were 30 times greater than that of ore mined at Elliot Lake, and that levels of radiation in invertebrates tested in Port Hope Harbour were alarming enough to consider an extensive dredging campaign.

The levels corroborated a 1968 Ontario Ministry of the Environment study which found invertebrates had "concentrations within the harbour ranging from 128 times to 2800 times the norm for gross alpha radioactivity, 79 to 1300 times the norm for gross beta radioactivity, and 86 to 460 times for Radium 226."

The release of this information drew expressions of anger and shock, not only from Port Hope's struggling environmental coalition, but also from one town official. Deputy town president, Gerry Houston, told the Ottawa Citizen that the AECB's decision to delay Eldorado's license was not unjustified. "Sometimes that company needs its ass kicked", he said.

Two major decisions this summer, however, went in Eldorado's favour. On July 22 the AECB granted Eldorado an official construction permit for the Blind River refinery (\$130 million) and in late October, the Supreme Court of Ontario upheld an earlier ruling that legally exempts Eldorado from all provincial environmental legislation.

contact: Birch Bark Alliance,
C/o OPIRG
Trent University, Peterborough,
Ont K9J 7B8, Canada



THE GULLIVER FILE

NEW LARGE URANIUM DEPOSITS IN DRAMA, GREECE

A second large uranium deposit has been located by a governmental research team in the mountainous basin of Drama, in the North of Greece. At the moment that deposit is being examined to verify its depth.

In the meantime 25 test-drillings have taken place at various depths and the cores have been autoradiographed to determine content and life span.

In the area Paranesti Serres, with the cooperation of one of the UN's special services, an experimental unit for exploiting this new found uranium has been set up.

This is the first pilot plant for uranium exploitation in Greece.

At both deposits in Drama, there are indications, till now not proven, that the two deposits extend into Bulgaria. Co-exploitation between the two countries is at this stage unlikely.

The investigations at Drama have gained the interest of special technical teams, and it seems the new Socialist government Pasok is willing to assist in the valuation of the deposit.

Serres can produce more than 20,000 tons of uranium. The deposit has been defined, and approximately 1/4 of it in the area of Maramena is ready to be developed. This is according to information available through "Dimocritos" and from the report of the head of the United Nations research programme. Accurate calculations from the same source show that the development of only one section of the deposit is enough to set into operation 3 nuclear power plants totalling 2500 Mw.

The Maramena deposit, including also the area of Vrontou, contains metallic uranium which is found in aluminium mixed with carbon and in some places in thin layers of lignite. A significant fact is that explosives are not needed for rock extraction, and simple excavation machinery can be used. Exact European technology, therefore, will be used, with Greek labour.

At Sidivokastro, Serres, and Strimonas, significant uranium deposits have been found. In Drama, 40,000 to 50,000 tons

are estimated. In total the area containing radioactive minerals covers 280,000 acres.

In other places, considerable amounts of uranium have been found in Kavala, Kotili, Xanthi, Strimoniko, Evros, and also in the Aegean and Cyclades islands.

One of the United Nations workers revealed to the national daily newspaper The News that the Rockerfeller Institute of America discovered significant uranium deposits in "Ikaria" island in 1951. This same team located the Cyclades deposit in 1951.

The Group for a Natural Life is working against the uranium developments in Greece. Please note their new address.

George Phitas
21 Athinon Street
Aharnes, Attiki, Greece.

LIBYA: URANIUM PRODUCTION PLANNED WITH MADAGASCAR

Beirut, Dec 10 81. Libya and Madagascar are discussing the possibility of forming a joint company to exploit uranium deposits in the Indian Ocean island of Madagascar, according to a report published in Beirut this week.

Experts from the two countries will meet during the next three months to discuss setting up a joint uranium production, transformation and marketing company. The report quotes western sources as saying fairly important traces of uranium have been found on the island. Libya, which has a small Soviet-built nuclear reactor, buys large quantities of uranium from Niger.

Purchases for the first six months amounted to 1,212 tons, over six times its purchases last year, according to official figures.

The report quotes a government statement released early December as saying that Libya and Madagascar have agreed to set up two commercial joint ventures to invest in agricultural and other projects. An eight million US dollar holding company, Lima, will invest in every possible field of activity in Madagascar, while another joint company, Salm, with a capital of US\$20 million, will invest in cash crop and marketing, the statement added. Madagascar's Socialist President, Didier Ratsiraka, visited Libya in September. Following the visit he said the Libyans were prepared to invest some 250 million dollars in agricultural development in the island.

URANIUM COMPANY TO SCALE DOWN OPERATION IN IRELAND

Irish Base Metals Ltd is to scale down its uranium prospecting in Co Donegal, Ireland. This has been welcomed by campaigners who have been opposing the company's activities.

An Taisce, the National Trust, which on November 27 pointed out the possible dangers in residues of radioactive materials, stated its reservations about uranium mining and prospecting.

Dr Ronnie Steiger, head of exploration at Irish Base Metals, said in November that its operation would be considerably smaller next year (1982). The main reason for this was the declining uranium market, which was 'not promising' at the moment'. It would be a very high risk to continue exploration. On opposition Steiger said that that was "not really" the reason they left - "it is something you can live with".

Tara Prospecting also pulled out of the area recently. Steiger also said the results of researching in Leinster, with Maugh Ltd, was also not promising.

Whatever Steiger and his mates may say, Ralph Sheppard of the Donegal Uranium Campaign says that local opposition has played a part. The DUC will now make sure that other companies will not just move in where Irish Base left off.

contact: Ralph Sheppard
Carnowen House, Raphoe
Co Donegal, Ireland

SOUTH AFRICA BUYS ENRICHED URANIUM FROM SWITZERLAND

It appears that South Africa's Electricity Commission purchased enriched uranium from a Swiss company -- not from China as many new services reported -- in November 1981.

The enriched uranium, bound for Koeberg 1 reactor comes from Kernkraftwerk Kaiseraugst, a Swiss based consortium of Swiss, French and West German companies which is attempting to build the controversial Kaiseraugst nuclear power plant near Basel, Switzerland.

South Africa has several large enrichment contracts with the U.S., but these are being held up because of the US demand for full-scope safeguards at the South African reactor. South Africa supposedly wants the uranium as soon as possible so that it can proceed on schedule and load the fuel at Koeberg 1 this coming June. (Koeberg 2 is scheduled for loading in 1983).

source: Nucleonics Week Nov 26 1981

scientific studies

We re-print here sections from a bibliography/literature review produced by the British Columbia Medical Association together with Physicians for Social Responsibility, in fact put together in 1979. The booklet they produced is called Health Dangers of the Nuclear Fuel Chain and Low Level Ionising Radiation.

PSR
944 Market Street Room 808
San Francisco, Cal 94102 USA

- 3) Archer, V.E., Carroll, B.E., Brinton, H.P., and Saccomanno, G., "Epidemiological studies of some non-fatal effects of uranium mining", Radiological Health and Safety in Mining and Milling of Nuclear Materials, Vienna: International Atomic Energy Agency, Volume 1: 21-36, 1964.
 - In Colorado Plateau miners 1950-1960 "increased rates of emphysema, shortness of breath, persistent cough, pulmonary fibrosis and cell changes in the sputum suggestive of radiation effects, are associated with increasing radiation exposures in uranium miners", (in smokers as well as non-smokers compared with similar controls).
 - There is free silica in the dust in uranium mines, but in less than permissible amounts.
 - Good statistical analysis.
- 4) Archer, V.E., Gillan, D.J., James, L.A., "Respiratory disease mortality among uranium miners as related to height, radiation, smoking and latent period", Proceedings of the Third International Symposium on the Detection and Prevention of Cancer, Nieburgs, H.E. (editor), New York, 1976.
 - (-more increased cancer in uranium miners who smoke cigarettes than non-smoking miners.
 - radiation possibly enhances the fibrotic effect of silicosis.)
- 5) Archer, V.E., Gillan, J.D., and Wagoner, J.K., "Respiratory disease mortality among uranium miners", Annals of New York Academy of Sciences, 271: 280-293, 1976.
 - "Uranium, as found in nature, is normally at or near equilibrium with its decay products, which include the inert gas radon. Because radon diffuses from the rock into open areas of mines, most underground miners are exposed to radon concentrations in excess of those found above ground."
 - "When pure radon is breathed, it diffuses throughout the body and gives what is essentially whole-body radiation. Its retention, however, is limited, since most inhaled radon is also exhaled within its half-life of 3.8 days. For the immediate daughters of radon, however, the story is different. These radionuclides (218-Po, 214-Bi, 214-Pb, 214-Po) collectively have an average half-life of about 30 minutes. When formed in the air of a mine, they quickly become attached to solid surfaces, most notably dust particles. When these dust particles with attached radionuclides are inhaled, the radiation from them (largely alpha particles) is delivered to those sites in the nose, pharynx, and tracheo-bronchial tree where the dust particles are deposited. The radiation dose delivered to the lungs of uranium miners by these elements is about 20 times greater than that from inhaled radon."

- "A mortality analysis of a group of white and Indian uranium miners was done by a life-table method. A significant excess of respiratory cancer among both whites and Indians was found. Nonmalignant respiratory disease deaths among the whites are approaching cancer in importance as a cause of death, probably as a result of diffuse parenchymal radiation damage. Exposure-response curves for nonsmokers are linear for both respiratory cancer and other respiratory disease. Cigaret smoking elevates and distorts that curve. Light cigaret smokers appear to be most vulnerable to lung parenchymal damage. The predominant histologic cancer among nonsmokers is small-cell undifferentiated, just as it is among cigaret smokers".

- 13) Basson, J.K. et al, "Lung cancer and exposure to radon daughters in South African gold/uranium mines", 4th International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1971.
(-hazard of ionizing radiation in uranium and non-uranium mines.
-no increase of cancer at 4 WLM/annum)
[As noted, this paper has not been reviewed by the committee. A vast majority of medical evidence does not support their conclusion. The committee has not yet had time to study the thoroughness of follow up of underground miners.]
- 14) Bertell, R., Personal communication, March 1979.
-only 8% of uranium used in the U.S. is for nuclear power and the rest is for nuclear weapons. There are already enough nuclear weapons to destroy North America, Europe and the U.S.S.R. many times over. Increasing proliferation increases the chance of use.
- 15) Blair, H.A., "Dose-time relations for induction of lung cancer in uranium miners", Symposium on Radiation-Induced Cancer, International Atomic Energy Agency, Athens, April 28-May 2, 1969.
- 16) Breslin, A.J., George, A.C., and Weinstein, M.S., Investigation of the Radiological Characteristics of Uranium Mine Atmospheres, New York: Health and Safety Laboratory, U.S. Atomic Energy Commission, HASL-200, December 1969, 24.
(-describes the level of yearly radiation in U.S. mines).
- 17) Cluff Lake Board of Inquiry - Final Report, The Cluff Lake Board of Inquiry, 802 McCallum Hill Building, Scarth and 12th Avenue, Regina, Saskatchewan, S4P 2G6 - attention Mr. Ian MacPherson, Executive Secretary.
- 18) Doll, R., "Occupational Lung Cancer: A Review", British Journal of Industrial Medicine, 16: 181-190, 1959.
-a review.
-miners in Schneeberg and Jachymov may have received local doses of 10,000 rads of alpha rays.
-in animals, cancer has been induced more easily by radiation when non-specific inflammation was also present.
-silicosis was prevalent among the miners but not particularly severe in those in which lung cancer developed.
-latency period 15-30 years.
-it is not known if removal of hazard has any significant effect on the size of risk once there has been a prolonged exposure.

19) Duggan, M.J., et al, "The exposure of United Kingdom miners to radon", British Journal of Industrial Medicine, 27(2): 106-109, April 1970.

- epidemiologic studies from 1920's and 1930's in Schneeberg and Jachymov mines had concentrations of 1,000 pCi of Rn-222 and produced a 30 X increase in cancer.
- radon daughters formed in the atmosphere were the major part of radiation to the lungs.
- 1955 International Commission on Radiologic Protection (ICRP) determine maximum permissible concentration in air (MPCa) should be approximately 300 pCi/l air for 40 hour week.
- 1959 MPCa equalled 30 pCi or radon/l of air/40 hour week.
- 1962 International Atomic Energy Agency found it impractical to apply 1959 value, therefore decided MPCa should equal 300 pCi/l/40 hour week.
- 1 working level (WL) equals concentration of Rn-222 daughters/one l air which produces 1.3×10^5 MeV of potential alpha energy. 1 WL = 100 pCi/l of Rn-222 in air = 300 pCi/l of radon daughters.
- 1957 Federal Radiation Council recommended exposure to Rn-222 daughters so miners received less or equal to 6 WLM in any consecutive 3 month period and less or equal to 12 WLM in any consecutive 12 months.
- 1968 U.S. Department of Labour required less or equal to 2 WLM in any consecutive 3 months, and less or equal to 4 WLM in any consecutive 12 months producing an approximate average concentration Rn-222, equal to 0.3 WL throughout the year corresponding to 30 pCi/l.
- 1 WLM exposure results from inhalation for 1 working month (170 hrs) of air containing concentration of Rn-222 daughter equal to 1 WL.
- Haque and Collinson 1967 suggested MPCa = 10 pCi/l of air if quality factor (QF) of 10 is considered for the biological effect of alpha rays on producing lung cancer and if annual dose limit is set at 15 rem for any tissue in the lung where the dose is considered.

20) Environment Canada's Reply to Rexspar's First-Stage Report, produced by the Department of Fisheries and the Environment of the Government of Canada, September 1977.

- this is a detailed discussion and response by the Environment Department as regards the original proposal for the mine at Birch Island. The critique is devastating in showing the problems we might expect with the mine as currently designed. This should be read together with the Rexspar proposal to demonstrate the problems one might expect from an unregulated industry.

KITG is often called on by readers to provide this information, and we usually zerox sections of the book. This month we begin the first of a series of reprints, so that in the course of the next few months you will have a good guide to the sort of research that has been undertaken. Physicians for Social Responsibility also have kits of actual articles, which you can write and ask them for if you are not able to get hold of the articles in your local library.