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17 November 1982

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 169

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ASIA

AUSTRALIA

MARY KATHLEEN'S FINAL URANIUM SHIPMENTS DISCUSSED

Melbourne THE AGE in English 17 Sep 82 p 17

[Article by David Uren]

[Excerpts] The Mary Kathleen Uranium mine is a conical hole about 250 metres deep, four kilometres wide at the top and about 100 metres across at the bottom.

The uranium ore has been blasted out in great steps which spiral to the bottom of the pit. The mine evokes the made drawings of the Dutch artist, Maurits Escher.

"It's disappearing up its own backside," commented Mr George Hutchinson, the district inspector of mines for the Mt Isa region, as a truck coiled down a step to collect one of the last loads of uranium ore to be drawn from the mine, which closed yesterday.

MKU has had two lives, both of them chequered. It started in 1956 supplying uranium to Britain, where it was used in the military programme but the contract ran out in 1963 and was not replaced. During that period 4082 tonnes were sold, raising £40 million.

The mine was mothballed until 1975, when RTZ lined up new contracts covering 4870 tonnes for utilities. CRA took over RTZ's 51 per cent stake in MKU while the Australian Atomic Energy Commission underwrote a share issue which failed, leaving the commission with 42 per cent and the public with 7 per cent.

With 327 tonnes of uranium still to be shipped, the sales have so far brought about $300 million. There has only been one distribution to shareholders, however, of $1.48 million. Profits have been used to pay back loans to CRA and the AAEC incurred when the company became technically insolvent in 1977. The AAEC refused to have the loan converted into equity, which would have allowed for more distribution of dividends.

The final year of mining, however, has run smoothly and Mr Trehearne is confident that shareholders will get their second dividend at the end of this year. The company is cash rich, with $30 million in short term deposits at the last balance. Some $19 million of that has been put aside to cover the cost of the closure and rehabilitation of the mine.

The company will ship 190 tonnes of uranium in December or January and this has already been priced but there will be a further 137 tonnes of uranium when the treatment plant closes in October. This uranium is not due to be shipped until 1984. A price will not be agreed until April next year.

MKU wants the Government to let it ship the final tonnage to the El Dorado conversion plant in Canada before a price is agreed so it can clear the mine site of uranium yellowcake and ease the security precautions. The Government has a minimum export price of about $US35 a pound and does not normally allow uranium to leave the country unless it is sure that the minimum is reached.

Mr Hutchinson believes the future may see new uranium mines in the Mt Isa region. "If I wanted to shoot an elephant, I'd go looking in elephant country," he said, pointing to nearby hills.

CSO: 5100/7504

CONTROVERSY OVER RADIATION IN URANIUM MINE WASTE

Brisbane THE COURIER-MAIL in English 29 Sep 82 p 15

[Text]

THE Queensland Government knew that future radiation levels from wastes at the Mary Kathleen uranium mine would be up to nine times higher than the maximum levels recommended by the US Government when it approved the mining company's site rehabilitation scheme.

Mary Kathleen Uranium Ltd, which will cease operation in October, has estimated radon gas levels from mine tailings would reach 18 units a metre a second after completion of a rehabilitation program to cover the tailings with a one-metre layer of broken rock.

A 1979 US Regulatory Commission report advised that emissions of radioactive radon gas, known to cause lung cancer, should not exceed two units.

Details of the American recommendations were included in a Health Department report to the Queensland Government before the decision was made to approve the program.

The report also included a Canadian Government recommendation which prescribed a maximum level ranging from two to 10 units.

A five-unit maximum is recommended by the US Environmental Protection Agency.

Neither the Queensland nor Federal Governments have established what they consider to be a safe maximum.

Mines Department mines director, Mr Bernard Cox, said the remoteness of Mary Kathleen, 64 km east of Mount Isa, was taken into consideration when approval was given to the company's waste treatment project.

He said the 27ha tailings dam and 60ha liquid waste ponds at the mine would be declared a reserve, guaranteeing that no residential development would be allowed on the site.

A Melbourne University health physicist and co-author of the book "Uranium," Mr Rob Robotham, said the Queensland Government was foolish to ignore the American recommendations.

"I prefer the more conservative approach of the American Environmental Protection Agency over figures pulled like a rabbit out of a hat by the mining company," he said.

He said the EPA had done exhaustive studies on the long-term effects of radioactive waste materials after "some horrendous things" occurred at American unanium mines.

CSO: 5100/7505

WA LABOR PARTY BOLSTERS OPPOSITION TO NUCLEAR-SHIP VISITS

Perth THE WEST AUSTRALIAN in English 2 Sep 82 p 20

[Text]

THE Labor Party in WA has strengthened its opposition to visits by ships and aircraft carrying nuclear weapons.

A resolution saying that such ships and aircraft would not be welcome by the State ALP was passed during the dying minutes of the conference despite opposition by some Labor politicians and the party's State secretary, Mr Michael Beahan.

Resolution

The convener of the ALP's industrial-development committee, Mr Neil Bartholomaeus, moved the resolution. It said the conference believed that WA should not be used to facilitate the global strategy of nuclear weaponry.

Mr Bartholomaeus said that the party supported a nuclear-free southern hemisphere. To facilitate visits by nuclear-armed U.S. ships was to perpetuate a position the ALP was opposed to, he said.

The resolution was in line with federal policy.

"We are not calling on a Labor government to legislate against the visits," he said.

"We are merely expressing the feelings of those at the conference."

Mr Beahan and the Federal Opposition spokesman on education, Mr J. Dawkins (Fremantle), unsuccessfully sought support for a resolution that steered clear of specific reference to visits by U.S. ships.

This resolution restated Labor's opposition to the Fraser government's approval of the staging of B52 flights from Australia and the storage of nuclear weapons.

Earlier, the conference had restated the party's opposition to the permanent basing of foreign vessels at Australian ports during peacetime.

CSO: 5100/7504

UNION LEADER, IN NEW CALEDONIA, HITS FRENCH NUCLEAR TESTS

Perth THE WEST AUSTRALIAN in English 28 Sep 82 p 32

[Text]

NOUMEA, Mon: A senior Australian union leader yesterday attacked the French Government's decision to continue nuclear testing in the Pacific.

The assistant secretary of the ACTU, Mr Bill Richardson, launched his strong attack on the opening day of the second Pacific trade-union conference in New Caledonia.

Mr Richardson said that the socialist Government of President Mitterrand had gone back on pre-election pledges and stepped up nuclear testing.

He was addressing about 100 delegates from 13 countries including Australia, New Zealand, Fiji and Japan.

The three-day conference has as its major aims a nuclear-free Pacific and New Caledonia's independence from France.

"The story of French nuclear testing in the Pacific is one of diplomatic intrigue with lies, death and alienation," Mr Richardson said.

"For decades the French have deceived the Polynesians to cover up their real intentions in that area—to use the islands as a nuclear testing ground attempting to give France great power and prestige as a mighty nuclear force comparable with the USSR and the U.S.

"Rather than stemming the tide of the nuclear blast in Polynesia the new Mitterrand socialist government has promoted an escalation of the testing of nuclear devices in the area and hence a continuation of the previous Government's policy."

Mr Richardson told the conference to build up pressure on the French Government to scrap nuclear testing in the Pacific.

Demands for New Caledonia's independence from France also dominated the opening day.

CSO: 5100/7505

QUEENSLAND LABORITES DEFEAT CALL FOR URANIUM MINING BAN

Brisbane THE COURIER-MAIL in English 27 Sep 82 p 11

[Text]

A call for unqualified opposition to uranium mining and export was defeated yesterday at the Australian Labor Party State Council, the party's state secretary, Mr Peter Beattie, said.

He said the motion from the Australian Telecommunications Employees' Association called for an ALP state government to interpret the ALP uranium policy as one of unqualified opposition.

The ATEA sought to have an ALP government repudiate all existing uranium contracts immediately after coming into office; reject any moral, legal or political obligation to compensate the mining companies, but to provide adequate compensation for the workers in the uranium industry disadvantaged by this policy.

Mr Beattie said the motion was defeated by 47 to 42 votes.

"What has happened is that the national ALP conference policy as determined in July has been reconfirmed.

"This is an anti-uranium policy, but it allows for the continuation of existing contracts under strict conditions.

"The national policy also prevents any future mines that are not on stream from coming on stream," he said.

If the state motion had been accepted it would not have been able to be implemented unless it had been accepted at the next national ALP conference.

The ATEA, the Amalgamated Metal Workers and Shipwrights' Union, which supported yesterday's motion, and the majority of other Queensland unions had policies strongly opposing uranium mining.

CSO: 5100/7505

URANIUM INDUSTRY SEES POTENTIAL IN WEST GERMAN MARKET

Canberra THE AUSTRALIAN in English 21 Sep 82 p 14

[Article by Philip Beard]

[Text]

WEST Germany is emerging as the major focus of the Australian uranium industry's interest in Europe.

Australia has ambitious plans to boost its share of the West German uranium market from its present level of 5.5 per cent to more than 30 per cent by the end of the decade.

On present indications, West Germany is offering the greatest potential for Australian producers in Europe.

Already, contracts for the delivery of 18,000 tonnes of uranium oxide between 1982 and 1996 have been concluded between West German power utilities and Energy Resources of Australia.

Yellowcake

The country's requirements for uranium oxide are expected to almost triple, from their present level of 2430 short tonnes to 6250 short tonnes by 1990.

West Germany, which has an installed nuclear capacity of just over 10,000 megawatts, recently pared its projected estimates from 30,000mW to 24,100mW.

Although the cutbacks are sharp, the West German plans seem ambitious when set against the gloom that has descended on the international nuclear industry, particularly in the US.

A combination of a recession-induced lowering of demand for generating capacity, the increased cost competitiveness of coal-powered stations, and rising public concern about atomic energy safety has up-ended the glowing forecasts for the nuclear industry five years ago.

That trading thermometer, the spot market, exposes the extent of the chill that has gripped the industry. Spot prices now are running at under $US20 ($20.89) a pound, compared with $US45 in 1978.

But the spot market only covers about 10 per cent of yellowcake sales and is a far more relevant factor in the US market than in Europe.

European customers are far more willing to look for forward sales and in return gain equity stakes in projects.

For example, West German utilities hold about 14 per cent of ERA, whose Ranger mine in the Northern Territory will supply much of the Federal Republic's needs.

The German utilities involved in the Ranger mine are Urangeselleschaft (a consortium of Metallgesellschaft, Steag and Veba), RWE (Rheinisch-Westfalische Elektrizitatswerke) and Saarbergwerke.

Of these, Urangesellschaft handles about 50 per cent of West Germany's uranium oxide requirements.

Urangesellschaft also has a 10 per cent interest in the initial study phase of the Yeelirrie mine project.

At present the Germans, like other Western European nations, spread their supplies across a myriad of sources including Canada, South Africa, Namibia, Niger and the United States.

But trade officials are confident that its link-up with West German power utilities through such ventures as the Ranger project and the relative stability of Australian supplies should give producers a greater slice of the Federal Republic's market.

The German willingness to proceed with a limited expansion of its nuclear generating capacity was highlighted by the recent decision of the Bavarian Environment Ministry to allow a 1240mW power station to be constructed.

The decision effectively ended a six-year moratorium on the construction of new atomic power stations but was greeted wth little public outcry.

Consumers

The Bavarian decision was followed by a construction permit for a 1300mW station in Lower Saxony, and takes the amount of capacity now under construction to 12,600mW.

But although the German market could prove lucrative for local producers, the rest of Europe does not look as bountiful for Australia's ambitious plans.

Political considerations notwithstanding, Australia is aiming at tripling its present annual output of 5600 tonnes of uranium oxide by 1990.

The Swedes, whose power utilities also have a stake in ERA, have decided to stop increasing their national nuclear generating capacity and begin phasing out power stations.

But the Scandanavians' resolve could be tested when their consumers are confronted with the costs of alternative generating sources.

The French are pressing ahead with their plans to almost double generating capacity from 24,500mW to 54,800mW and are interested in taking supplies from Australia.

But the French have made a commitment to take suplies from Niger, a former colony, as well as holding significant reserves in stockpiles.

Belgium is looking to produce 50 per cent of its electricity needs from nuclear sources by the end of the decade.

But its small size makes its expansion plans somewhat modest with nuclear generating capacity planned to rise from 3400mW to 5400mW by 1990.

The depth of anti-nuclear sentiment in Belgium's neighbor, the Netherlands, combined with its important gas reserves has effectively negated the Dutch as a potential market.

The deindustrialisation of the UK economy and the importance of the UK coal industry has led to a stagnation of the Central Electricity Board's demands for nuclear energy.

It is forecast that between 1983 and 1990 the UK's nuclear power plant capacity will rise by less than 1000mW.

The Spanish plan to triple their capacity to 12,500mW but many of the power stations needed have still to find their way off the drawing board.

CSO: 5100/7505

PARLIAMENT DISCUSSES U.S. RESTRICTIONS ON URANIUM IMPORTS

Canberra THE AUSTRALIAN in English 23 Sep 82 p 4

[Text] AUSTRALIA has made high level representations to the US over a move there to restrict uranium imports for American electric power utilities.

The matter has been taken up with the US special trade ambassador, **Mr William Broch**.

The Deputy Prime Minister and Minister for Trade and Resources, **Mr Anthony**, told Parliament yesterday the proposed restrictions would have a detrimental effect on the world uranium market.

He said the recommendations may be implemented by the US Congress this week and would apply when imports reached 37.5 per cent of the projected US uranium requirements.

They would exacerbate the growing imbalance of trading opportunities between Australia and the US.

They would, moreover, impair America's efforts to restore international confidence in its role as a predictably reliable partner in the development of the world's civil nuclear power industry.

"Because we do have the largest low-cost uranium reserves in the Western world and because we are a relative newcomer to the world uranium market it will, given continuing good management, be inevitable that the Australian share of that market will increase," Mr Anthony said.

His comments were made during a long ministerial statement outlining Australian uranium developments and the Government's view of the industry's future on a world scale.

Downturn

He was followed by the Opposition spokesman on energy, **Mr Paul Keating**, who pointed to massive over-supply of uranium and a downturn in the number of nuclear generators coming on line.

Mr Anthony said the plain fact was that nuclear electricity was indispensable to the world economy.

Australian uranium exports were at record levels – an estimated $290 million in 1982 – and during the past five years nuclear power generating capacity in the world had increased by 80 per cent.

The present installed nuclear capacity represented 7 per cent of the world's total generating capacity.

"The evidence is clear and incontestable," Mr Anthony said.

"Given the enormous capital investment involved, the continuing and increasing commitment to nuclear electricity in countries all over the world would not be occurring if, as some claim, nuclear electricity was not an economic alternative.

There were, he said, risks associated with diversion for military purposes and health and safety risks but the whole thrust of government policies was to ensure use for peaceful purposes and exhaustive safety requirements.

Mr Anthony also attacked the Labor Party's decision for a phasing out of the uranium mining and export industry through the filling of contracts already entered into.

He described this as slow strangulation of the industry.

Mr Keating replied that the Government faced a massive over-supply on the world market and was watering down safeguard agreements with other countries in order to obtain contracts.

He said Mr Anthony had, four years ago, said the industry could support 500,000 people in Australia, but now there were only about 1000 people so employed.

Mr Anthony, despite the realities of over-supply and falling prices, continued to present Eldorado scenarios similar to the false expectations created over the so-called resources boom.

Mr Keating said Parliament that projections on the future requirements for uranium were dependent upon whose figures you used.

He said the nuclear industry was in serious trouble.

In the US in 1981 new orders of nuclear power generators were zero and there were five cancellations, in 1980 there were no new orders and 15 cancellations.

The Deputy Leader of the Opposition, **Mr Bowen**, said the Minister for Foreign Affairs, **Mr Street's** statement to Parliament on the Government's nuclear safeguards policy was a cynical political exercise.

CSO: 5100/7505

SCIENTISTS INAUGURATE ANTI-NUCLEAR-WEAPONS ORGANIZATION

Sydney THE SYDNEY MORNING HERALD in English 20 Sep 82 p 2

[Article by Richard Eckersley]

[Text] It was a small meeting, but it was a start.

About 60 scientists gathered yesterday afternoon in a room at Macquarie University for the first meeting of the Association of Scientists Against Nuclear Arms (SANA).

The association has been formed to bring together natural and social scientists, engineers and technologists in Australia who feel they have a responsibility to halt and reverse the arms race in nuclear, biological and chemical weapons.

Non-aligned and independent, SANA will collaborate with other similar scientific groups, provide information on the weapons to Members of Parliament, the media, interested groups and the general public, publish a regular bulletin and contribute to scientific and other publications.

In the main address to the meeting, Professor Peter Mason, professor of physics at Macquarie University, said scientists had a particular responsibility for the problems of modern warfare.

Science had liberated humanity from the grind of sheer survival, and scientists saw themselves as the benefactors of humanity. But history showed they had been, with a few honourable exceptions, "among the most self-centred and destructive people around."

Professor Mason said that because of their "obsessively specialised training," scientists worked on problems without regard for the applications of their work.

He described how scientists had "improved" fragmentation anti-personnel bombs used in the Vietnam War by replacing the steel with plastic so the pieces could not be seen on x-rays.

"They don't listen to the screams of the children, they don't even hear them, because they're so damn busy on thinking about (x-ray) absorption of different polymers," he said.

"So maybe it's the case that you shouldn't just assume that by doing science you can have a Pontius Pilate attitude and wash your hands of the applications.

"I would suggest you can't do science responsibly without, in your own mind, following through the possible applications as far as you can."

The possibility that science was intrinsically evil and inimical to civilisation and society needed to be considered. "Science itself is not neutral, but maybe something we've got to oppose or at least keep very tightly under control," he said.

Professor Mason said the arms race could only be halted and reversed by popular action and that SANA should be part of the powerful world movement.

"It is now the case that the military-industrial complexes in the different countries of the world, particularly in the superpowers, are so complex there is no individual--Margaret Thatcher, Reagan or anyone else--who can change it," he said.

"There is so much momentum in the military part of the system, the political part, the economic part...it's got beyond any single individual."

Professor Mason said one of the most promising developments was the recent success of a small Californian group in obtaining the mandatory 500,000 signatures to have a proposal for a nuclear-arms freeze put on the polling paper for the Californian elections in November.

"If the issue is carried, by law President Reagan has to take notice of the fact that the State of California has requested that he demonstrate he is trying to do this thing jointly with the Soviet Union," he said.

CSO: 5100/7505

INDIAN NUCLEAR OFFICIAL: NONPROLIFERATION TREATY A FAILURE

Perth THE WEST AUSTRALIAN in English 25 Sep 82 p 18

[Text] AN INDIAN defence expert said in Perth yesterday that the nuclear non-proliferation treaty had failed and become a licence for spreading nuclear weapons.

This included deployment in the Indian Ocean, said Mr K. Subrahmanyam, the director of the Institute for Defence Studies and Analyses in New Delhi.

India wanted the Indian Ocean to be free of great power rivalry and tension and for the use or threat of nuclear weapons to be declared a crime against humanity.

Mr Subrahmanyam who is at the end of his first visit to Australia, said that Australia should form a bridge of understanding between developed and non-aligned developing nations.

In the past fortnight he has given talks in Sydney, Canberra and Melbourne.

Against

He said that last December he was a member of the Indian delegation to the United Nations and saw Australia vote with New Zealand, Ireland, Japan and the 15 Nato countries against a resolution to declare the use or threat of nuclear weapons a crime against humanity.

The resolution was carried 121 to 19 but its implementation was delayed because three of the five nuclear powers--the U.S., Britain and France--were among the dissenters.

The other two nuclear powers, the Soviet Union and China had voted in favour of the General Assembly resolution. The resolution would be debated again in December this year.

Nuclear weapons must be stripped of the mystique and prestige surrounding them and those campaigning for the banning of nuclear weapons should form a united front, he said.

He leaves Perth today to return to India. Next month he will attend a UNESCO meeting in Paris and in November will visit Pakistan.

CSO: 5100/7505

BRIEFS

RADIOACTIVE TRAILINGS--WESTERN Mining Corporation yesterday rejected fears raised by an anti-nuclear group about the safety of its Kalgoorlie treatment plant. The Goldfields Against Nuclear Energy organisation said in a press statement that radioactive tailings, containing radium and releasing radioactive gases, were being held in a pond without adequate soil or water cover. The trailings were a by-product of the plant's tests on the characteristics of the uranium ore to be mined in the Yeelirrie project, 650km northeast of Perth, it said. The tailings would be dangerous for many years and safe mining practice required that the pond be covered to prevent gas and dust escaping. GANE said that the pond's banks were eroded and there was the additional danger of seepage contaminating local ground water. The group also said it was worried by reports that people had been swimming in the mine water. The statement was being investigated yesterday by staff of the Minister for Health, Mr Young. However, the company's manager of Yeelirrie operations, Mr Ian Letts, said that monitoring bores around the dam were operated regularly and the dam had been built in accordance with environmental safeguards. The tailings were drying up and would be buried in the dam with soil from the immediate area. However, this would not be for a further nine months to a year. [Perth THE WEST AUSTRALIAN in English 1 Sep 82 p 45]

RADIATION SAFETY PERSONNEL--THE Trades and Labor Council has called for the appointment of trained radiation safety officers at all places where radioactive materials are handled. The TLC call results from a meeting of unions involved in the mining, processing and transport of the mineral sand monazite last month. This week the TLC also decided to seek the right to comment on proposed radiation safety regulations before they are proclaimed and for the TLC to be represented on the Radiological Council. It wants the Minister for Health, Mr Young, to have a code of practice prepared for the safe transport of of all radioactive materials. [Perth THE WEST AUSTRALIAN in English 9 Sep 82 p 30]

CSO: 5100/7504

RAO: INDIA EXPECTS FRANCE TO HONOR URANIUM AGREEMENT

Bombay THE TIMES OF INDIA in English 9 Oct 82 p 1

[Text]

NEW DELHI, October 8.

THE Union minister for external affairs, Mr. P. V. Narasimha Rao, told the Rajya Sabha today that France was expected to supply enriched uranium for the Tarapur plant within the framework of the 1963 Indo-U.S. agreement.

He hinted at the possibility of France withdrawing the "perpetuity" clause. Initially, France had at the instance of the United States agreed to resume supplies in conformity with the 1963 treaty.

He said India would under no circumstances "accept the perpetuity clause which calls for safeguards for all times to come." In case no agreement could be reached with France, "all our options would be open," he said.

Mr. Rao said, "India will not accept any change in the Indo-U.S. treaty of 1963." Regarding enriched uranium supplies for Tarapur nuclear plant, this had been made clear to France. If France agreed to honour all the terms and conditions listed in the 1963 treaty, India would accept it as a substitute supplier, he said.

The minister said France was only stepping into the shoes of the United States. Therefore, India would not accept any fuel from France if it tried to impose any fresh restriction.

He said India had pleaded with the United States as well that their new legislation could not be applied retrospectively. All these years during negotiations India struck to its own position while the U.S. continued to argue that the supplies could not be made under the new legislation. The U.S. had, therefore, suggested France as a via-media. When asked whether the Soviet Union would supply enriched uranium for Tarapur, he said "There is no question of India receiving any supply from the USSR."

Mr. Jaswant Singh pointed out that when France had been dragging its feet for the last six years regarding supply of fuel for the Kalpakam plant how could India look to them for Tarapur plant, he asked.

Mr. J. K. Jain said that the United States had blackmailed this country. He wanted an assurance from the government that when India signed a deal with France, it would not undermine national interest. Mr. Jain said the uranium which France got from South Africa was to be sold to India.

Mr. Rao replied "Wherever France got the fuel from is not our business."

Replying to supplementaries from Mr. Rameshwar Singh, he said the U.S. Congress made a new law 15 years after the 1963 agreement had been in operation which could not be acceptable to India. The U.S. administration, however, expressed its helplessness. India still had the choice of abrogating or saving that agreement. It was the U.S. which suggested that since France faced no such difficulty, it could become the substitute source of fuel.

Mr. Piloo Mody was of the view that it would be presumptuous to think that India could get fuel on the terms of the 1963 agreement from even the Soviet Union. The government should take steps "here and now" to secure fuel indigenously instead of delaying it and lulling the people into a sense of false security that supply would be forthcoming.

CSO: 5100/7007

PAKISTAN NEEDS NUCLEAR DETERRENT AGAINST INDIA

Karachi JANG in Urdu 23 Aug 82 p 3

[Article by Jalal-ul Din Ahmad Nuri: "India's Military Preparations and a Survey of Pak-Indian Relations in the Light of Indira Gandhi's American Tour"]

[Text] The French weekly AL-MAJALATH AL-ARABI [sic] writes that "While talking with our New York representative Indira Gandhi admitted that the Reagan administration had refused to accept her misgivings in regard to supplying Pakistan with F-16 aircraft. But Indira Gandhi said she would take steps herself to stop the provision of F-16 aircraft to Pakistan. In answer to a question she said that India could if necessary even attack and destroy Pakistan's nuclear plant." The paper writes that "It was only at Mrs Indira Gandhi's loud wailing that the new American Secretary of State George Schultz stated that America would keep trying to prevent Pakistan from building an atomic bomb. If Pakistan builds an atomic bomb then America will take steps against it. This statement by the American Secretary of State before the Senate Foreign Relations Committee is troubling, because Pakistan's leaders have assured them again and again that they are not building an atomic bomb. Along with these assurances Pakistan has also proposed that America inspect all the installations of their nuclear program. There has even already been a proposal to India that, in accordance with the Simla agreement, they should each be willing to provide inspection facilities for each other's nuclear installation. But despite all this the American Secretary of State Schultz stated before the American Senate Foreign Relations Committee that efforts to stop Pakistan from building an atomic bomb will be continued. So the obvious meaning of this is that there are still doubts about Pakistan in the minds of the American leaders.

The Pakistani government has not taken any notice of these statements Indira Gandhi made in America, nor has any action been taken to break the force of her bewitching oratory. Indira Gandhi also met continually with those members of the American Congress who are Jewish, and it was they who signaled to Begin that he should launch a successful operation in Lebanon against the Palestinians. And the relations of the former Secretary of State Haig were also with those same members.

AL-MAJALAH AL-ARAB [sic] also has written that India's nuclear intentions at this time have become a danger for three neighboring countries. The first country is Pakistan, one part of which, Kashmir, India has usurped. The
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second country is China, with whom their border dispute is now 20 years old. The third country is Bangladesh (which was a part of Pakistan before 1971), the islands appearing within whose sea boundaries India is openly ruling. Forget any mention of Nepal or Bhutan. The prime cause of aggression in South Asia is claiming to be oppressed. This is shameful! Addressing a gathering of Indian citizens in New York Indira Gandhi said that the reason India does not intend to bomb the nuclear power plant in Karachi is that such an action might spread radiation through the whole area. If we carefully consider this statement by Indira Gandhi then we will clearly understand that Indira Gandhi has considered a proposal to bomb the Karachi nculear power plant, but the proposal was rejected in view of the danger of the effects of radiation spreading to the adjacent areas of India itself. The above-mentioned newspaper writes that Israel's attention too is focused on Pakistan's nuclear power installation.

Another Arabic newpspaer AL-DUSTUR, has written in regard to a statement by the former Pakistani Foreign Affairs Minister Agha Shahi in which he said in an address to a gathering in Lahore in early June, 1981, that "Because of Pakistan's respect and status among Muslim nations India will not attack Pakistan's nuclear plant without some acceptable justification, and bearing in mind the reaction of the Muslim countries India will never take such a step." But in today's situation the Iran-Iraq war in particular has completely destroyed the Muslim population. The world of Islam is faced with its own problems. And no one can help any other. Rather, at this time the Muslim countries are in conflict with each other. They are wasting their great power. In such a situation Pakistan should change its foreign policy.

AL-DUSTUR has written that according to political observers, in such a situation Pakistan will bend towards the direction of the Soviet Union because the Soviet Union is already eager to normalize relations with Pakistan. This is why the Soviet Union has not adopted an attitude of opposition in the Pakistan-Afghanistan discussions in Geneva. If Pakistan would produce a little flexibility in its position it is just possible that relations between Pakistan and the Soviet Union would become better. But the Pakistani public is not ready to accept this kind of relationship and whatever government adopts a reconciliatory attitude towards the Soviet Union will have to first take the Pakistani public into its confidence.

AKHBAR-AL 'ALAM AL ISLAMI has written that Mrs Indira Gandhi announced in a speech at a Washington banquet that India will continue its nuclear program for peaceful purposes. Who knows why Indira Gandhi does not believe in the use of peaceful purposes of other countries. The truth is that India's nuclear program has already entered a dangerous stage. On 18 May, 1974 India set off its first nuclear explosion in Pokhran in the Rajasthan desert near the Pakistani border. This was of about 20 kilotons, that is, equal to the strength of the bomb which flattened the Japanese city of Hiroshima in August, 1945. The plutonium used in this nuclear weapon was prepared in the Canadian reactor named Cyrus which is situated in Trombay, near Bombay, where heavy water supplied by America is used. This explosion was 100 meters underground, It produced a crater 200 meters in radius, and the soil thrown out of this hole made a small mountain.

Like the other five nuclear powers India did not do this nuclear test in the atmosphere, although from a technical standpoint that is the most easy method. According to one estimate, by May, 1974, India had a supply of 100 kilograms of plutonium, which is sufficient to prepare 6 or 7 bombs of the strength of 10 kilotons. They also have an extensive supply of thorium, and there has been a large program going on there day and night for the past several years for the construction of rockets and missiles. India set up its first nuclear reprocessing plant in 1962. This plant was prepared through purchasing spare parts from various countries, and no permission for international inspection was given. Now India is building two additional plants of this type, of which one is near Madras. This is the same thing which France had promised to supply Pakistan when there was world outcry, and in the end India was successful in stopping the plant.

India has set up a heavy water plant at Sagal. In addition there is another plant situated at Kansar which had begun production by the end of 1980. The Atomic Energy Commission there is at this time working on 12 plants which include everything from a nuclear fuel complex to a heavy water and nuclear energy station. Heavy water plants have been built at Baroda, Totikoran, Galchar and Kota which will make India nearly self-sufficient in the production of heavy water. Except the Kota plant, the other three were constructed with the materials and technical experts of West Germany and France. Now in her recent tour Indira Gandhi has obtained permission from the American administration to obtain additional technical materials from France, Germany, Britain and other countries.

It seems that when India's fast breeder reactors start working during the decade of the 1990's most of her electricity needs will easily be filled. The first trial reactor of this type is under construction in Madras.

India's Trombay reactor has been working since 1965. Trombay is a neat and clean colony near Bombay: 10,000 technical experts and scientists there have devoted their lives to nuclear research. The white dome 40 megawatt research reactor has the central place here. This nuclear reactor, called Cyrus, was built through the mutual efforts of Canada and India, and it was decided that it would not be used to produce an explosion. But India gave no consideration to this promise, and material from here was used in the experiment in 1974.

India now is making every effort to become self-sufficient in nuclear materials. For the moment the Tarapur nuclear reactor in Maharashtra, built by the American General Electric Company, is using a fine grade of imported uranium, while the centers in Rajasthan and Tamil Nadu are using refined, re-used uranium. One feels it ought to be noted that the Rajasthan plant was the result of the joint efforts of India and Canada, while the nuclear centers in Madras and Naruda (Uttar Pradesh) were constructed by Indian experts themselves. The point is that India is the fourth country after France, Germany and Japan which has the capability to make used nuclear fuel reusable through reprocessing. It is obvious from this, that India's nuclear supplies will steadily increase, and whenever it wants it can give this material the form of a "bomb." It is the opinion of experts that Indian scientists have secretly

developed the capability to build the hydrogen bomb. The revelation of India's nuclear intentions will be incomplete without mention of their space research, because these two programs are closely related.

After sending up the satellites named Arya Bhat and Bhaskar in Soviet rockets from Soviet space centers, last year on 18 July, India sent a communications satellite into orbit which was in fact a ballistic missile and capable of delivering nuclear weapons. After sending this satellite into space India became the sixth country to launch satellites. India called this satellite SLV 3 Rohi, and it was launched from the Sariharikota space center. This satellite of 770 pounds was launched by a rocket 70 feet long and weighing 17 tons. Thus India has also produced the capability to prepare a ballistic missile, and it has a "delivery system" to drop its "atom bomb."

An Indian newspaper, AFTAB, has revealed that the present head of the Indian space research institution "Indian Space Research Organization" (ISRO) Professor Rao has said that India will shortly launch another satellite into space in which there will be an extremely sensitive and powerful camera which will send back pictures of various areas of the earth and will be able to obtain knowledge of the status of those regions. India also has a program to send a man into space in 6 years. At the end of this year India intends to launch its satellite Bhaskar 2 into space from some Soviet space center. In the end, what is the purpose of such preparations by India?

Thus there could be only one way to stop its expansionist intentions, and that is that some country in this region have a nuclear deterrent.

Bangladesh, Sri Lanka and Nepal are very small countries, while Sikkim and Bhutan have already fallen into the lap of India. In South Asia the only country left which can obtain this capability is Pakistan.

The Saudi paper AL-NADWAH has written that the Indian Defence Minister Mr Raman [sic] has made the accusation in Parliament that Pakistan has produced a danger to the security of India by collecting the most modern weapons and said that the necessary plans were being adopted in this regard and that Pakistan intends to explode a bomb in the near future; while Indira Gandhi in a welcoming party by an Indian citizen in America has made the accusation that Pakistan has attacked India five times and that the majority of the Pakistani army is on the border with India.

Henry Kissinger's and Nixon's diaries and autobiographies have proved that if America had not intervened Indira Gandhi would have already completely destroyed Pakistan. The truth is that she and her father never accepted Pakistan in their hearts.

AL-NADWAH has written that only the Pakistani rulers can determine the defense needs of Pakistan. What need is there for Indira Gandhi to say that Pakistan is collecting more arms than it needs?

The Kuwaiti newspaper AL-SIYASAH has written by way of its American representative that another reason for Indira Gandhi's American tour was to meet with

the American President and Congress and other members to estimate what aid the American administration would give Pakistan if India should want to start some action against Pakistan. Indira Gandhi began her talk with President Reagan with a smile and wanted to examine his mind. If Indira Gandhi is successful in her eloquence the meaning of this is perfectly clear. That is that India will assure the American government that India can protect American interests in the Indian Ocean. Then certainly India will be assured that if Pakistan is an obstacle in her path she can remove this obstacle by forcing acceptance of her status in South Asia without fear of American intervention and take willful action and present Pakistan with new conditions for a non-aggression pact which will make it powerless.

We learn from Indira Gandhi's statements in America and her various welcoming speeches that perhaps she was not 100 percent successful in her trip, and now only upon her return to India will we be able to tell what she wants to do.

9914
CSO: 5100/5705

BRIEFS

URANIUM IN DERA GHAZI KHAN--Replying to a question by a member, Lt.-Gen. Qadir said uranium had been discovered in D.G. Khan District. The Pakistan Atomic Energy Commission had already undertaken uranium exploration in various parts of the country. [Lahore THE PAKISTAN TIMES in English 18 Oct 82 p 10]

FUEL SUPPLY FROM CANADA--THERE were indications in diplomatic circles here last week that the scope for reopening the issue with the Canadian Government of fuel supply for KANNUP has suddenly improved. It may figure prominently in the talks which President Zia-ul-Haq will have in Ottawa during his visit there in combing December, if these indications have any basis. The President had recently said that he would not make it an issue with the Canadian Government, but he would try to convince Ottawa that Pakistan's nuclear programme was solely for peaceful purposes. Canada had stopped fuel supply to KANNUP in mid-70 after Pakistan's agreement with France for a reprocessing plant, which never came. Anyway, the main interest shown by diplomatic circles here at present was in the President's current visits to China and North Korea. Apparently, the Afghanistan issue and the regional situation will figure prominently. Bilateral relations, too, will engage a great deal of attention. [Karachi DAWN in English 19 Oct 82 p 6]

CSO: 5100/4305

LOCAL SEARCH FOR URANIUM, RADIOACTIVE MATERIALS REVIEWED

Kingston THE DAILY GLEANER in English 29 Sep 82 THE GEOLOGICAL SOCIETY OF JAMAICA SUPPLEMENT p XX

[Article by Rafi Ahmad, lecturer, Geology Department, UWI, Mona; figures omitted]

[Text]

THE IMPORTANCE OF NUCLEAR ENERGY AS AN ALTERNATE ENERGY SOURCE in the coming years can not be denied. Therefore, in order to meet our growing energy demands, new uranium provinces have to be discovered. At the same time safe methods are to be found for the disposal of radioactive wastes.

These objectives necessitate a thorough understanding of the physical and chemical parameters that permit the formation and preservation of uranium deposits in different geological environments around the globe. Conditions favourable to the existence of commercially viable radioactive mineral deposits do exist in Jamaica and it is about time that a systematic study is undertaken to evaluate these resources.

Present status of exploration in Jamaica.

The earlier investigations on the occurrence of radioactive minerals in Jamaica appear to be largely of a reconnaissance nature. A summary of these investigations can be found in "The Mineral Resources of Jamaica" edited by A. Fenton, 1981, on which the following discussion is based. Between 1957 and 1969 the following geological environments, all associated with moderate to weak radioactivity, have been looked into: radioactive mineral springs, terra rosa, bauxite and a thin phosphate band separating it from underlying limestone, lignite and lignitic clays, cave phosphates and metallic mineral occurrences in various parts of the island. On the basis of these studies, it has been concluded that "The potential for uranium in Jamaica is not considered high". (Fenton, op. cit).

However, the exploration of radio elements has gone a long way since 1969. Old concepts and exploration strategies have been modified in the light of new data, experiences and techniques available to us now. This calls for a critical assessment of the radioactive mineral potential of Jamaica. There is a need for a detailed study of the geological conditions and physical and chemical processes favourable to uranium concentration in the island and in case of negative results an explanation for their absence.

A Critical examination of the previous work directs our attention to:

1. The chief criterion used in exploration and evaluation of radiometric minerals in the island appears to be in localised radiometric surveys. that is measurement of radioactivity at the surface. However. this technique if relied upon exclusively may not reveal blind ore bodies i.e. concealed deposits or those lying deeper in the subsurface.

2. Since a relatively small number of samples have been analysed and only a few localities investigated, the conclusions drawn as regard to resource potential are rather preliminary. There is a need for extensive sampling, and the geochemical analyses should include not only uranium but thorium and other related elements as well.

3. A detailed analysis of protolith or percusor has not been carried out. It will be shown in this article that silicic volcanic materials which are the source rocks for many known uranium deposits elsewhere in the world are abundant in the island.

4. The time-bound characteristic of uranium deposits has not been taken into consideration while planning the exploration programmes. A reference to figure 1 suggests that the primary target for exploration must be younger clastic sedimentary rocks e.g. sandstones in Wagwater Belt. It will be interesting to explore Yallahs delta where reducing conditions exist.

5. The beach sands of the south central coast of Jamaica have not specifically been evaluated for their radioactive and rare-earth mineral potential. Similar beach sands in e.g. Kerala coast. India: Cape Frio and Recife. Brazil, and Florida coast. U.S.A. are rich in Monazite (a phosphate mineral containing 4 to 12 percent thorium oxide. Minor amounts of uranium and rare-earth elements e.g. cerium and lanthanum are also present.).

Present Approach

It is a well known fact that silicic igneous rocks are source materials for uranium minerals and sediments derived from these host some of the important uranium deposits. Therefore, it is logical to concentrate on the volcanic geology of Jamaica. for here lie all the clues on which a sound exploration programme can be erected. The terminology used in describing some of the rocks of concern here is given in Table 1 and the Jamaican occurrences are shown in Figure 2 which is after Roobol. 1972 and Jackson and Smith 1978 and 1979.

The evolution of the young island of Jamaica is unique in the sense that 60 million years of its geological history are shaped by a recurring volcanic activity. The bulk of the Island's exposed rocks. outside Tertiary limestone areas. either have a strong component of silicic volcanic material in them or are silicic igneous rocks (Table 1 and Figure 2). The available data suggest that Cretaceous igneous rocks of granitic to granodioritic composition underlie all of Jamaica. The volcanic activity seems to be concentrated in the central and eastern parts of the island right from Cretaceous to Miocene times. Figure 2 shows the possible sites of some of the ancient volcanic centres. It has even been proposed in recent years that Jamaican bauxite has been derived by the alteration of volcanic ash deposited on the island in huge amounts during Miocene times.

Volcanic debris is the essential constituent of clastic sedimentary rocks of Jamaica e.g. Cretaceous and Eocene rocks (Fig. 2). The conglomerates are composed of lava fragments and sandstones. and shales that are feldspathic and are abundant in small lava fragments. The space available does not permit a

TABLE I

SILICIC IGNEOUS ROCKS

(SiO_2 content 62 to 75 percent)

PLUTONIC EQUIVALENTS	VOLCANIC EQUIVALENTS		PYROCLASTIC DEPOSITS	
			(Products of explosive volcanic activity)	
			Unconsolidated	Consolidated
(Rocks with coarse grain size, sub-surface crystallization)	(Quickly chilled lavas, very fine-grained and often glassy i.e. without crystals)	Grain size in mm		
Typical rocks are granite, granodiorite and tonalite.	Typical rocks are rhyolite, dacite and rhyodacite.	more than 64	Bomb, block	Agglomerates Pyroclastic Breccia
Jamaican examples: Above Rocks, Flint River, Ginger Ridge, Bangor Ridge and Swift River areas.	Jamaican examples: dacite lavas in Wagwater Belt and Central Inlier etc. Abundant in Lesser Antilles.	2 to 64	Lapillus	Lapilli, tuff
		2 to 1/16	Ash grain	Ash tuff
		Less than 1/16	Ash particles or ash dust	Welded ash tuff or ignimbrite

Jamaican examples: All the Cretaceous inliers of Jamaica and Wagwater Belt. Possibly bauxite is derived by alteration of volcanic ash.

discussion on the radioactive springs whose occurrence is very systematic and significant. It is quite possible that their radioactivity is due to the uranium which is leached out from silicic igneous rocks.

The above discussion establishes two facts. First, the nature of volcanic activity is silicic and such rocks are abundant in the island. These rocks have to be examined in detail in order to establish their potential as percusors to radioelements. As pointed out earlier such studies have not been made. Secondly, Eocene clastic sediments are a likely host for uranium mineralization (refer to Fig. 1). The physical and chemical parameters favourable to uranium mineralization are not known from these rocks.

The other geological environments requiring systematic investigation are bauxite, black sands of south central Jamaica (essentially for thorium and rare earth elements) and peat deposits.

It is with this background that a two-phase exploration strategy has been designed. In the first phase detailed studies will be undertaken to (i) identify the specific process which may lead to the enrichment of radioelements and (i) evaluate the source rocks for their potential to supply radioactive materials. Whereas in the second phase the major thrust will be on the identification of favourable geological environments which can host the radioactive minerals. With this data in hand the targets for extensive search will be selected.

The systematic search for radioactive minerals, as proposed above, is currently underway at the Department of Geology, U.W.I., Mona. The laboratory work for this project involves neutron activation analysis and particle track studies which can be undertaken at the U.W.I. when the nuclear research reactor facility becomes operational this year. It is important to note that the concepts presented in this article are applicable to other Caribbean countries also. The extension of these studies to other areas is proposed for the near future.

CSO: 5100/7503

BRIEFS

EUROPEAN ENRICHMENT TECHNOLOGY TO AUSTRALIA--The Australians will use European enrichment technologies to enrich their uranium. The ultracentrifuge method now seems to be the one most likely to be selected, even though French technologies are still in the running. This choice, revealed by the minister of commerce, Doug Anthony, follows Washington's refusal to import Australian uranium, in order to keep the U.S. mines in operation. The German-Dutch-British association which controls the Urenco-Centec process thus seems to be about to gain control of the Australian market. Four local mining companies, Broken Hill, Western Mining, Peko Wallsend, and CSR, are in charge of this project. The feasibility studies should be completed in 1 year. [Text] [Paris LES ECHOS in French 7 Oct 82 p 5] 7679

NUCLEAR PLANT PLUMBING EQUIPMENT--Neyrtec, a subsidiary of Alsthom-Atlantique which specializes in test equipment for industrial and naval research organizations, is going to supply to EDF [French Electric Company] its first nuclear plumbing control center, to be called "Cumulus." This equipment, to be located at EDF's Renardieres Center at Moray-sur-Loing (Seine et Marne) will cost 42 million francs. It will be used for high pressure and high temperature testing of pipes and valves of nuclear PWR [Pressurized Water Reactor] systems. [Text] [Paris LES ECHOS in French 4 Oct 82 p 6] 7679

AEC GOAL FOR 2000--The AEC [Atomic Energy Commission], through its director, Mr Vendryes, at the 32nd International Conference on the Safety of Liuqid Metal Reactors, expressed its support for the development of fast neutron reactors by the year 2000. These reactors would produce kilowatts for the same cost as conventional PWR [Pressurized Water Reactors] plants. The Atomic Energy Commission would also like the French government to make a decision by 1985 to pursue a French breeder program with a 1500-MW reactor. [Text] [Paris ELECTRONIQUE ACTUALITES in French 8 Oct 82 p 5] 7679

EXPERIMENTAL REACTOR HALTED--Rapsodie, France's first experimental fast neutron reactor cooled with liquid sodium, will not be started again, announced the CEA [Atomic Energy Commission], for its repair would have cost too much and taken too long. At the time of its construction in 1967, its power was 24 MW (without producing electricity). 3 years later, its power was increased to 40 MW. Rapsodie was in operation for over 15 years, and its design dated back to 1960. Located at Cadarache, this reactor is at the origin of the Phenix and Super-Phenix reactors. Phenix will now replace Rapsodie for qualification tests of fuels, while some of the CEA's other experimental reactors will be used for other analyses. The dismantling of Rapsodie will be quite instructive, said the CEA release, for it will provide valuable information on the overall behavior of all the components and materials after being in operation for 15 years, particularly of the defective materials responsible for the final shutdown of the reactor. This defect, which occurred in January 1982, was a slight nitrogen leak which appeared in the dual envelope surrounding the main tank containing the reactor's core. [Text] [Paris LES ECHOS in French 7 Oct 82 p 5] 7679

NUCLEAR PLANT DECISION IN SPRING--"Programming of the orders (for new nuclear power units) beyond 1983 will be included in the Ninth Plan, in the spring of 1983, as previously stated." This information was provided in a denial issued by the minister of energy, Mr Herve, in response to various reports about a slowdown in the French nuclear program. The minister added that decisions to begin construction will be based "both on forecasts for consumption in 1995 and 2000, and on the level of activity of the nuclear power industry, which is a national resource, and an aid in reducing our energy dependence." So the limits of the debate now underway have been set. But it is already clear that the slowdown in electricity consumption will call for a reduction in new construction. On 1 September, we wrote: "It would be surprising if the government were to authorize EDF [French Electric Company] to order more than five nuclear power units in 1984-1985. And of this total, one would only be listed as an option." So while the exact level remains to be determined, the trend is clear. In these conditions, the most important problem is related to the adaptation of the Creusot-Loire-Framatome group. At Framatome, they are prepared to choose diversification. But at Creusot-Loire, they fear that such a move on the part of its subsidiary might endanger the group's activities. The recent changes in the Creusot-Loire staff, with the selection of Mr Bes de Berc as president, might pave the way for an overall policy. Such a policy is needed soon. [Text] [Paris LES ECHOS in French 14 Oct 82 p 7] 7679

CSO: 5100/2506

ALMARAZ NUCLEAR POWER PLANT DIRECTOR ON SAFETY MEASURES

Madrid YA in Spanish 24 Oct 82 p 25-26

[Interview with Francisco Bosch Chafer, director of the Almaraz nuclear power plant, by Luis Vadillo; date and place not given]

> [Text] The Almaraz nuclear power plant has recently become a center of controversy, with its breakdowns, false starts, interruptions, protests from the Extremadura City Council and blackouts in some towns, and reports about what is really happening at that nuclear plant are not always correct. There is no one better able to clear up all these apparent contradictions for us than the plant's director, Francisco Bosch.

[Question] Mr Bosch, what is really happening at this nuclear plant? The people hear only about technical breakdowns, damage, postponements and new problems that arise. What is lacking at Almaraz?

[Answer] The only problem we have had is with the pipes in the generator, and that is on the way to being solved; the chief supplier for this plant has already solved our problem, and the necessary steps are being taken so that everything will be in perfect condition. One must bear in mind that Almaraz is not the only nuclear power plant in the world, and the problems found here had already been encountered in Sweden.

There is a solution for the problems found in Almaraz, and as I said, we have already begun to apply it. I can guarantee that the safety factor in the Almaraz power plant while it has been functioning at 50 percent of normal capacity during the test period of more than 3,500 hours, is the same as it will be when the plant is functioning at 100 percent capacity. With this 50 percent there is no problem at present. It has been tested in two phases and has functioned perfectly. Theory has been vindicated in practice by exhaustive studies such as are not made in any other industry.

The recent interruptions created an atmosphere of excessive concern, when it was only a question of tests being made. There are many reasons why a nuclear plant may halt operations, and it does not always mean that there is some significant damage. The process of starting up a plant of this type is very complex, and there must be strict compliance with all the regulations for this kind of installation. The inspection carried out is based on the amount of time the plant

has been idle. On these occasions these measures are carried to even greater extremes in order to obtain the maximum guarantees. I can indeed assure you that the Almaraz nuclear power plant will begin operations again when everything has been properly inspected. The news screening that we wanted to follow has sometimes been misinterpreted, since when the normal cease-operations took place after the first 1,500 hours, not everybody interpreted the situation as such; on the contrary, some alarmist voices were raised.

[Question] Are there risks of contamination?

[Answer] We have made a comparative study of the environment with data prior to the plant's operation and those we have now since it has been functioning. We have not observed any differences at all. There is the important fact that sometimes a nuclear test in China has had greater effect here with relation to an increase in radioactive levels than that produced by the Almaraz plant. There are even towns far from this area that have, individually, a greater level of radioactivity from natural causes.

Contamination levels found outside the plant are considerably lower than the levels permitted by international regulations and by the Nuclear Safety Council. Almaraz has established maximum limits for individuals who are exposed, which can be summed up as 3 mrem/year to the entire body from liquid effluents and 5 mrem/year to the entire body from external exposure to gaseous effluents. Experience accumulated through the years permits us to say that the effect of nuclear plants will not be more than 1 mrem/year to an individual who lives near one of them.

In addition, I can assure you that under the environmental supervision plan, no signs of contamination have been found in the countryside, in water, fish or milk, etc.

Safety Above All

[Question] What safety measures are there in the Almaraz nuclear power plant?

[Answer] This nuclear plant, like all such plants in the world, is subject to very strict regulation. The Nuclear Safety Council has established that safety measures must be the same as those in nuclear power plants in the country of origin of the technology used--in our case the United States. There even has to be a specific plant of reference, and whatever measures the United States imposes on that plant must be studied here before being implemented. The Nuclear Safety Council maintains a close watch over these safety measures.

Our nuclear plant was constructed in accordance with the principle of safety at all costs. This means that not only was it planned to be intrinsically safe, but the quality levels adopted are mugh higher than those of any other industrial activity.

In spite of all that, one may still suppose that an accident might occur. To mitigate the possible consequences, certain safety systems are being planned and built which, in case of accident, would annul any adverse effects. Such safety systems are even being duplicated by methods based on the same or on different

fundamentals. The safety of the nuclear power plant depends not only on the use of all accident-prevention means, but also, in the event there is an accident, on the existence of the necessary systems and installations to avoid danger to the public.

[Question] What emergency plan does the Almaraz nuclear plant have?

[Answer] In accordance with the established regulations for nuclear and radioactive installations, the Almaraz nuclear plant has an emergency plan which also includes everything in the conditions of the ministerial order of 13 October 1980, which gave permission for the provisional development of unit I. This plan includes organization and methods suitable for dealing with any emergencies which could occur within the area named under the control of the developer, and it is coordinated with the provincial emergency plan.

[Question] Have any cases been found, to date, of radioactivity or contamination in persons who work in the plant?

[Answer] No radioactivity problem has been found, and this I can confirm definitely from the data at hand. It is significant, but for us most normal, that neither during the construction stage, in which isotopes were being handled, nor during the operational stage, has there been any reduction in labor as a result of contamination or radioactivity in individuals. Besides that, in no nuclear power plant in the world has there been any death related to working in the plant. Given the safety measures which are being permanently adopted, the risks are lower than in other industrial installations.

Obviously there will always be the possibility of risk, as in any other human activity, but among the 350 persons working in the Almaraz plant, no abnormalities have been found.

However, in case of any possible emergency we have, in the power plant itself, a medical service, a hospital center, considered to be one of the best of its kind in the world. We are aware, more than anyone else, than an accident could happen; consequently we are taking all the measures made possible today by science and technology.

[Question] How are relations between the Almaraz directors and the Extremadura City Council?

[Answer] We are in contact with them and have provided them with information on the environmental situation and the problems that came about with the generator pipes. We are aware that the Nuclear Safety Council has given them all kinds of information. In addition, we have offered to hold some information seminars for them in order to bring about a better understanding of the power plant itself.

Benefits for Caceres

[Question] What sort of a sociological impact will the nuclear plant have?

[Answer] During the construction, which began in 1972, 4,309 new direct jobs were created, and it can be said that the annual average has been about 2,479 persons directly involved in the work. Sixteen percent of the employment generated has been among persons living, according to the census, in municipalities in the area of the installations. Extremadura's share in the number of jobs created by the construction process is about 51 percent of all the employment generated by the project. In 1972, Navalmoral de la Mata had 8,000 residents, and in 1979 its population reached 20,000. From a city in marked decline, with high levels of unemployment and emigration, it has grown to be a leader in the region. When it is fully developed, the plant will need to employ a fixed payroll of about 400 persons. In addition the Almaraz nuclear power plant presupposes a benefit, in terms of energy output, estimated at more than 1 billion pesetas annually, which will revert entirely to the province of Caceres and especially benefit the areas affected by the nuclear plant.

[Question] Finally, what would you tell the ordinary citizen so that he might view with tranquillity the installation of nuclear power plants?

[Answer] That from the point of view of safety, nuclear power installations are superior to any other type of plant, and this is because the safety measures implemented are the maximum and on the same level as those in other countries. That these measures are controlled by the Nuclear Safety Council and by highly qualified personnel who know the subject and who must demonstrate it with constant examinations and periodic tests, scientific as well as physical. Few professions have controls such as those that exist for persons who work in nuclear plants.

Nuclear energy is a necessity for the development of a country, as is demonstrated by the fact that all developed countries have gone this route. Even the World Health Organization has just raised its voice in favor of nuclear energy used for peaceful purposes. No one would work in a nuclear plant if there were insuperable risks, not even for all the gold in the world. A nuclear plant is not put into operation if maximum guarantees are not given. For that reason, its safety must not be measured by the number of hours it has taken to make it operational, nor the number of days or months. The only thing that is important to us is to put the plant in operation with the maximum safety and to offer the use of an energy source that is indispensable to the country.

8735
CSO: 5100/2502

AGENCY REPORT SEES ADVANTAGE IN REUSING PLUTONIUM FROM WASTE

Stockholm SVENSKA DAGBLADET in Swedish 22 Sep 82 p 5

[Article by Dag Bjerke: "Advantage in Reuse of Plutonium from Nuclear Waste"]

> [Text] The plutonium that results from the refining of Swedish spent nuclear fuel in France and England can, to a technical and economic advantage, be reused in Swedish reactors.

Swedish Nuclear Fuel Resources (SKBF) has reached this conclusion in a report on the use of plutonium in Swedish reactors, which has been delivered to the industrial department.

Plutonium has taken a central place in the safety debate on spent nuclear fuel, partly because of its high toxidity and lasting radioactivity but also because the compound can be used in the production of nuclear weapons.

From the totally 867 tons of spent Swedish nuclear fuel that, beginning at the earliest in 1987, shall be refined, 6.3 tons of plutonium will be produced. This can, in oxidized form, be mixed with uranium oxide powder and pressed into new fuel rods with largely the same characteristics as fuel produced from concentrated natural uranium.

Inside the reactor core the heat development and reaction sequence in these so called MOX (Metal Oxide) rods are somewhat more difficult to control than in ordinary uranium rods. In order to correct this, one can surround the MOX rods with uranium rods in the core.

Tested for Several Years

Thousands of MOX fuel rods have been tested during many years in several west European reactors, 51 rods in the Oskarshamn reactor. The 6.3 tons of plutonium in question for Sweden is in the SKBF report considered to be an appropriate amount to be used as additional fuel in the two Swedish reactors Forsmark 3 and Oskarshamn 3.

If the most optimistic time plan for the refining in French LaHague and English Windscale stands, a situation may arise during the years 1984-94 whereby the MOX rods delivered to Sweden cannot be reused immediately, but must be stored for a while.

How to store the fuel could become a politically delicate problem. International investigations are under way to develop regulations for the supervision of stored plutonium, particularly with regard to its danger of spreading.

6.3 tons of plutonium introduced into nuclear fuel is the equivalent of 600 tons of enriched uranium. Therein lies the great economic plus in the reuse of plutonium.

More Expensive Shipping

It is, however, counterbalanced by the more expensive handling and shipping costs due to the potential risks of the plutonium. In addition, spent MOX rods are somewhat more difficult to store, which also adds to the cost.

A very rough estimate by the SKBF investigator shows that the economic gain at the reuse is slightly more than 200 million kronor.

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CSO: 5100/2503

BRIEFS

NEW PROBLEMS AT FORSMARK PLANT--More operation problems threaten Forsmark. Small cracks in a turbine axle were discovered at the refiring after the overhaul this summer. Area chief Henning Danielson thinks that one should be able to correct the damage without shutting down the reactor. "We have worked on the turbine axle to lessen, or totally eliminate, the damages. We are going to check it again shortly and investigate what it looks like after having been in operation for a while. A shutdown is not necessary," Henning Danielson continues, "it is sufficient to lower the effect and run on one turbine. We are going to do this for a couple of days. Should it become necessary, we will have to do some kind of regrinding of the turbine axle." [Text] [Stockholm DAGENS NYHETER in Swedish 6 Oct 82 p 22] 9843

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