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(FOUO 10/80)

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JPRS L/9309

24 September 1980

# Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

(FOUO 10/80)



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WORLDWIDE REPORT  
NUCLEAR DEVELOPMENT AND PROLIFERATION  
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CONTENTS

WORLDWIDE AFFAIRS

UK Negotiations With U.S. on Fast-Breeder Reactor Questioned (Pearce Wright; THE TIMES, 7 Jul 80) .....	1
Briefs	
U.S.-Japanese Nuclear Talks	3
Eurodif Enriched Uranium Shipment	3

ASIA

INTER-ASIAN AFFAIRS

Japanese Firms To Take Part in Australian Uranium Mining (JIJI, 21, 27 Aug 80) .....	4
New Company Established Uranium Data to Australia	

JAPAN

Nuclear Waste Dumping Protested (JIJI, 11 Aug 80) .....	5
--	---

NEAR EAST AND NORTH AFRICA

INTER-ARAB AFFAIRS

Fifth Arab-Israeli War Expected To Be Nuclear (AL-WATAN AL-'ARABI, 5-11 Jun 80) .....	6
--	---

- a -

[III - WW - 141 FOUO]

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WEST EUROPE

ITALY

Controversy Surrounds Caorso Nuclear Power Plant Safety (Various sources, various dates) .....	15
Overview, Significance of Findings, by Tullio Fazzolari	
Results of Study Refuted	
Technical, Methodological Errors Cited	
CNEN, ENEL Policies Criticized, by Nicola Caracciolo	
CNEN President's Rebuttal, by Umberto Colombo	
Senate Inquiry Proceedings, by Nicola Flammia	
Nuclear Safety Conference Proceedings	

UNITED KINGDOM

Government Reportedly Plans To Build Fast Breeder Reactor (Adam Raphael, Nigel Hawkes; THE OBSERVER, 22 Jun 80) .....	47
--	----

- b -

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WORLDWIDE AFFAIRS

UK NEGOTIATIONS WITH U.S. ON FAST-BREEDER REACTOR QUESTIONED

LD071139 London THE TIMES in English 7 Jul 80 p 4

[Report by Pearce Wright: "Minister Is Challenged Over Secrecy on Fast-Breeder Reactor"]

[Text] Confidential negotiations between the United Kingdom Atomic Energy Authority and its counterpart in the United States, intended to accelerate the development of the fast-breeder type of nuclear reactor without interruption by atomic energy opponents, have been called into question in a letter to Mr David Howell, secretary of state for energy, from the Friends of the Earth.

Mr Howell has been told that the American branch of the environmental group has filed a request under the Freedom of Information Act for specific documents relating to those Anglo-American talks.

The letter from Dr Michael Flood emphasizes the anxiety about the spread of nuclear weapons that becomes more probable with the expansion of a nuclear power programme using the fast-breeder reactor fuelled by plutonium, as the next generation of atomic energy expansion.

He wants an assurance that negotiations with the Americans are not designed to prejudge a promised inquiry into proposals to build a demonstration fast-breeder reactor in the United Kingdom.

Dr Flood recalls that the scope of that inquiry has not been defined, and that several events give cause to believe that developments have been advanced secretly.

His letter gives the source of information about the negotiations with the United States. A report published in the influential energy daily in Washington, outlines proposals by the United States Government calling for the United Kingdom and the United States to form a partnership that would build initially five or six fast-breeder reactors as a joint programme.

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Another publication, inside DOE, a weekly report on the United States Department of Energy, also describes secret discussions between officials from the Department of Energy in London, the British Foreign Office, and a high-ranking delegation of the United States Administration concerning the formation of that partnership.

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WORLDWIDE AFFAIRS

BRIEFS

U.S.-JAPANESE NUCLEAR TALKS--Tokyo, July 16 (JIJI press)--A two-day Japan-United States consultation opened at the Foreign Office here Wednesday to prepare for a joint feasibility study on a plan to temporarily store spent nuclear fuel in the Pacific basin area. The Japanese delegation, led by Atsuhiko Yatabe, the Ministry's councillor in charge of technical and scientific affairs, comprises officials of his ministry, the International Trade and Industry Ministry, and the Science and Technology Agency, while the American team is led by Louis Nosenzo, deputy assistant secretary of state. The plan, proposed by the U.S. calls for storing spent nuclear fuel for about 30 years at facilities to be constructed on a suitable island in the Pacific. Japan already appropriated about 40 million yen (about 160,000 dollars) in the fiscal 1980 budget for the first year of the two-year feasibility study. [Text] [OW161319 Tokyo JIJI in English 1230 GMT 16 Jul 80]

EURODIF ENRICHED URANIUM SHIPMENT--Paris 15 Jul--Eurodif, a joint uranium enriching firm of four European nations, said here Tuesday it has recently shipped the first installment of 5 tons of enriched uranium to Japan. The enriched uranium with a fissionable uranium 235 content of 3 percent will be used by Tokyo Electric Power Co and Kansai Electric Power Co for power generation. Eurodif, owned jointly by France, Italy, Spain and Belgium, has concluded a contract with Japanese power firms to export 1,000 swu (separative work unit) tons (about 233 tons) of enriched uranium a year over a decade starting this year. Japan is the first foreign country to purchase enriched uranium from Eurodif, which started supplying Electricite de France with the product in April 1979. The company's enriched uranium production capacity will be boosted to about 10,000 swu tons a year when all of its four plants are completed in 1982. [Text] [Tokyo JITI in English 1333 GMT 16 Jul 80 OW]

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INTER-ASIAN AFFAIRS

JAPANESE FIRMS TO TAKE PART IN AUSTRALIAN URANIUM MINING

New Company Established

OW201515 Tokyo JIJI in English 1430 GMT 21 Aug 80

[Text] Sydney, 20 Aug (JIJI PRESS)--Four Japanese firms, including Kansai Electric Power Co, will establish a new company to coordinate their participation in the Ranger uranium mine development project possibly in September, according to sources here. The three others are Kyushu Electric Power Co, Shikoku Electric Power Co, and C. Itoh and Co. The new firm, provisionally called Australia Uranium Resources Development, will serve as a channel for their equity participation in Energy Resources of Australia (ERA), a Japan-Australia-West Germany joint venture which took over a 50-percent stake in the project from the government.

Capitalized at 500 million yen (about \$2 million), it will be headed by Toshio Ito, vice president of Kansai Electric. The four Japanese firms together hold a 10 percent interest in ERA. The signing of a formal contract among the ERA investors is expected to be delayed until early September at Japan's request.

Last Monday, the three countries already signed contracts to propel the development of the Ranger mine, claimed to be one of the best uranium mines in the world, in the presence of Douglas Anthony, deputy prime minister and minister for trade and resources.

ERA with a capital of \$400 million will put 14 percent of its shares on stock exchanges. The firm plans to procure loans of about \$355 million from abroad. Of the total, it wants to borrow one-third from Japanese financial institutions through the good offices of the Japanese investors.

Uranium Data to Australia

OW271447 Tokyo JIJI in English 1430 GMT 27 Aug 80--FOR OFFICIAL USE ONLY

[Text] Sydney, Aug. 27 (JIJI PRESS)--Japan's Power Reactor and Nuclear Fuel Development Corp Wednesday provided the Australian Government with uranium enrichment research data through the Japanese Embassy here. This is in line with the Japan-Australia joint uranium enrichment research project. Prime Minister Malcolm Fraser and his then Japanese counterpart Masayoshi Ohira at their talks in Tokyo last January agreed to move the project into the second stage following the end of the first stage in 1978. Recently, the two countries exchanged notes on protection of commercial secrets, paving the way for the delivery of the Japanese research data to Australia.

The government will have the private research group UEGA study the Japanese data as well as information received from North American and European countries to draft a report by the end of this year on the feasibility of building a uranium enrichment plant in this country.

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4

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JAPAN

NUCLEAR WASTE DUMPING PROTESTED

OW111421 Tokyo JIJI in English 1354 GMT 11 Aug 80

[Text] Tokyo, 11 Aug (JIJI Press)--Six representatives of South Pacific islands Monday visited the Foreign Office and other government agencies to protest Tokyo's plans to dump low-level nuclear waste in the high seas of the Pacific. At the Science and Technology Agency, one of them took the Japanese Government to task for its failure to give prior notice to the people of Pacific islands. He also asked why Japan would not dump the waste in the waters near this country.

The agency explained that Japan looked for waters more than 4,000 meters deep or deeper than the level stipulated by the International Atomic Energy Agency (IAEA) for nuclear waste dumping.

The government, alarmed by strong opposition from Pacific islands, will dispatch four officials of the Science and Technology Agency to a South Pacific summit, scheduled for Thursday and Friday in Guam, to explain Japan's program. Japan plans to dump 10,000 drums of cemented radioactive waste into ocean depths about 900 kilometers southeast of Tokyo from the autumn of next year on an experimental basis.

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INTER-ARAB AFFAIRS

FIFTH ARAB-ISRAELI WAR EXPECTED TO BE NUCLEAR

Paris AL-WATAN AL-'ARABI in Arabic 5-11 Jun 80 pp 20-23

[Article: "Arabs and Israel: Fifth War Will Be Nuclear; Has Israel Tested Neutron Bomb Which It Is Ready to Bomb Baghdad, Damascus and Amman With; United States and Europe Have Concealed (Mosad) Agents' Theft of Nuclear Fuel Shipments"]

[Text] If the outbreak of a fifth Islamic Arab war [with Israel] is delayed until the second half of the 1980's, then it will, in all probability, be a nuclear war. The reason is that Israel, which is going ahead with its nuclear weapon plans, will force the Arabs to keep up pace with it.

But what nuclear weapons does Israel have and what capabilities do the Arabs have to catch up with it?

On the fourth day of the October war, Israeli Defense Minister Moshe wept when reports and coded cables on the fearful defeats inflicted on the Israeli forces on the various fronts began to flow to his office.

The Egyptians destroyed the Bar-lev line with magnificent success before the Israeli troops could turn on the burning napalm hoses to turn the canal surface into a flame of fire. The offensive of the Israeli armored brigade failed, sustaining heavy losses from the radio-guided anti-armor missiles which the Egyptian troops enjoyed firing at the Israeli armor from a short distance.

In the Golan, the Syrians swept through and occupied most of the peaks of Mount Hermon, leaving behind protruding basalt pockets and rushing forward toward Tiberias Plain and Upper Galilee with their tanks and their fearful Frog missiles.

Moshe Dayan forced himself and led his highest-ranking officers to the office of Prime Minister Golda Meir and explained to her the situation on the various fronts.

Old Golda was extremely tired, drained and tense. Her confidence in her war minister, Dayan, who had ridiculed the reports she had been receiving on the

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Arab military preparations for war, had collapsed and in the midst of her wrath and anger over the catastrophe that had fallen, she agreed to think of "the unthinkable."

The prime minister issued her orders to the secret Israeli nuclear units to get ready and the red alert was turned on at the strategic nuclear command somewhere under the Negev Desert.

Hardly an hour had passed since the issuance of the prime minister's orders when 13 aircraft of an unknown type were standing ready on the runway of a well-camouflaged airfield in the Negev Desert, each carrying the secret and ultimate weapon--an Israeli nuclear bomb with an explosion force of 20 kilotons, i.e. equal in power to the primitive [al-bida'iyah] U.S. bomb dropped on Hiroshima and then on Nagasaki.

They Sent Everything That Flies to Israel

President Nixon did not give Israel the opportunity to use its ultimate weapon. When he received news of the crushing Israeli defeat and of Israel's loss of nearly all of its armors in the first 6 days of the war, he ordered the Pentagon to establish an air bridge to make up for all of Israel's weapon and equipment losses. His famous order "in hell's name, send everything that flies to Israel" is still reverberating in the halls of the U.S. Department of Defense.

The U.S. tanks and aircraft began to flow to the Israeli fronts in enormous numbers and the war scales began to balance and then to be tipped in favor of Israel gradually. The danger was eliminated and the Israeli nuclear bombs returned to settle safely in the bowels of the desert again.

Golda Meir, like all women, did not carry her secret with her to the grave. She talked about those fearful moments with some of her politician friends after her departure from power to justify her criminal decision.

The truth is that the Israeli nuclear program started with a decision from David Ben Gurion in 1957. The Zionist state bought at the time a nuclear reactor with a 26-megawatt capacity and installed it in (Demona) in the Negev Desert. At the time, France, Israel's friend, supplied Israel with the fuel and technological assistance to operate the reactor.

In the early 1960's, a special team of the Mosad (Israeli intelligence) agents was roaming the world to steal shipments of enriched uranium and bring them back to Israel.

However, the biggest gift Israel got came from Zalman Shapiro, the U.S. Jewish nuclear scientist, on whom a fortune dropped from heaven suddenly. Shapiro set up his own agency in 1957 to supply nuclear fuel to the various nuclear reactors in the United States.

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Zalman Shapiro's Services

Careful investigations have shown that Shapiro has failed to offer any reasonable explanation for the disappearance of uranium shipments weighing nearly 800 lbs. by the end of the 1960's.

In 1965 alone, Shapiro paid a fine of 1.1 million dollars because he lost 200 pounds of enriched uranium in one of his shipments.

Israel's agents did not encounter much difficulty in hijacking or purchasing the nuclear fuel necessary from Britain and France, for example, especially since enriched uranium is nothing more than powder or small crystal pellets put in radiation-proof containers.

The successive U.S. presidents and intelligence agencies have always collaborated to blackout any investigation or to obliterate any information incriminating Israel. When President Johnson received from the intelligence reports of the Israeli nuclear fuel "thefts," he asked Richard Helms, the then director of intelligence, not to inform Secretary of State Dean Rusk and Secretary of Defense Robert McNamara of the reports. Johnson also asked Attorney General Robert Kennedy in 1965 to remain silent when the latter received a detailed report from the FBI on the Israeli nuclear thefts.

The 1970's era witnessed a dangerous turn in the Israeli nuclear weaponry programs through the establishment of a very firm cooperation between the Zionist state and the racist state in South Africa.

U.S. information in this regard says that South Africa has been supplying Israel with uranium while Israel has been supplying South Africa with the technology. The Israelis have been shrewder because they have insisted on treating nuclear fuel in their plants and reactor. This information adds that the Central Intelligence [Agency] is confident that Israel has been in possession of several dozen nuclear bombs since 1974.

[The West] German information asserts that Israel possesses about 13 nuclear bombs, each with a weight [presumably meaning force] of 20 kilotons that can be loaded on Kfir and Phantom planes which can reach their targets in the Arab capitals surrounding Israel.

The Soviet spy satellites were able to detect a nuclear explosion in Kalahari Desert in 1977. It later became evident to the western intelligence that Israel participated with South Africa in detonating a nuclear device.

Mysterious Nuclear Explosion at Sea

However, the most mysterious acts of cooperation between Israel and South Africa has been the operation which was carried out on the cloudy midnight of 22 September 1979.

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On that night, an explosion occurred in the sky of the area where the Atlantic and Indian oceans meet.

Artificial satellites do not fly in the skies of this remote area frequently and the area is ideal for carrying out a small secret nuclear explosion because such an explosion is difficult to detect.

But nearly 3 weeks later, the U.S. Artificial Satellites Agency announced that a small U.S. satellite of the (Villa) type was cruising the area in that dark night and that it recorded a mysterious flash thought to be the flash of a nuclear explosion.

An international and scientific argument erupted soon afterwards. South Africa has denied that it has conducted a nuclear test and has claimed that a Soviet nuclear submarine could have exploded in the deep waters of the area.

Several scientific and security sessions were then held in the United States to verify for sure the information supplied by the (Villa) satellite. It was found most likely that the flash was actually the flash of nuclear explosion and that South Africa's and Israel's fingers are not far from it.

A report by the Central Intelligence [Agency] has asserted that abnormal activity by the South African fleet was cited in the area on the night of the explosion.

However, the U.S. administration has again preferred to remain silent and not to persist in a dialogue with two states whose word this administration doesn't trust, especially on an extremely secret issue such as that of nuclear weapons.

Perhaps the reason for the U.S. blackout is due to the fact that persisting in the open dialogue would embarrass Carter's administration before the third world where the U.S. administration is exerting open and confidential efforts to obstruct the proliferation of nuclear weapons. Moreover, creating clamor over the issue would have threatened the SALT II treaty to which Washington and Moscow were applying the final touches.

This activity re-surfaced timidly in the middle of last February when Israeli correspondent Dan (Rafi) asserted in a dispatch to the U.S. CBS television network that Israel and South Africa had actually exploded a nuclear device last September.

But why didn't the satellite Villa pick up the bright nuclear signal clearly?

Here, some U.S. scientists say that the nuclear device exploded was not a big nuclear bomb but a neutron bomb which the Arabs [sic, presumably meaning the west] intend to produce.

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In promoting this weapon, the west claims that it is an almost "clean" nuclear weapon. It is less destructive than the ordinary nuclear bomb because it explodes in the sky over the area in which it is intended to be exploded. Its radiation is enough to kill every living thing within a certain radius without causing any damage to buildings and property.

Now, why does Israel want the neutron bomb?

Nuclear weapon experts here say that the neutron bomb is more "realistic." It is fit for use in the areas of direct combat where the warring armies overlap, as is the situation in the war fronts and lines of the Middle East. Moreover, exploding this bomb over Amman or Damascus will not cause grave harm to the Israeli cities as the result of nuclear dust or radiation.

Why Israeli Nuclear Weapon?

Israel says it will not be the one to begin the use of nuclear weapons in war with the Arabs. But this claim is belied by the previously told story of what happened during the October war. Moreover, Israel says that "it will not be the one to begin" but it doesn't say that it will not be the "possessor" by evidence of the fact that it has not yet signed the nuclear weapons nonproliferation treaty.

This determination to possess nuclear weapons confirms that the Israeli strategy experts have reached the final analysis that secure borders will not actually be the guarantee for Israel's safety in the face of the Arabs who surround Israel like a bracelet surrounding the wrist and in the face of the Arab human numerical superiority in terms of both the number of troops and of population. The Arabs are also on their way toward achieving qualitative superiority through the constant training of their armies and through supplying them with weapons whereas Israel's back is straining under the burden of the deficit in its budget--a deficit which is reflected in its economy and in the living standard of its population.

Israel doesn't trust even its main ally, the United States, insofar as the safety, security and border guarantees are concerned. This is why it has found in nuclear weapons the deterrent, the guarantee and the effective factor in winning a war.

Israel was founded on the basis of a single military concept, namely that it cannot afford to lose a single battle. Israel's loss of such a battle means the loss of Israel itself because of Israel's narrow area and of its small population. Therefore, the nuclear deterrent is, in Israel's opinion, what guarantees its "military and strategic balance" with the Arabs.

But can the Arabs let Israel go ahead with its nuclear armament plans without keeping up pace with it or catching up with it?

The logic of the fateful conflict between the Arabs and Israel requires the Arabs to enter the nuclear race gate unwillingly and by force. Israel is the

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one which has imposed this race and it is ultimately the side solely responsible for the enormous dangers and catastrophes that may emanate from it.

The fact is that Israel, which has outdistanced the Arabs by secretly joining the nuclear club a long time ago, cannot--regardless of how hard it tries and coordinates with the western intelligence--prevent the Arabs from forging ahead with their nuclear programs.

In this regard, the Arabs lack neither the money nor the scientists and the experts. If they lack the industrial technology, then money is sure to secure it.

Will Israel Initiate Nuclear War?

Israel must be aware of what will happen when a kind of a "nuclear terror balance" is established in the area between itself and the Arabs. At such time, Israel must think and count up to one hundred before it initiates a nuclear war.

Israel cannot win such a war even if it launches it by surprise by sending its aircraft and destructive missiles in the direction of the nearby, and even distant, Arab capitals and cities.

Though its initial strike may be terrible and destructive and may inflict enormous human losses on the Arabs, the counter-blow or deterrent blow by the Arabs will be fatal due to the same reasons that have made Israel seek to arm itself with nuclear weapons, namely its being a small state with limited resources and population and a small area.

In other words, if a limited nuclear war erupts in the Middle East--and it is not unlikely that a fifth war will be nuclear if its eruption is delayed till the end of this decade--more than one Arab city and Arab citizen may survive. But there will definitely be no single Israeli city, there will be no State of Israel and there may not even be a single Israeli.

Somebody--perhaps an Israeli--may say that Israel will be able to build a tight network of missiles that will prevent the infiltration of its skies and lands by aircraft or nuclear missiles.

But this possibility is also rejected. Whoever possesses a nuclear weapon doesn't want to explode it on his land or over his cities and population but wants to carry it over to hostile territory. Therefore, when the Arabs come to possess the nuclear bomb they will undoubtedly think of the means capable of conveying it to the heart of the occupied land.

Arabs and Nuclear Option

But are the Arab nuclear programs moving ahead with the same speed as that of the Israeli programs?



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The information available to the Arab countries asserts that Israel owns more than one nuclear device. The Arabs find themselves, therefore, forced to enter the nuclear club, though the entry is through the club's peaceful gate and not through the gates of the club's war arsenal.

This means that the rich Arab countries started years ago ceaseless efforts to set up a nuclear industry, to acquire advanced nuclear technology and to train a select group of nuclear scientists, experts and engineers.

The fundamental inclination of most of these countries to acquire the atom for peaceful purposes does not negate their capability to turn quickly, if they so wish, toward the production of nuclear weapons if they find in the next few years that Israel is forging ahead with its nuclear armament and that the hope for reaching an honorable political solution to the Mideast and Palestinian issue has been completely extinguished.

However, the dangers facing the Arab nuclear programs do not lie in the possibility of environmental pollution, as is the case in the west which is jammed with factories and people. The Arab world is vast and effective protection against the dangers of nuclear incidents, both intrinsic and induced, can be secured in the boundless desert.

The dangers facing the Arabs lie in the fierce war launched against them by the western nuclear countries with various means that reach, as has happened to Iraq's nuclear projects for example, the extent of sabotage and of pre-meditated murder, not to mention resorting to instigation of the world public opinion against the Arabs by depicting them as ruthless beasts that want to acquire nuclear weapons at any price to destroy themselves and the world with these weapons. Meanwhile, a quick curtain is drawn on any Israeli nuclear activity that surfaces accidentally, not to mention the aid intentionally advanced to Israel by the United States--the most vociferous and clamorous country against the Arabs.

The goal is clear and evident. It is not the fear of one, 10 or 100 Arab or Islamic nuclear bombs. The Arab bomb scares neither Russia nor the United States or France. But it does in fact constitute the main danger to Israel and the deterrent against Israel's expansionist dreams and military raids in the area.

It is on this premise that the west is launching its unjust campaign against the nuclear Arabs or Muslims. One of the reasons behind the execution of Zulfiqar Ali Bhutto, the Pakistani leader, was his determination to go ahead with the implementation of his nuclear program. But the west has been surprised to find that Bhutto's successor, General Zia-ul-Haq, is no less enthusiastic for the project, especially since money is available from the rich Arabs and since the Pakistani scientists are ready to perform the task.

#### Iraq's Nuclear Projects

Iraq is facing today the most intensive, unfair and unprecedented western propaganda campaign against its acquisition of nuclear power for peaceful purposes.

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This is why the two nuclear reactors which France was about to deliver to Iraq in the Middle of last year were destroyed. The experts estimated at the time that Iraq's nuclear programs have been delayed for 2 years. Two weeks ago, a prominent Egyptian nuclear scientist working in Iraq was killed under mysterious circumstances during his presence in Paris on a mission.

However, there is nothing to indicate that the Arabs, and Iraq in particular, intend to abandon their nuclear programs.

Iraq relies on cooperation with France, Italy and Brazil in acquiring nuclear fuel, technology and expertise. Even though Iraq is a member of the nuclear nonproliferation treaty, there is western insistence that it is capable, if it wishes, to produce its nuclear weapon before 1985.

Iraq has acquired from France an (Oziris) type nuclear reactor with a capacity of 70 megawatts. This is one of the most advanced and strongest nuclear reactors in the world. It will be set up near Baghdad and its costs will amount to 275 million dollars. Moreover, France supplies Iraq with nuclear fuel and helps it train its nuclear experts and scientists.

Iraq has also acquired from Italy four nuclear laboratories valued at 50 million dollars to help it separate the plutonium fuel.

Iraq also acquires uranium metals from Brazil.

Now, will the Arab countries become nuclear countries?

Perhaps, who knows?

Israel has entered the nuclear club secretly from its back door. Will the Arabs let their historical enemy enjoy this membership alone?

[Box on pp 22-23] Mysterious Death

[Text] They saw him in Paris for the last time buying some gifts and clothes for his wife and children. The time for his return had approached and his mission in the French capital had been completed.

Dr Yahya al-Mashadd, 48 years, returned to his room on the ninth floor of the huge Meridian Hotel and never left it.

On the following day, the maid came to get the room ready and found him lying on his face on one of the sofas while fully dressed and with his overcoat on. The entire room, big as it is, was smeared with blood. The face of the prominent scientist was full of scratches and the investigators found in a corner of the room an iron rod which is thought to have been used in killing him.

But why was Dr Yahya al-Mashadd killed?

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He was an Egyptian nuclear scientist who had specialized in nuclear reactor engineering in the Soviet Union and had worked in the Egyptian Nuclear Energy Authority and as professor at Alexandria University before he was delegated to Iraq to work in the Iraqi Nuclear Energy Organization in 1945 [sic] in which he distinguished himself as one of the brightest Arab scientists working in the Iraqi nuclear projects.

He chose to remain in his work in Iraq after the end of the period of his delegation by Egypt. His ability qualified him to supervise the nuclear coordination and cooperation between Iraq and France. By virtue of his work, he visited France frequently to follow up on the production of the parts for the Iraqi nuclear reactors and to familiarize himself with every new development in the field of nuclear engineering and energy.

After his mysterious death, which is evidently a criminal act perpetrated by intelligence agencies, sources hostile to the Arabs launched a number of rumors to intensify the confusion surrounding the circumstances of his assassination. Israel has claimed that the Libyan intelligence has killed him because Libya is jealous of Iraq which is about to take the lead over it with its nuclear programs.

Meanwhile, sources of the U.S. intelligence have claimed that the French intelligence has liquidated the scientist in accordance with western security coordination to obstruct the Arab nuclear projects.

The absence of this prominent scientist will not delay the Iraqi nuclear projects and their use for peaceful purposes. However, his loss leaves a sad echo in the hearts of his colleagues and of those who have been aware of his prominent scientific status.

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ITALY

CONTROVERSY SURROUNDS CAORSO NUCLEAR POWER PLANT SAFETY

Overview, Significance of Findings

Rome L'ESPRESSO in Italian 18 May 80 pp 255-256

[Article by Tullio Fazzolari: "Nuclear Power Plants--the Challenge of Caorso"]

[Text] The American experts of Palo Alto say that the risks of an accident at Caorso are great. The Swedish technicians reply: you are poorly informed.

Rome--The battle is now in its final stages. And in particular, it is becoming worldwide. To combat the nuclear peril, the Italian ecologists organized in the Friends of the Earth association have brought onto the field the American experts of MHB [Minor, Hubbard, Bridenbaugh] of Palo Alto, California, who have prepared a long study on the dangers of the Caorso power plant. The Italian pronuclear lobby, for its part, is preparing to do the same kind of thing by adding to its forces the like-minded Swedes who have already had to cope with the criticisms of the American technicians and who, despite everything, won a popular referendum last March with 58 percent of the votes, getting as much as 70 percent in the very zone of Malmo where the very strongly disputed Barseback power plant has been built.

Caorso, like Barseback, has been built on the BWR [Boiling-Water Reactor] system. With a document of more than 300 pages and a long series of appendixes, the American experts of MHB present a pitiless analysis of the Caorso power plant. The risks of accident, they say, have become increasingly serious and dwarf the memory of the Three-Mile Island incident in the United States. Indeed, the possibility of trouble is no longer, as was believed, one in a million, but rather "one in 100,000." And what is even more disturbing, the men of MHB add, the danger of an incident's being of the most serious type has increased.

And that is not all. The American technicians point out in their report that the threat to the population exposed to radiation has not been properly taken into account, and furthermore that in case of calamity, it would be difficult to put into effect any plan for evacuation of the inhabitants.

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The indictment is a heavy one, and in the last analysis is levelled against not only Caorso--a plant already completed--but also against the entire nuclear option. The criticisms of Caorso today can be repeated tomorrow against Montalto di Castro (also on the BWR system); against the Garigliano power plant, which has already acted up in the past and which ENEL [National Electric Power Agency] is having changed over to a more modern boiling-water installation; and against the Trino Vercellese and Latina plants too.

It is a heavy blow to the pronuclear lobby. It had been consoled by a satisfying success just days earlier. On Monday 5 May, after a long series of ups and downs, it passed the 100-hour bench test by reaching a power higher than expected--about 875 megawatts rather than 860. But the elation of victory was doused by the report of the American experts of MHB. And the CNEN [National Nuclear Energy Commission] and ENEL will have to cope with these criticisms at a round-table conference to be held in mid-May.

The pronuclear people are therefore sharpening their weapons. And to meet the offensive of the Friends of the Earth, they are determined to bring all their forces to bear. Their first objective is naturally to demolish the study by the MHB experts as far as possible. And to succeed in this, they are counting on the support and valued advice of other authoritative foreign experts: for example, those of the ASEA [Swedish General Electric-Power Company]-Atom, the mixed company (50-percent public and 50-percent private) that is building the Swedish nuclear power plants.

Indeed, MHB's document on Caorso is in many respects analogous if not identical to the one prepared by the same experts on Barseback 2 years ago. And the arguments of the Swedish pronuclear people can prove very useful to the Italian pronuclear people today. "The three brains of MHB, Dale Bridenbaugh, Richard Hubbard and Gregory Minor," they say at the ASEA-Atom, "are three experts who have to be considered seriously when they speak of technical details in which they have professional competence." Not by chance, until 1976 the three held positions of responsibility in General Electric, one of the biggest multinational companies specializing in the construction of atomic power plants. But many things have changed in the nuclear field since that time, and the Swedes are not sure that the three have kept up with the times.

And the report on Caorso? How valid is it? Is it really acceptable? Reading it, the Swedish experts find an infinity of points in common with the report that MHB prepared for Barseback. And as with that report, they are quick to point out a good many instances of imprecision and approximate evaluations. MHB maintains that the Caorso reactor's containment system is new and therefore not sufficiently proven while the Swedes point out that it has already been used for two Japanese atomic power plants. But the Swedes' counteroffensive against the MHB report goes much farther. They accuse the American experts of MHB of having taken as term of reference mainly an inquiry conducted in the United States by Professor Rasmussen. Other important things that have subsequently been said and written are ignored by MHB, the Swedes say--in particular, the German Birkhofer report,

16

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The Caorso power plant

to which they attach great importance. The result, they add, is that "the men of MHB evaluate the seriousness of the nuclear risks in their own way and always exaggerate too much." And in support of this conviction of theirs, they cite also the opinions of other experts of various countries, according to whom the worst incident described by MHB, both for Caorso and for Barseback--that is, a meltdown of the core and the explosion of the vessel--is so improbable that it can be ignored.

Conversely, MHB makes this one of the key points of its antinuclear philosophy. It insists on presenting the possibility of catastrophic accidents "with a pessimism which," they say at the ASEA-Atom, "inevitably leads to exaggerated conclusions." For example, in evaluating the effects of radiation on the population, MHB uses a linear method that is too invalid when such radiation is at a low level such as 0.15 rad per inhabitant per year--a level that corresponds to the dose from natural radiation, without what is produced by nuclear power plants.

But especially, the Americans' pessimism reaches its apex, according to the Swedes, when it fails to take into consideration the fact that improvements can occur in the nuclear field, and especially in the area of safety: "We are not just standing around with our hands in our pockets looking at the dangers that nuclear power involves," they say at the ASEA-Atom; "we are doing everything necessary to combat them and limit them. And we believe that people in many other countries of the world, including the United States, where MHB is headquartered and works, are doing the same as we are. Conversely, MHB does not appear to take into account the technological progress that in various ways is reducing the nuclear risk."

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MHB's Three Crusaders

Their battle sign is MHB--that is, the initials of Gregory Minor, Richard Hubbard and Dale Bridenbaugh. The three of them are, in the nuclear field, something like what Ralph Nader is for the American consumers and public opinion. But they are not run-of-the-mill antinuclear people. Until 1976, all three held positions of responsibility in General Electric. And Bridenbaugh in particular had the unpleasant task of responding, in the company's name, whenever there was trouble with a power plant already sold. In 1976, Bridenbaugh decided to resign. Hubbard and Minor followed his lead, and a "political and religious" motivation is attributed to the three of them. In any case, it is a fact that the three then began their battle against nuclear power plants--or rather, against the dangers that they constitute. They organized MHB, against which there is no lack of hostility, especially on the part of the builder companies but also on the part of the private utilities that run the power plants in the United States by the sole logic of profit. MHB goes through difficult times, and its survival is due to the aid and support of the California ecologists. Then with its report on the Swedish power plant of Barseback in 1978, MHB rode the crest of the wave, and is doing the same now with the report on Caorso, which will not fail to stir up controversy in the already fiery Italian nuclear war.

Results of Study Refuted

Rome ATOMO E INDUSTRIA in Italian 15 May 80 pp 1, 3

[Article: "The MHB Report on the Safety of Caorso Refuted"]

[Text] On 16 and 17 May, on the initiative of the Friends of the Earth and with the sponsorship of the Lazio Region, a conference was held in Rome for presentation of the study carried out, on commission from the Friends of the Earth, by the American consultant firm MHB. These letters are the initials of three well-known engineers--Gregory Minor, Richard Hubbard and Dave Bridenbaugh--who left General Electric noisily in 1976 to become critics and opponents of nuclear power plants.

On the invitation of the Friends of the Earth, the technicians of ENEL and of the CNEN took part in the conference, and they took the opportunity to express hard criticism of the MHB report, in which they pointed out serious deficiencies in basic data, methodology used and objectivity, frustrating the expectations of the Friends of the Earth, who would have liked to make this occasion a decisive argument in the struggle against the development of nuclear energy in Italy.

In their endeavor, the organizers did indeed have the support of the president of the Council of the Lazio Region, the socialist Giulio Santarelli, who, in inaugurating the conference, took the occasion to say he was in favor of the decision by the mayor of Montalto di Castro to order suspension of the work on the nuclear electric power plant and declared that the

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freeze "should be maintained until the government and Parliament have given satisfactory replies to the repeated requests on the matter of safety." According to Santarelli, there exists in Italy a dangerous mentality that considers our country's nuclear commitment from the same point of view that it can be considered from in vaster territories such as Canada or the Soviet Union. That this is not true has been demonstrated by the seriousness and promptness with which the experts of ENEL and the CNEN have responded to all the criticisms (and the errors) contained in the MHB report and also to the assertions--inspired by an obvious polemical attitude, devoid of any scientific foundation--of the geologist Floriano Villa.

At the conference, statements were made for ENEL by Prof Franco Velona, of whose remarks we give a few excerpts below, engineer Giuseppe Russino, engineer Vincenzo Morelli and engineer Maurizio Mirone. Speaking for the CNEN were engineer Claudio Sennis, engineer Gianni Petrangeli and engineer Remo Galvagni--all three of them department directors with the Central Department of Safety and Protection (DISP) of the CNEN. A reply to the questions of a geological nature raised by the Villa report, attached to the MHB study, was then given by Dr Giorgio Magri of the Radiation Department of the CNEN, who showed that the assumption of a catastrophic earthquake in the Caorso zone in the 12th century is without historical basis, inasmuch as it is derived from a hasty and inexpert reading of the sources by Doctor Villa. This argumentation by Magri was implicitly confirmed by Villa himself, who in the course of the conference specified in a written statement that he had limited himself to citing what was related by other indirect sources. We publish the CNEN's position separately, summarized in a press release from it, and we report here on ENEL's replies to the criticisms of MHB.

In the course of his statement, Professor Velona pointed out that "the MHB study makes a comparison between the results obtained from the Caorso analysis and those obtained by the famous Rasmussen report on analysis of the risks of the Peach Bottom-2 power plant, equipped with a BWR reactor analogous to that of Caorso, even though it is of greater power (1,100 MWe as against 850 MWe).

"A fair comparison," Velona said, "would have required that MHB first redo the Peach Bottom-2 study, using the same criteria used for Caorso, and then draw the comparison. In the absence of this, the inexact conclusion is drawn that Caorso, independently of the site characteristics, presents a higher probability of incidents than does Peach Bottom-2.

"But the contrary is true," declared the ENEL spokesman; "the evaluations of the risks of the two power plants, arrived at by the same criteria adopted today, could only show a distinct advantage for the Italian power plant, if only because of the evolution of the technology and norms that it has imposed between 1974 (when Peach Bottom-2 went into service) and today more restrictive criteria and more conservative assumptions, going in the direction of ever greater intrinsic safety of the installations. I want to point out here that in the Caorso plant, considerable improvements have

19

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been made as compared with Peach Bottom-2, improvements which the MHB technicians have not taken into account (for example, the steam diffusers in the damping pool, the tests and analyses made for Caorso's containment system). In any case, the MHB technicians have not indicated any specific point in which Caorso is deficient as compared with Peach Bottom, and therefore, a 10-times-higher probability of a core meltdown for Caorso is to be considered completely arbitrary. With considerations on the meteorology and the population density--that is, with a series of hypotheses that prove extremely unrealistic on the whole--the consequences of such a hypothetical incident are supposed to increase by another two orders of magnitude.

"With further distortion of the facts and confusion of ideas," Velona continued, "this calculated probability of  $10^{-4}$ /reactor X year is then compared with the experimental one (TMI [expansion unknown]) of  $10^{-3}$ , a value termed "close enough" to the theoretical value. But this amounts to comparing a hypothetical core-meltdown incident, involving thousands of deaths, with an incident--a serious one, but without meltdown--that did not have any victims."

Professor Velona then mentioned the fact that Science Applications, Inc (SAI)--an American technical and engineering consultant firm specializing in evaluation of safety risks and problems--is cited at the beginning of the MHB report as having furnished assistance to MHB, on subcontract, in calculation of the consequences of the incidents for Caorso.

But in the days preceding the conference, SAI had written a letter to ENEL with a copy sent to MHB, declaring that the report in question constitutes a substantial misrepresentation of SAI's participation, that SAI does not agree with MHB's conclusions, and that the material presented in the report does not constitute an evaluation of the risk in sufficient breadth and depth that the results could be considered acceptable from the technical point of view.

#### Technical, Methodological Errors Cited

Rome ATOMO E INDUSTRIA in Italian 15 May 80 p 3

[Article: "Many Errors and Imprecisions Pointed Out and Documented by the AMN (Ansaldo Meccanico Nucleare) on the Report by the Consultants to the "Friends of the Earth"]

[Text] Ansaldo Meccanico Nucleare has replied in a 25-page document to the accusations made by MHB against the safety of the Caorso reactor. The AMN document complains first of all "that the MHB Technical Associates report came to it indirectly and only a few days before the official presentation planned for 16-18 May in Rome. Nevertheless, an initial examination of the MHB report shows that it contains many errors and imprecisions of both a methodological and a technical nature. The methodological errors derive from a distorted and inappropriate use of probabilistic procedures for

20

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estimation and evaluation of the nuclear risk. The technical errors are due to the fact that writers of the report show lack of knowledge of the details of the project and of the construction of the nuclear power plant of Caorso."

In particular, the MHB study takes as a reference and bases its calculations on the well-known American study Walsh-1400 (the Rasmussen report), which, however, has unanimously been considered unsuited for calculating the risk of specific reactors, but is rather considered a valid and interesting guide for research. Therefore it must be "emphasized that the significance and 'scientific' scope of the entire MHB report have to be challenged and viewed from the perspective of the uncertain validity of the methods adopted. Unfortunately, in the course of their study the MHB technicians minimize and pretend to forget every precautionary observation that could compromise the peremptory and dramatic conclusions which it is desired to reach.

"But a close look at the study by MHB Technical Associates shows that it is much less than the American "Reactor Study" (Rasmussen Report); in fact, the MHB technicians do not make a complete probabilistic analysis of the Caorso power plant, even with all the limitations that such an analysis implies. In evaluating the Italian nuclear risk, they base themselves instead on the results and the data already calculated by Rasmussen and by his group for the American reactor Peach Bottom-2. These results and data are adjusted and corrected mainly to take into account the differences between the Italian situation and the American one. It is in fact assumed, more or less implicitly, that the Italian institutions, industries and agencies are worse than the corresponding American organizations: the American nuclear components and systems would be expected to break down more often under the Italian skies.

In substance, the probability values assigned to the sequences of internal initiating events that had already been defined for Peach Bottom-2 are modified in the MHB study. But for external initiating events (of seismic, atmospheric origin, etc), the reference is entirely to the Rasmussen report. In modification of the probabilities of the events that initiate incidents inside the power plant, coefficients that are almost always pejorative are introduced. There is no trace of technical analyses that make it possible to understand and justify the values assigned to these coefficients. It is only said that they were selected, chosen or set by the authors on the basis of their own personal and subjective evaluation.

"In these operations, a constant reference is the American situation, which is obviously modified in a pessimistic direction, which among other reasons is supposed to taken account of a structural incapacity and inefficiency of ours. The conclusion from this continual search for the most pessimistic situations possible is that in the case of Caorso, the cumulative probabilities of nuclear accidents with immediate deaths are even more than 1,000 times higher than the case of the American Peach Bottom-2 reactor, and the most serious incidents are at least 10 times more serious than in the Amer-

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ican case. It is clear that at this point, the inexperienced person takes fright; and this is what was desired."

The AMN's document continues with its counterdeductions, though specifying that it is not "intended to make do a point-by-point critique of the MHB report in what follows. The number of errors, and especially imprecisions, would require an excessive labor. It is, however, pertinent to bring out several points that directly involve the planners and builders of the installation.

"In any case, it will always be possible to discuss these same points and MHB's other hypotheses and evaluations within the most suitable technical framework and with the degree of detail and depth that is necessary."

The succeeding part then shows, with documentation, all the most serious errors (of ignorance and of omission) committed in the MHB study.

All the additional safety arrangements that make Caorso a good deal safer than Peach Bottom-2 are listed; the assertion that the Italian power plant's Mark II type of containment is the first to go into service is refuted, since it was preceded by two similar Japanese installations; a stringent program of tests (105) has demonstrated the complete suitability of the design solutions adopted for the containment; special discharge devices (the "quencher") have been installed, and the validity of the consequent modifications has been fully checked out; an effective system for pool-temperature measurement has been installed, and a number of sensors have been positioned at suitable points; the reference earthquake falls (Per the CNEN's indications) between the 9th and 10th degrees on the Mercalli scale, while Professor Villa himself indicates the 7th degree as the maximum hypothesizable earthquake for the Caorso zone; rapid shutdown of the recirculation pumps has been achieved so as to mitigate the ATWS [expansion unknown]; there can be no breakdown of suction from the condensate storage system to the core-spraying pool is always aligned [as published] in such a way as to suck water from the underpressure pool, while the suction from the condensate tank is used only for testing the system with the reactor turned off during the recharging; those characteristics of Caorso that make several events less probable than Peach Bottom-2 have not been taken into account at all; Caorso is capable of tolerating a higher number of breakdowns and even human errors than are Oyster Creek and TMI 2 before totally losing emergency refrigeration; the core-spraying system is composed of two mutually redundant systems, and furthermore has design capacity to furnish 250 percent of the refrigerant flow required; in Caorso, 70 percent of the refrigeration water enters from below, and therefore no interruption of the flow can occur because of steam; the formation of stable voids in the core is therefore unlikely also; MHB takes no account of the redundancy of independent electric-power supply lines, a redundancy greater than that of analogous installations; simultaneous damage of the vessel under pressure and of the containment to such an extent as to produce releases is not possible; the report cannot be considered an analysis of risk for Caorso because the fault trees and the event trees are those prepared for Peach Bottom.

22

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These are only some of the points on which the AMN considered it had to respond with regard to the study commissioned by the Friends of the Earth.

CNEN, ENEL Policies Criticized

Rome LA REPUBBLICA in Italian 9 May 80 p 6

[Article by Nicola Caracciolo: "Capanna Is Wrong--Victory Is Possible"]

[Text] Mario Capanna, in an article in LA REPUBBLICA of 23 April, explains why he will not, even though he is antinuclear, sign the referendum against nuclear power plants. He maintains that if there is a vote, it will surely lose. Television, newspapers and parties will persuade the Italians that without the dangers and the pollution of the atom, economic prosperity is not possible, and the nuclear plan will therefore pass with popular consensus.

Despite the esteem in which I hold Capanna, I am convinced of the contrary. The events of recent weeks as regards the Montalto power plant, on which ENEL has been working for a couple of years, indeed demonstrates one essential thing: the agencies which by law must construct or oversee the construction of the nuclear power plants (ENEL and the CNEN) have neither the technical competence nor the moral honesty necessary for such tasks.

I am aware of the fact that this assertion, put in this way, may seem unjust. I know very well that there are worthy officials and technicians both in ENEL and in the CNEN. The fact remains that the way they are put together today, these agencies are not functioning. They have demonstrated total irresponsibility in this matter. That is, they have gone and chosen a seismic zone for the Montalto power plant.

A fortnight ago, the Administrative Court of Lazio decided in favor of the Commune of Montalto and its mayor, Pallotti, who asked that an order to suspend the work be approved while more detailed investigations are awaited. The Commune presented a study signed by geologists of outstanding reputation--Professor Camponeschi of the University of Rome, and Professor Villa, president of the association of Italian geologists. It maintains that in the vicinity of the power plant there are three "active faults," or ruptures in the earth's crust capable of producing earthquakes. What characterizes an "active" fault? I asked Camponeschi this, and I apologize for going briefly into a purely technical field. There are three precise signs, he replied, about which there are no doubts in geological science: (1) volcanic activity, even if low; (2) hot-water springs; (3) mineral deposits that have come up from the depths--in this case, iron sulfides and antimony. All these indications are present for the Montalto faults. One of them--that of the Fiora--is 22 km long, and appears to come as close as 4 km from the Montalto power plant. Neither ENEL nor the CNEN had perceived this.

This is not a matter of minor errors. An earthquake can cause a serious incident in a nuclear power plant (a core meltdown, such as very nearly oc-

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curred at Harrisburg), which in turn would cause literally hundreds of thousands of deaths in the zone running, let us say, from Rome to Grosseto. This is an improbably event, agreed, but not so improbable in the idiocy of choosing a seismic site is committed.

In reality, though, ENEL had already virtually decided to go ahead with the work at Pian degli Spilli in the commune of Tarquinia. To understand the origins of this, we must go back to July 1975, when, in a deserted room of the Chamber of Deputies, and without real discussion, law 393 was passed (the law we are trying to repeal by means of the referendum), which, among other things, laid it down by authority that a power plant was to be located on the Tyrrhenian Sea between Tarquinia and Montalto.

The inhabitants of Tarquinia, though, wanted none of it, and they rebelled, supported by their mayor. It was decided to shift the site from Tarquinia to Montalto, even though there were apparently complete geological studies for Pian degli Spilli but not for Montalto. But there was great haste to begin right away. Therefore, the work was done fast and it was done poorly. ENEL did a geological study in which it asserted that there was no reason to think that the three faults were active, and the CNEN--the over-seeing organism--zealously ratified everything.

In any case, questions were raised even then. The Ministry of Public Works, which also has power of control in the matter, said three times (in 1976, 1978 and 1979) that it considered the geological studies done to be inadequate, but no one paid any attention to it.

One might think that we antinuclear people are exaggerating about these "active faults." Let us hear what the CNEN says in this regard, the CNEN being an agency which, if it is not goaded too far, does have some moments of lucidity. This is what is written in one of its documents, tracked down by two physicists of the University of Rome, Gianni Mattioli and Massimo Scaglia (Document Disp [expansion unknown] 772, p 21): "as regards active faults that are at the surface of close to it, the state of the art does not make it possible to design a nuclear electric-power plant that takes surface shifts into account with a level of confidence sufficient to guarantee those parts of the installation that relate to safety." In plain language, nuclear power plants should not be built close to these notorious "active faults."

Recapitulation for Capanna. I honestly believe that in the face of such great bungling, the referendum should win. Capanna should keep it in mind that the case of Montalto is not an isolated one. At Caorso, the power plant has become "critical"--that is, the reactors were charged with nuclear fuel and the operating tests were begun at the end of 1977. Today, 2-1/2 years later, it is still not functioning at full scale. In no other country have the startup tests for a well-built power plant lasted so long: a sign that there too, something must not be going right.

So: I believe that (to prescind from any abstract judgment about atomic energy) few Italians would agree to having the CNEN and ENEL run the power

24

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plants as is done today. And there is another argument, one that has to do with the very prospects of the antinuclear Movement: I do not think that democrats can refuse to submit to the test of a vote without at the same time casting doubt on the validity of their politics and their principles. In a democracy, universal suffrage is and must remain the court of last recourse. It seems to me unwise to try to win by other ways.

CNEN President's Rebuttal

Rome LA REPUBBLICA in Italian 15 May 80 p 6

[Article by Umberto Colombo, president of the CNEN: "Who Is Afraid of Nuclear Power"]

[Text] I do not know Nicola Caracciolo personally, and I dislike having contact with him only through the columns of LA REPUBBLICA. I consider that he is in good faith, even though I am disturbed by the coincidence of his attacks with the imminence of electoral events--facts which are too contingent to make for serene and calm discussion.

The assertions that he makes, in his article of 9 May, against ENEL and the CNEN are rather heavy, and would be such as to lead to a complaint at law if we were not indeed already in the middle of a legal action regarding ENEL and the CNEN, initiated by the citizens' committee of Montalto di Castro. Since our intent must not be a persecutive one but should aim solely at bringing out the truth in the matter of facts and behavior, the legal action mentioned will be the most suitable circumstance, and an action on our part is therefore not necessary.

What is the CNEN accused of? Essentially, of thoughtlessness for not having sufficiently evaluated the risk deriving from the presence of "active" faults in the vicinity of the Montalto site, giving its authorization to the startup, by ENEL, of the construction work for the power plant. Further accusations of thoughtless and irresponsible behavior are made against us with regard to Caorso.

It seems senseless to me to fire up an alarmist polemic that makes use of such terms as "fault" and adjectives like "active" that are foreign to the man in the street without going to the heart of the problem--that is, without asking what effects may derive from them, and whether such effects have been taken into due account.

This is the point. The possible effects related to the activity of a fault are two: a rupture of the earth, one that arrives at the surface, localized in the immediate vicinity of the site; and the generation of seismic shocks.

In the sedimentary basin of Montalto, the fault that concerns Caracciolo--the Fiora fault--halts at a distance of more than 10 km from the site, and is not seismogenic. The three "signs" which, according to the geologist

25

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Camponeschi, specifically identify an active fault are in reality characteristic of the phase of extinction of volcanic activity. In the present case, this phase goes back to a preceding epoch of 200,000 years ago.

For Montalto, the CNEN, on the basis of its own seismotectonic analyses, put ENEL under design and construction obligations such as to safeguard the installation from the effects of the zone's biggest potential earthquake. In particular, the seism that the installation must resist without damage is of the 9th degree on the Mercalli scale: that is, one involving stresses about double the one--and indeed an exceptionally intense one for the zone--that occurred in Tuscany in 1971, in which 36 persons lost their lives.

It seems to us--in all conscience, and backed by the opinion of very authoritative Italian and foreign geologists--that the redundance of safety connected with the seismic factor is such as to provide absolute tranquillity. The amount of precaution in the CNEN's restrictions is indicated by the fact that Montalto is not considered a seismic zone. It must therefore be wondered why a risk of this type is mentioned only now, and only with reference to the power plant, without any request ever being made for structural reinforcement of all the dwellings and engineering works built in the zone.

Other countries that have already started decisively down the nuclear road--Japan, for example--combine an even more accentuated and dynamic seismic character than Italy's with even greater population density. From a list of all the nuclear power plants built in Europe and in Japan in the last 10 years, and of those under construction, it is easy to demonstrate that the Montalto site is among the objectively most favorable ones. Furthermore, it is well-known that the Montalto site had passed the preliminary qualification study for the EURODIF [European Diffusion Agency] installation--subsequently built at Tricastin, on the Rhone, because of a more decisive commitment by the French government--where, to furnish power to the installation, four nuclear power plants were built, with power of 930 MW each. I challenge any geologist to demonstrate that the Tricastin situation is better than that of Montalto.

Caracciolo then quotes--praising the zeal of Mattioli and Scalia for having "tracked it down"--the document Disp (77)2, which, however, was widely distributed by the CNEN, and not only to the two abovementioned professors (the Disp is an office of the CNEN charged with the problems of power-plant safety). The sentence quoted, and attributed to one of the rare "moments of lucidity of the CNEN," is to be correctly understood in the literal sense of the term--that is, a nuclear installation is not to be built right on an active fault.

This imperative has been precisely adhered to in the case of Montalto. Therefore, no contradiction is seen between what was prescribed and what was carried out in practice.

Nicola Caracciolo has taken as his own the strategy that Virginio Bettini theorized at the regional conference on energy held recently in Turin, in

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his paper entitled "From Nuclear Protest to Protest of Nuclear Siting." In other words, the antinuclear people, backed into a corner as regards their capacity to demonstrate that we can do without nuclear power without running very serious risks on the level of our country's economic development and energy availability, are falling back on challenging the sites as their most effective weapon, inasmuch as this relates far more directly to the emotive situation of populations who are easily influenced and inadequately informed and who are asked to receive a nuclear power plant in the interest of the national community. Here I must admit that in the past the CNEN has interpreted its role as an essentially technical one and has not done enough to inform the populations adequately.

Caracciolo's article and--even more--the accusations by the Citizens' Movement of Montalto seem to present the CNEN as the stupid servant of the master ENEL, and as unconcerned about the real interests of the country-- in the first place, the safeguarding of environmental quality and of the health of the workers and of the populations. For anyone who knows the CNEN from the inside, and the scrupulous respect for the autonomous role of the Disp (which represents its control and safeguard component), nothing is more false than this image. The dialectic between Disp and ENEL has always been a tight one, and strictly at arm's length. The painstaking detail with which the startup tests for the Caorso power plant have been carried out should give the average Italian citizen an idea of the care and attention being given to the problems of safety. Instead, paradoxically, the duration of the tests is being taken as a fault of ENEL and the CNEN, as if a more offhand and rapid carrying-out of such tests were in itself a guarantee of better functioning.

Finally, Nicola Caracciolo's assertion that the Ministry of Public Works "considers the geological studies done to be inadequate" regarding Montalto is not exact, inasmuch as it gave its own assent to construction of the plant, only recommending that before the working design was done, that ministry's competent technical-administrative organs be informed about the studies conducted.

I cannot help but note that the tone of these polemics accentuates the rather widespread tendency in Italy to cast discredit on institutions generally, in this case ENEL and the CNEN, which, however, enjoy considerable respect and prestige abroad and which represent one of the country's resources.

We should instead all commit ourselves to making their functioning--impeded today by antiquated rules and by restrictions whose weight is known only by those who have direct experience with the public agencies--quicker, more manageable and more efficient. This would be a constructive attitude that would serve not only to get us to do our work in shorter times and at lower cost, with equal guarantee of safety, but also to motivate the thousands of technicians of these agencies who feel they are the unjust target of attacks by those who make bold to pontificate about things they do not know and do not wish to know.

27

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Senate Inquiry Proceedings

Rome NOTIZIARIO COMITATO NAZIONALE PER L'ENERGIA NUCLEARE in Italian Apr 80  
pp 84-88

[Article by Nicola Flammia: "Parliamentary Review"]

[Text] Questioning on Caorso

In the Senate's public session of 5 February, Sen Fabio Fabbri (PSI [Italian Socialist Party]) conducted the questioning presented by him along with Senators Riode Finessi, Gino Scevarolli (PSI) and others, concerning the nuclear power plant of Caorso.

In the certainty that the government will not fail to state its position, after the recent Venice conference on nuclear safety, in expectation of a wide-ranging Parliamentary debate on a real national energy plan, Senator Fabbri is not convinced of the arguments of the "hawks" in favor of the nuclear choice, which involves enormous risks.

He instead considers it indispensable to conduct an exhaustive discussion of the modalities of operation, the management criteria and the safety standards of the Caorso nuclear electric power plant, so as to keep the populations of the zone from being guinea pigs in an experiment without any strict standards.

Despite the different opinion expressed by the Salvetti Commission, the choice of Caorso was a superficial one, in the opinion of Senator Fabbri, not only because the power plant is located in quite a heavily populated zone but also because construction was not preceded by the necessary exhaustive studies of a technical-geological nature. In addition, excessive recourse to the practice of subcontracting has produced delays whose economic damage has been estimated at about 250 million lire per day.

For lack of foresight, there has been a failure to designate an authority to program and check on the safety systems, and the conflict between ENEL-- which, without worrying too much about fine points, is aiming at getting the power plant into full-scale operation--and the CNEN, which instead seems animated by a greater spirit of caution, has been allowed to break out.

Nor has the trouble even been taken to establish a sincere and democratic relationship between the state on the one hand, and on the other, the Region, the local administrations, the workers and the trade-union organizations, and the seeking of any kind of understanding with the Emilia-Romagna region, which had not shown itself to be prejudicially hostile, has been neglected.

Further, as regards the levels of safety, the well-founded observations made by the United States experts had already been anticipated, in sub-

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stance, by those--local administrators and trade-unionists--who are already living with the reality of the Caorso power plant.

Therefore a reassuring and unelusive response is necessary, one that shows the desire to adopt truly adequate safety measures, in view of the high population density of the zone, among other things.

As it was pointed out that no emergency plan had been preestablished, Senator Fabbri recalled that the region, the local administrations and the trade unions have already put to the government a series of requests regarding in particular an overall checkout of the installation, guarantees of adequate training of the power-plant operators, the preestablishment of safety standards tailored of the magnitude of the risks, and finally, the providing of a system for running a continual environmental check.

The Socialists maintain that the organism to carry out the overall check requested should be the Advisory Commission for consultation among the local administrations and the state that has finally been created. Furthermore, it may not be thought that in the face of the nuclear risk there can be secrets, concealment, shadowy zones. Moreover, complete information for the populations is necessary so as to avoid the possibility of needless panic, and an evacuation plan should be formulated that does not leave room for risks, within the limits to which this is possible in relation to nuclear power plants. The Socialists also want to keep the normality of democratic life from being compromised, because of the presence of installations of this type, be creation of a police atmosphere, and to this end they insist on the establishment of a sincere relationship with the population and that the maximum possible control over the installations and the safety measures be encouraged.

Senator Fabbri expressed hope of an exhaustive reply from the government.

#### The Government's Reply

The undersecretary of state for industry, commerce and crafts, Sen Francesco Rebecchini, replied to the questioning as well as to the interrogations on the same subject presented by Senators Silvio Miana (PCI), Flavio Bertone (PCI), as well as Renzo Bonazzi (PCI) and others.

The Caorso power plant is an installation built with the safety requirements applied to the boiling-water power plants constructed in various localities in the United States of America, the design and technology of which have incorporated all possible improvements and datings of the norms occurring in the meantime, as well as all the requests formulated by the control authorities.

The plant's first criticality was reached on 31 December 1977; the first hookup to the national grid was made on 23 May 1978, and on that date began phase No 1, which raised the nuclear tests to 30 percent of power and which ended on 12 July 1978. Phase No 2, which went to 50 percent of power, came

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to an end on 8 August 1978, and phase No 3, which went to 70 percent, was completed on 17 February 1979.

At the end of the third phase, in view of the fact that the state of knowledge of the functioning of the hydrogen monitors was not guaranteeing their function in acceptable manner, the CNEN asked for a test program to be carried out by the supplier and under its own supervision, for the purpose of a complete characterization of the instrumentation in question.

While the results were awaited, the CNEN suspended issuance of the permit to reach full power.

On the request of ENEL, for the purpose of carrying out several tests compatible with an installation power of 50 percent, the CNEN, while awaiting the aforesaid results, issued the permit for operation of the installation up to 50 percent, a power level for which the hydrogen monitors were not necessary.

It was brought out that the startup of the Gaorso power plant is reported to have been characterized by a great many troubles.

Even if this is substantially true, Undersecretary Rebecchini declared, it is necessary to consider the fact that if an installation is subjected to a period of tests instead of being raised to full power directly, this is obviously not in itself a cause of trouble.

It happens also in order to bring out all possible defects in the functioning of the various systems, individually and as a whole, and thus to provide remedies as needed. The so-called "breaking-in" phase is indeed common to all machinery.

In the particular case of a nuclear power plant, this phase is conducted with even greater attention, sometimes bringing out troubles which in any other installation would be removed without even an evaluation of the causes. In any case, the government's representative did reply on several of the principle troubles noted.

Water infiltrations into the foundation cavities, of greater magnitude than anticipated, were encountered: the trouble is to be attributed to local defects in the external waterproofing layer. Despite the fact that this trouble did not pose any safety problem, the foundations were dried out by the already existing system for pumping out water from outside the buildings.

The sagging of several pipe-support attachments to the reinforced-concrete structures was noted; in addition to the repair work already carried out, the CNEN requested an extensive analytical and experimental check of the support conditions for piping and installation components, and from it there emerged no indications such as to prevent the issuance of the permit for continuance of the tests.

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A limited number of inspection-bench manipulators showed defects; as a precautionary measure, all the manipulators of the same type were replaced.

During the shutdown of the installation, the escape of slightly radioactive steam from a service valve was noted; this event was caused by erroneous activating of a system for spraying the inside of the pressure vessel. In any case, it was ascertained that the workers assigned to maintenance did not suffer any contamination from the event.

As regards in particular the trouble that occurred on 14 November 1979, Undersecretary Rebecchini pointed out that the power plant was shut down because of a water loss from an exchanger of the system for removal of residual heat and was started up again, after the repair had been done, on 26 November.

In August 1979, the government, to handle the requests coming from Parliament, from the regions, from the social forces and from public opinion, and often harassed by information that was not always exact, set up a technical commission for the purpose, composed of experts of various tendencies and of proven experience and specific competence, to formulate lines of inquiry into the problems of the safety of the nuclear electric-power plants in general and regarding the Caorso plant in particular.

The line of inquiry regarding Caorso was proposed as follows: that the commission should ascertain whether the safety criteria for the Caorso plant and for those under construction are in line--as regards human health and the integrity of the environment--with the best standards adopted for analogous installations.

In order to give exhaustive answers to the question formulated, the commission devoted various sessions to the subject and made a special visit to the installation.

The commission thus decided that it could declare that the Caorso power plant is in line with the best standards adopted for analogous plants of the same generation, and that with regard to the troubles that occurred in the test phase, problems were involved that commonly emerge in installations of considerable complexity, and that they do not in any case affect fundamental aspects of safety.

As regards the outcome of the emergency exercise held at the installation on 25 July 1979, Undersecretary Rebecchini declared that although it demonstrated sufficient preparedness on the part of the personnel, it brought out the necessity of making several improvements to the existing infrastructures. Such improvements concern in the first place the problem of the instrumentation with which the radiometer teams are equipped. It was in fact noted that this instrumentation--previously approved by the Ministry of Interior as suitable for field use and capable of measuring the levels of environmental contamination, corresponding to emergency reference levels--it is not suitable for measuring the values of environmental con-

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tamination expected in consequence of a hypothetical incident. This is because such values are considerably lower than the abovementioned reference levels, and the apparatuses are not sensitive enough to register them precisely. It was therefore requested that the instrumentation be integrated with other instrumentation having higher and more perfect sensitivity.

Following the exercise referred to above, the CNEN also asked the operator to adopt other measures to improve the existing infrastructures, such as, for example, providing the emergency control center with a system for cataloging and storing any eventual environmental samples, to make the census system for the assigned workers more personal, and to coordinate the communications with the outside authorities better.

As regards the informing of the workers and the populations, an "advisory committee of experts for the Caorso nuclear power plant" was set up in the first phase of construction of the installation, with the task of ensuring distribution of information about the power plant itself. On this committee, in addition to the technicians of the CNEN and of ENEL, are representatives of the local administrations (communes and regions). In addition, technical meetings are held with the trade-union organizations at the CNEN itself on the request of said organizations.

As regards the professional preparation of the skilled personnel assigned to the power plant, a special unit with the principal task of seeing to the training of the personnel themselves functions at the installation, while the specific training center provided for in ENEL's programs is awaited to go into operation.

In addition, in conformity with the understandings arrived at with the Emilia regions in the meeting that took place at the Ministry of Industry on 13 August 1979, the CNEN is planning to furnish information periodically to the region itself, as well as to the advisory committee, on the progress of the startup activities and certifications of the power plant, in a dynamic and open relationship with the region and with the local administrations concerned.

In this regard, the Ministry is entirely available to provide for useful and timely visits to the power plant by members of Parliament who are interested in doing so.

As regards the external emergency plan, this was the subject of a specific question put to the nuclear-safety committee, which expressed a substantially positive opinion on Caorso's emergency plan, further suggesting some improvements of a general nature in relation to all high-risk activities--not just nuclear ones--to be defined by the appropriate bodies.

Finally, as regards the recovery and use of heat for civil, agricultural and industrial purposes, the problem is presently under study, in its various technical aspects, by ENEL.

32  
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As regards coal-fired power plants, the interregional advisory committee for economic programming expressed, on 11 January last, the understanding on the ENEL plan relative to the program for construction of such power plants, per the bill already presented.

This involves about 12,000 MW of new power to be installed in the shortest time possible, with the appropriate port and transport facilities to be provided for in advance also. For the purpose of the fastest possible activation of this program, and with the implications of a financial nature and general respect for the country's economy in mind, the government has taken steps, with the bill approved by the Council of Ministers of 1 February last, to speed up the procedures--with respect for the power of the independent local administrations--as regards siting of the power plants themselves.

The government, within the framework of the conclusions of the Venice conference and on account of the more general aspects connected with them, is preparing to examine the operational aspects that follow from Venice in relation to more organic handling of nuclear problems, on the basis of actions which, in an initial analysis, can be expressed in the following points:

- (1) creation of an organism for supervision and control of all high-risk activities;
- (2) the problem of safety viewed not so much from the point of view of procedure and packages of norms but rather as a system and as an ascertaining of the competencies necessary for fulfillment of the various activities connected with the building and operation of the installations;
- (3) a single-system choice, as being the approach that permits most exhaustive treatment of the problem areas associated with nuclear installations;
- (4) articulation of the assignment of contractual tasks in such a way that ENEL can effectively fulfill the role that falls to it from its institutional responsibilities as engineer-architect; participation in the designing and construction of the entire installation, with respect for the roles of the construction industries; strengthening and adaptation of ENEL's structures for the purpose of achieving the aforesaid objectives;
- (5) the role of the nuclear electromechanical industry: articulated but efficient concentration, with clear subdivision of tasks in the overall industrial structure, so as to respond to the real requirements of a concrete program of construction of more power plants, as proposed by the ENEL plan;
- (6) a professional-training center that makes possible, through suitable instruments such as plant simulators, selection of qualified personnel and the initial training and periodic refresher training of them in all possible operational situations of the installation, including the emergency situations;
- (7) the necessity of open information about the problems of energy in general and on the aspects related to the big energy installations; a cultural

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campaign on the energy problems throughout the country, through political forces, local administrations and other institutions;

(8) adjustment and coordination of the present structures established for the hydrographic, hydrogeological, meteorological, seismic and health sectors, and protection of the environment in general, with adequate preparation of the specialist competencies that the country needs;

(9) strengthening of the coordination mechanisms at the international level, and particularly the European level;

(10) an adequate relationship with local organisms (advisory committees of experts at the local level) for proper participation of the local communities in the problem of the power plants, as provided for by the present Caorso and Montalto conventions.

The Debate

Sen Silvio Miana (PCI) stated that he was only partially satisfied by the reply given by the undersecretary both as regards the specific problems raised by the Caorso nuclear electric-power plant's going into operation and as regards the more general problem of recourse to the use of nuclear energy.

Regarding the Caorso plant, he noted that the undersecretary has furnished a series of responses that summarize the conclusions reached by the commission for the safety of nuclear installations. Such responses, earlier requested by his party in the Parliamentary context also and also awaited by the Emilia-Romagna region, by the local administrations concerned and by the populations, confirm the alarms and doubts relative to the malfunctions that occurred both at the time of site selection and in the system of construction of the power plant, which did not enable ENEL to exercise management of the work and Italian industry to participate actively in all the phases and made the control system more difficult.

Even if such malfunctions are remedied, there still remain several problems that the government must urgently tackle in order to give the necessary guarantees to the populations, the local administration and the Parliament. The way in which such problems are tackled will also condition the Communists' judgment on energy policy, which, while accepting the necessity of a nuclear component, must tackle the problems very rigorously and with strict controls on both the technical and cultural levels.

From the government's reply it is evinced that the agencies responsible for managing the Caorso installation do not yet have full mastery of the necessary technology and that the guarantees of safety are not yet complete.

It is therefore necessary for the previously announced general measures to be brought before Parliament for examination as soon as possible, and that, while discussion of the system of emergency plans for all high-risk installations is awaited, an exhaustive reworking of the emergency plan for the Caorso plant be carried out, without which reworking the plant must not go

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into operation on full scale. In this regard, one must indeed deplore the fact that the proposals put forward from various quarters have not yet been accepted and that the need to make the population fully informed and aware of the risks, and thus to make it capable of participating in the choice, has not yet been met. In view of the necessity of providing the personnel assigned to the power plant with the highest level of professional qualification without waiting for the ENEL training centered--expected to open in 1983--to go into operation, Senator Miana concluded by noting that programs are under study for recovery of the power plant's heat--studies that should, however, go ahead faster by agreement with the authorities responsible for the programming of land use.

Sen Fabio Fabbri stressed that the Socialist senators, whose initiative forced the government to face the subject, cannot say they are entirely satisfied with the response--not from preconceived hostility but rather because the serious problems of the siting of the plant, the harm deriving from the delays caused by the subcontracting of the power-plant construction work, the fundamental risk of core meltdown, have not been tackled, while the necessary clarity has been lacking on the problem of the emergency plan also.

The traditional safety standards, to which reference has been made, are, according to the experts, to be considered outdated after the Three Mile Island incident. On the whole, then, the information provided by the government has not resolved the doubts but has on the contrary confirmed that the concerns are well-founded. We are in the middle of a very laborious breaking-in of the power plant, marked by an alarming number of troubles, which for that matter have been recognized by the undersecretary.

The discussion has therefore proven timely; the silence and downplaying are not justified, and it is advisable to force the government to present to the Parliament an initial report on the Caorso experiment. The vicissitudes of Caorso, like the Venice debate, do not pave the way for nuclear extremism but rather convince one of the necessity of seeking alternative energy sources and promoting their development.

The president of the Emilia-Romagna region rightly stressed, at Venice, the necessity of promoting mass information and understanding on these problems. The local administrations concerned in the question of the power plant--the provincial administration of Piacenza, the commune of Caorso--have demonstrated highly responsible behavior, which it was expected that the government would recognize.

In conclusion, the full-scale functioning of the Caorso power plant, which is now already operating at have of its potential, will have to be preceded by an overall positive verification, carried out by authoritative technicians whose answers will be impartial, with the consensus of the local administrations and of the trade-union organizations and with debate and control by Parliament.

35

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Uranium Exploration in Novazza

Senator Rebecchini, undersecretary of state for industry, commerce and crafts, also replied in the same session to the interrogation from Sen Libero Della Briotta (PSII concerning the uranium exploration by AGIP [National Italian Oil Company]-nuclear and the consequent problems of safety.

He advised that the company SIMUR (Italian Uranium Ores Company), controlled by AGIP, has so far invested 7 billion lire in development of the Novazza mine. The same company has been assigned the task of the future mining of the uranium-bearing deposit in the locality of the same name.

On the basis of a feasibility study, the EIB (European Investment Bank) has granted SIMUR special financing to a total of 9 billion lire.

Regarding the measures adopted for the safeguarding of the employees and the environment, the undersecretary stated that in the course of carrying out its program, the SIMUR intends to protect and conserve the integrity of the environment to the maximum degree possible, and especially that of the mine workers.

SIMUR is at the disposal of the local administrations and of the population for all information relative to the environmental impact deriving from the industrial establishment that it is proposed to build. Studies, as called for, have been carried out by specialists regarding environmental radioactivity, as well as investigations on the vegetation, fauna and foodstuffs.

The design for the uranium-ore processing installation is ready, and construction depends on administrative acts by local administrations. It will be sited near the mine. Appropriate protection of the discharges of wastes from the processing installation are likewise under study and being designed.

As regards the uranium-ore signs in the Val Vedello, though, AGIP is in the exploratory phase in this zone and has so far done 5,577 meters of galleries and 29,286 meters of drilling.

Environmental characterization studies are being conducted by AGIP and the CNEN. In particular, a study regarding the geological environment, the stability of the slopes, review of the hydrogeological limitations and a general examination of the waters has been commissioned by the mountain community of Valtellina from a team of experts; the costs of this action will be borne by AGIP.

The company is in constant contact with the local administrations, particularly with the commune of Piaveda-Sondrio, to which it reports directly on the work done and on the programs that it intends to carry out.

In the Novazza concession, the confirmed reserves of uranium as of 31 December 1978 can be estimated at 1,200 tons of uranium content, and for the

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two abovementioned valleys, at a probable total of 2,000 tons, taking a production cost of between \$80 and \$130 per kilogram of uranium.

At considerably higher costs, the reserves can be estimated at between 5,000 and 10,000 tons of uranium.

The entry of the ENI [National Hydrocarbons Agency] group into the field of uranium exploration was in 1955. The exploration was assigned, within the framework of the group itself, to SOMIREM [expansion unknown].

Intensive exploration activity, on the surface and underground, has been carried out in the areas with indications of uranium. The prospecting on the ground has involved 20,000 square kilometers, including 7,000 with detail work.

Exploration activity was resumed intensively after the energy crisis of 1973. In Val Seriana, AGIP developed basic geological-structural studies that made it possible to localize the areas with uranium manifestations. In Val Vedello, in addition to helicopter-borne spectrometric prospecting campaigns and detailed radiometric campaigns on the ground, exploration work was carried out with drilling and galleries that brought out many important indications of uranium.

Exploration is being developed in other zones of the country in addition to Val Seriana and Val Vedello.

In the Western Alps in particular, exploration activity was considerable in 1979; it has been articulated in helicopter-borne spectrometric observations, detailed geological work and a drilling program.

At present there are 49 permits out for radioactive-cres exploration, covering a total of 6,050 square kilometers of territory. Work programs are being carried out regularly in them under the control of the mining districts.

The safety and health protection of the workers in the extraction industry and of the populations against ionizing radiation are legally protected by the decree of the president of the republic of 13 February 1964, No 185, and by the decree of the president of the republic of 5 December 1969, No 1303, together with the provisions of the ministerial decree of 13 May 1978.

The chief engineer of the mining district, with the technical assistance of the CNEN, ascertains the potential existence of risk from radiation, establishes the determinations to be made, and lays down the legal requirements.

Sen Libero Della Briotta noted that the purpose of the interrogation was to obtain information on the delicate and complex question of uranium exploration by AGIP in particular zones, and on the consequent problems of safety for the workers and the populations--a complex subject that certainly can-

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not be left to those assigned to the work. Uranium exploration has obvious economic significance, but for the Socialists, the problem of safety is a priority one, since one may not barter health for jobs and bigger pay envelopes. Among other things, in the territory involved in the uranium exploration, the construction of power plants designed for exploitation of hydroelectric energy has already left a legacy of many dozens of invalids from silicosis, since the safety measures were not adhered to.

Senator Della Briotta noted the positive response in the matter of making means available to the mountain community of Valtellina and on the relations established with the commune of Piaveda, but he declared himself dissatisfied with the information on the measures for protection of the workers, since there is no systematic recording of pollution data. Some observations lead to quite alarming conclusions regarding the concentration of radon, while serious concerns have been raised by the enormous quantity of material that will have to be worked to extract the uranium from it, in a zone that in the past has already been subjected to calamity by the exploitation of the mines.

He therefore said he was only partially satisfied by the government's response, stressing his political group's firm intentions in bringing this set of problems again to the attention of the executive.

#### ENEL's "Blackout"

In the 12 March session of the Chamber of Deputies, the deputies Mauro Melini, Maria Adelaide Aglietta, Aldo Ajello, Marco Boata, Emma Bonino, Roberto Cicciomessere, Marcello Crivellini, Francesco A. De Datado, Adele Faccio, Maria Luisa Galli, Mianluigi Melega, Marco Pannella, Domenico Pinto, Francesco Roccella, Leonardo Sciascia, Massimo Teodori and Alessandro Tessari, of the Radical Group, put an interrogation to the ministries of Industry, Interior and Health, to ask what evaluations and what information they are capable of furnishing with regard to the proposal--the test operation for the execution of which have already been started by ENEL--to suspend the furnishing of electric power, on a rotating basis, to the various districts of the major cities.

The Radical deputies are asking whether the government considers it legitimate, on the part of an agency that has the specific task of carrying out a public service of prime necessity, to suspend the furnishing of power without verification of the absolute necessity of such suspension, and whether it considers that such necessity has been ascertained --in particular, whether the actual effectiveness of such suspension of the furnishing of power has been evaluated, in terms of achieving any appreciable energy saving, with account taken of the greater consumption owing to resumption of operation of the plants, interrupted on account of the power failure, and to consumption caused by the expedients that will be taken in order to cope with the interruptions (such as, for example, deeper freezing, etc). They are also asking whether ENEL has furnished the government with documentation that demonstrates the aforesaid necessity as well as the impossibility

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of achieving reduction of consumption by less "brutal" and approximate means, and whether ENEL or any other organism has carried out a study of the consequences for the safety of the citizenry and the injury that will be caused and may be caused by the suspension of the power supply also in terms of the energy consumption necessary to produce commodities that may deteriorate, etc, as well as whether measures have preestablished that are at least capable of preventing injuries to persons and of ensuring aid in emergency situations.

The Radical members of Parliament further want to know, especially in those instances where a precise and reassuring reply to the questions put is lacking, whether it is not to be considered that the main objective of ENEL's initiative is of a psychological character--that is, consisting in a kind of "energy terrorism" by which to generate in public opinion that if one does not go along with the nuclear option proposed by ENEL, one will have to adapt to the most disconcerting and shocking sacrifices: an idea already explored through the mass-communication media, including the public ones, with the alternative "nuclear power or candlelight."

Finally, they ask whether the government considers that in such a situation it should recognize that the crime of interruption of a public service is being committed, and whether, on the other hand, the inertia in the face of initiatives of such seriousness and so difficult to justify means that the government shares the aim of promoting, even in this way, the conditioning of public opinion so as to overcome the resistance to the nuclear choice and counter the "success" of the nuclear-repeal referendum.

Nuclear Safety Conference Proceedings

Rome NOTIZIARIA COMITATO NAZIONALE PER L'ENERGIA NUCLEARE in Italian May 80 pp 19-22

[Article: "Conference on the Nuclear Risk--Friends of the Earth-Lazio Region, Rome, 16-17 May 1980"]

[Text] A conference on "The Nuclear Risk," organized by the Friends of the Earth, with the patronage and financial support of the Lazio Region, has been held in Rome.

The purpose of the conference, which was held at the headquarters of the Lazio Region on 16-17 May, was to present the report entitled "Study of the Safety of Reactors in Italy" (done for the Friends of the Earth by the U.S. consultant firm MHB Technical Associates), followed by a public technical discussion with experts of ENEL and the CNEN.

MHB Technical Associates is the company set up in the United States in 1976 by Dale Bridenbaugh, Richard Hubbard and Gregory Minor, the three nuclear technicians who, after working in management positions in the Nuclear Reactors Division of General Electric, resigned, considering nuclear energy insufficiently safe.

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The MHB study, the subject of discussion, had been presented in Italy with lots of publicity, of which the press noted essentially the most negative and most striking aspects.

It purposes to formulate an evaluation of the risk of the Caorso installation by analysis of the probability of eventual incidents of catastrophic type and of the consequences they could have on the surrounding population. Such analyses are done by comparison with those of the well-known Rasmussen report (WASH 1400), which took the Peach Bottom-2 power plant as a reference for the BWR system.

The president of the Regional Council of the Lazio Region, Giulio Santarelli, stressed in particular, in opening the conference:

- the present government's intentions with regard to energy policy within the framework of program declarations;
- the institutional aspects relative to the working-out of such a policy and the management of it;
- the problems regarding the siting and safety of the nuclear power plants;
- the role of the Region and of the local administrations in promoting energy policy and putting it into effect.

Having stressed that the Region has responsibly taken on the burden of the national energy problems, Santarelli lamented the lack of safety guarantees because, in his opinion, of the deficiency of activity by the CNEN in this sector and the institutional uncertainties, expressing hope of closer co-ordination among the ministries of Industry, State Participations and Health and among the government, the regions and the local administrations.

The president of the Italian section of the Friends of the Earth, Dr Mario Signorino, pointed out that the purpose of the conference was to bring together, for a technical-scientific discussion and not a purely polemical one, nuclear experts with different points of view along with representatives of the Region and of the Friends of the Earth.

The session of Friday 16 May was devoted entirely to a detailed exposition of the MHB study carried out by Bridenbaugh and Hubbard. From this exposition it would appear that because of its characteristics and its location, the Caorso power plant presents a risk several tens of times greater than that estimated by Rasmussen with reference to Peach Bottom-2.

They have particularly stressed the fact that incidents with meltdown of the core could have health and environmental consequences not only in Italy but also in the neighboring countries.

The morning session of Saturday 17 May was devoted to the reply by the experts of ENEL, engineers Franco Velona, Maurizio Mirone and Giuseppe Rusino. They began with several considerations of a general nature, in which, among other things, they expressed their disappointment at the fact

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that in analyzing the probability of the various individual events, MHB systematically adopted pejorative factors, factors which moreover are entirely arbitrary and which, in addition, amplify the magnitude of the consequences in an unjustified manner. They subsequently made a point-by-point examination of the imprecisions, errors and arbitrariness contained in the MHB as contrasted with the real characteristics of the Caorso power plant.

On Saturday afternoon came the statements by the CNEN technicians, engineers Claudio Sennis, Gianni Petrangeli and Remo Galvagni. They pointed out, on the general aspects of the conference, the inexactness of several assertions by President Santarelli and of the presentation of the MHB study itself as "the first scientific study on a nuclear power plant situated in Italy"--assertions that appear to wilfully ignore the notable activity carried on in this field by the CNEN, as its specific institutional task, for more than 15 years. With regard to the MHB report, they pointed out its general character, which makes it more a subjective compilation of considerations on the BWR system than an individualized technical study of the Caorso power plant.

On the other hand, they cited and gave examples of the extensive and exhaustive authorizational and control activity relating to the Caorso installation and the scientific-technical support activity, especially in the field of risk analysis, underlining the fact that it emerges from these activities that the installation is in line with the highest international safety standards applicable to it.

During the conference there was also a debate on the seismogeological aspects between Professors Villa and Camponeschi and Professors Capozza (ENEL) and Magri (CNEN) on the seismic characteristics of the Caorso and Montalto sites. In particular, in reply to the general criticisms by Professor Villa, Professor Magri showed the precise deductions relative to the seismic history and the tectonic characteristics on which the antiseismic design data of the respective installations are based.

At the conclusion of the conference, the president of the Friends of the Earth stressed the importance of public technical debate, calling on the agencies institutionally responsible for management and control of the installations to respond constantly to the requirements of public information. In closing, Council member Cancrini, for the Lazio Region, set out the Region's position particularly on the question of the work on the Montalto di Castro power plant, asking for specific guarantees of safety and information.

Apropos of the conference, the CNEN has made public, in a press release which we publish in its entirety, its own decidedly negative position on the study presented. It has also distributed documentation giving examples of the activities carried on by its Central Department for Nuclear Safety and Health Protection. We give a list of this documentation on the last page of this report.

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CNEN Press Release--17 May 1980

The CNEN, which with its nuclear-safety experts has participated in the debate organized in Rome by the Friends of the Earth, with the support of the Lazio Region, has expressed a decidedly negative opinion of the results of the safety study of the Caorso nuclear power plant conducted by the American consultant group MHB on commission from the Friends of the Earth.

The report is general, the CNEN declares; a large part of the data is mere compilation. The specific part regarding Caorso is full of errors and imprecisions due to inferences, prejudices and false assumptions on the technological data for the installation, on the construction capacities of the Italian industry, and on the geological and seismotectonic situation.

The results of the MHB study are therefore to be rejected. Consequently, the alarmism is also unjustified in the judgment of the CNEN, while the tendentiousness of the study and the way it has been presented are extremely shameful.

The CNEN, as is known, fulfills, with an autonomous Department for Nuclear Safety and Protection (DISP), the function of a public agency for safeguarding the environment and the health of the populations. More than 300 technicians, engineers, physicists, geologists, biologists and experts in radiation protection are involved in this activity. In particular, safety analysis for the Caorso power plant continuously occupied several dozen technicians who, in a strictly arm's-length relationship with ENEL and with close checking on the Italian and foreign supplier industries, finally arrived at authorization of the construction and operation of the installation.

The strictness and complete autonomy of the CNEN in the process of authorizing Caorso are demonstrated by the dozens of plant modifications, including some very important ones, adopted by the electric-power agency on instructions from the CNEN. What is asserted by the Friends of the Earth is not true--namely, that the study commissioned by them is "the first scientific study carried out on a nuclear power plant situated in Italy." On the contrary, the CNEN, as is its duty, has carried out a whole series of detailed and specific studies on the safety of Caorso, using methodologies common to all industrialized countries. In addition, as long ago as 1977 the CNEN published a study of the safety of the light-water nuclear power plants, carried out by its own methodologies but with a correct choice of the starting data.

This study by the CNEN confirms the fact that the Friends of the Earth's assertion that the Caorso power plant is 10 times more dangerous than the American one taken as a reference (Peach Bottom) is to be rejected. Caorso is more modern than the latter, it has additional control equipment, and it has been subjected to specific safety tests under the control of the CNEN, during the startup phase.

42

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Finally, the CNEN's experts consider superficial and completely unfounded the observations regarding the seismic danger made by the geologist Floriano Villa, who demonstrates that he has not read what is said on the subject in the CNEN's safety reports relative to the siting of the Caorso and Montalto di Castro installations.

The CNEN has in fact required the Caorso power plant to be designed and built in such a way as to resist without damage seismic shocks of intensity up to the degree of 9.5 on the Mercalli scale.

In the judgment of the CNEN, confirmed by the experts of the International Atomic Energy Agency of the United Nations, this norm is to be considered highly precautionary. The CNEN considers it of the highest importance for public opinion to be informed on the problems of nuclear power in a correct manner and not a tendentious one. To this end, it has distributed to the conference participants scientific documentation that gives examples of its own contribution to deeper understanding of the problems of nuclear safety. In a public meeting to be held at the headquarters of the CNEN on 16 June, there will be in particular a presentation of the results of the geological investigation that led to the siting of the Montalto di Castro power plant.

Joint Communique of the Province of Piacenza and the Commune of Caorso

The period of approval-testing of the Caorso nuclear power plant ended recently; now begins the phase of transition to the normal operation of the installation.

The Emilia-Romagna Region and the local administrations of the province of Piacenza have stressed--at the recent Venice Conference on the Safety of Nuclear installations also--the necessity of specific actions, summarized in the seven points stated by President Turci, as the indispensable condition for guaranteeing the safety of the power plant and for going ahead to normal operation of it.

Analogous conditions have been stated by the trade-union organizations also. Such actions are even more urgent both in order to assure the surrounding populations and to give an immediate response to public opinion in consequence of the recent articles that have appeared in the national press and at the Conference on the Nuclear Risk held in Rome under the auspices of the Lazio Region and the Friends of the Earth Association.

In particular, they concern modification and adaptation of the Emergency Plan in accordance with the precise indications of the local administrations, which could rapidly find an appropriate place in the Regional Health Plan; the actions with a view to greater organization of work and better qualification of the personnel, as requested by the union and with regard to which it is only now, after a new phase of struggle, that greater availability on the part of ENEL is emerging; full publicity for everything relating to the functioning of the power plant; and definition of methods and structures for information.

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These requests fall within the framework of a revision and general amplification of the safety legislation and structures.

The totality of these positions represent the most recent development of a constant involvement and elaboration that have marked the whole long time span necessary for the construction and startup of the power plant, permitting important results such as: the Advisory Committee of experts; construction of the environmental monitoring network, with radioactivity included; construction of the Radioprotection Laboratory; initiation of an epidemiological investigation.

The central objective has always been the maximum expansion of the instruments of participation and of control, as the essential condition for developing--through the unitary action of the populations, the workers, the local administrations and the trade unions--confrontation and, if necessary, struggle, so that the government and the competent agencies will carry out with full responsibility what it is up to them to do to guarantee protection of the populations and the safeguarding of the environment.

Therefore there is a constant effort to give positive concrete form to the requests for guarantees, in order to build effect instruments of information, participation and control, and equally great is the attention to whatever that is new and constructive may come from other experience, national and international, and may be contributed by the various forces involved in this field, on the understanding that the realization of an effective system of control and safety, in this sector in particular, requires constant attention and adaptation vis-a-vis the continual evolution of the problems and of the state of knowledge. The experience of Caorso is therefore of great value, and the conditions set by the democratic forces for going on with this new phase of the life of the power plant are fully well-founded. The attitude of the government, which so far has not met these requests or the same commitments made at the Venice Conference, therefore appears all the more serious and irresponsible; in fact, there has not even been any discussion in Parliament yet on the conclusions of that conference, nor can the encounter just barely begun in relation to the requests put forward by the local administrations and the trade-union organizations be considered satisfactory. The Province of Piacenza and the Comune of Caorso therefore stress the necessity of an urgent and precise commitment by the government to solution of the problems still open, as absolutely necessary conditions for proceeding to this new and binding phase that should lead to the normal operation of the Caorso power plant, and they express their full commitment to developing unitary action together with the populations, the workers and the local institutions in order for it to come about with the necessary guarantees for the safeguarding of the environment and the protection of the workers and of the populations.

Statement to the Press by Paolo Ciofi, Vice President of the Council of the Lazio Region--17 May 1980

"The technicians of ENEL have sustained the position contrary to that of the technicians of MHB--i.e., that the Caorso power plant is safer than

44

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that of Peach Bottom. The Lazio Regional Council does not go into the merits of the technical choices, but rather poses a problem that has clear political aspects: the safety of the Montalto power plant.

The agreement on the safety of the Montalto power plant has not been adhered to by ENEL. This agreement required the setting-up of a joint committee that would follow step by step the problems that arose from time to time, especially that of safety. In substance, the committee has never functioned, and the safety protocol itself has never been written up.

The position of the Regional Council, in this situation, is articulated in the following points:

- (1) the government should immediately name a committee of experts of undisputed competence to examine all the problems of safety (the composition of this committee will have to be discussed and approved by the relevant Parliamentary committee);
- (2) in the absence of precise guarantees on safety, the Regional Council considers that the work on Montalto may not be resumed;
- (3) it is indispensable to get a precise and adequate emergency plan going with the assistance of the Region and of the local administrations, a plan which the Regional Council commits itself to putting into the regional health plan, already approved by the Council;
- (4) as regards the functioning of the power plant and the risk connected with it, the broadest publicity and information have to be ensured."

Documents Presented to the Conference by the CNEN

"Overall Considerations on the IRSS [expansion unknown] Report by MHB Technical Associates," April 1980

"Considerations on the Seismic Risk"

"Summary of Inspection Activity Conducted by the CNEN on the Caorso Power Plant"

"Summary List of the Competencies Put into Effect within the Framework of the CNEN for Controls on the Caorso Power Plant"

"Safety of Light-Water Nuclear Electric-Power Plants: a Methodology for Evaluation of the Consequences of Low-Probability Incidents," by F. Felicetti and R. Galvagni--Disp Doc (77)7

Excerpts relative to the seismic and geological part of "Technical Report, per Article 39 of the DPR [expansion unknown] 13 February 1964, No 185, for the Siting of a Nuclear Electric-Power Plant in the Alto Lazio (Pian dei Cangani Site)," Disp Doc/AL(76)2

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"Antiseismic Designing of the Caorso Power Plant"--Disp Information Note for the Advisory Committee of Experts for the Caorso Nuclear Power Plant

"Capanna Is Wrong--Victory Is Possible"--article by Nicola Caracciolo in LA REPUBBLICA of 9 May 1980

"ENEL and the Nuclear Power Plants"--letter from the president of ENEL, Francesco Corbellini, to LA REPUBBLICA, 13 May 1980

"Who Is Afraid of Nuclear Power"--article by the president of the CNEN, Umberto Colombo, in LA REPUBBLICA of 13 May 1980

"General Catalogue of Italian Earthquakes," by M.T. Carrozzo, G. De Visintini, E. Iaccarino and F. Giorgetti--RT/PROT(73)12

"Macroseismic Atlas of Northeastern Italy from the Year 0 to April 1976," by E. Iaccarino and D. Molin--RT/Disp(78)8

"Collection of Macroseismic Information for Northeastern Italy from the Year 0 to April 1976," by E. Iaccarino and D. Molin--RT/Disp(78)7

"Probability of a 9th-Degree Shock in Italy," by E. Iaccarino--RT/PROT(73)40

"Seismicity of Italy in the Past Centuries," by E. Iaccarino--RT/PROT(73)7

"Seismic Map of Italy 1500-1972"

"Map of the Epicenters of Earthquakes from the Year 0 to 1893"

"Seismic Map of Italy 1893-1972"

"Map of the Epicenters of Earthquakes from 1893 to 1972"

"Seismic Map of Italy: Curves of Mean Annual Isoprobability of Shock of the 9th Degree Mercalli"

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UNITED KINGDOM

GOVERNMENT REPORTEDLY PLANS TO BUILD FAST BREEDER REACTOR

LD231225 London THE OBSERVER in English 22 Jun 80 p 2

[Report by Adam Raphael and Nigel Hawkes: "Go-Ahead for UK Fast Breeder"]

[Text] A commercial scale version of the controversial fast breeder reactor will be built in Britain, the government has decided.

Energy Secretary David Howell is expected to make a statement in Parliament before the summer recess committing the government to the fast breeder, but without saying when and where the first one will be built.

With time allowed for a public inquiry and for detailed approval of the design by the nuclear safety authorities, it is not expected building will start before 1985. Whether Britain will build the reactor on its own or in collaboration with other countries depends on the outcome of discussions which have been going on with the United States, France, and West Germany.

The fast breeder is a new design of nuclear plant, the principle advantage of which is to make much better use of uranium fuel.

Prototype fast breeders have been running for many years in several countries, including Britain, but the step to a much bigger commercial plant will be a major commitment of cash and technical resources.

Despite its advantages over conventional reactors, it is strongly opposed by nuclear critics who claim it is unsafe and that the plutonium it produces will encourage the spread of nuclear weapons.

The government has been under pressure from the atomic energy authority to make an announcement supporting the fast breeder, even though no site has been selected and no firm timetable established.

The prime minister is enthusiastic, though some other ministers feel that making an announcement so long in advance of building will give the anti-nuclear groups plenty of time to marshal opposition.

Talks have been going on in some secrecy with the French, who are already building a fast breeder in co-operation with the Germans and Italians.

47

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More surprisingly, there have also been talks with representatives of the American administration, whose policy is nominally opposed to building commercial breeders because of the nuclear weapon proliferation threat.

A high-level delegation from the U.S. nevertheless visited Britain earlier this year, led by Energy Under Secretary John Deutch. They had an unpublished meeting with Sir John Hill and Dr Walter Marshall, of the AEA, Ivor Manley of the UK Department of Energy, Ned Franklin, chief executive of the Nuclear Power Company, and Robert Allston, head of the joint nuclear unit in the Foreign Office.

The message the American delegation brought was that they would be prepared to extend existing agreement on research and development into fast breeders, but that there was no prospect of a joint agreement to build breeders so long as President Carter remained opposed to them and was still in office.

They emphasized that the United States could not possibly enter into an agreement with Britain to build four or five commercial breeders, as had earlier been suggested in talks between the AEA and some American utilities. According to this plan, the first plant would be built in Britain, the second in the U.S. and so on.

Both British and American representatives at the intergovernmental meeting agreed such a plan was premature, since neither country seems likely to start work on the first commercial breeder until 1985 or so.

The British Government is anxious to find some way of sharing the costs of breeder reactor development, and France at the moment appears a more obvious partner. But it is not clear what Britain has got to offer France--apart from money--which would persuade the French to agree to co-operate when they are already several years ahead in building the first commercial fast breeder near Lyons.

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