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5 February 1980

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

(FOUO 1/80)

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JAPAN

ISHIKAWAJIMA-HARIMA DEVELOPS CF_4 LASER

Tokyo NIKKEI SANGYO SHIMBUN in Japanese 2 Nov 79 p 14

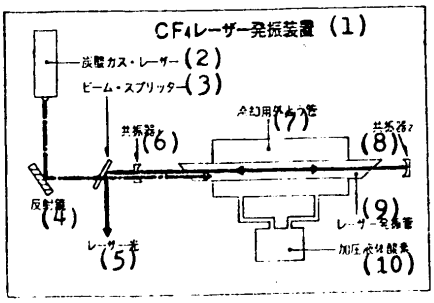
[Text] Ishikawajima-Harima Heavy Industries announced on 1 Nov that it was successful in pumping a carbon tetraflouride (CF_4) laser which can be used for uranium enrichment. CF_4 laser pumping has been successfully accomplished individually in the past by research groups of Osaka University, the Institute of Physical and Chemical Research and Keio University. The CF_4 laser by Ishikawajima-Harima features the use of pressurized liquid oxygen which cools CF_4 gas, the lasing medium. Since this cooling method can provide cooling down to 100°K (absolute temperature, equivalent to approximately -173°C), a high power laser beam is expected to be obtainable. Ishikawajima-Harima is proceeding to improve the unite, and plans to attain a more stable high output laser beam.

The CF_4 laser developed by Ishikawajima-Harima uses a stainless steel tube, 25mm in diameter, 3m long as the laser cavity. The tube is shielded on the outside by another stainless steel tube, 75mm in diameter, which wraps around the smaller tube, giving it a double tube construction. The pressurized liquid oxygen flows between the tubes and cools the CF_4 gas in the cavity in the process. At each end of the cavity, reflectors are installed 4 meters apart. These reflectors are used as resonators.

When a 9.3 micrometer (one micrometer is one-thousandth of one millimeter) carbon dioxide laser beam is introduced at one end of the laser cavity, CF_4 molecules are excited to high energy levels. When excited CF_4 molecules shift to lower energy levels, they emit light of 16.26 micrometers in wavelength. This light is then amplified by two resonators. In Ishikawajima-Harima's experiment, the CO_2 laser beam was pulsed at very short 50 nanosecond intervals (one nanosecond is one-billionth of a second) and the resulting output of a weak laser beam, 16.26 micrometers in wavelength, confirmed the pumping.

For pumping a CF_4 gas must be sufficiently cooled. In the process developed by Ishikawajima-Harima, cooling is accomplished by liquid oxygen which is pressurized up to a maximum pressure of 20 atmospheres. In doing so, the

cooling temperature can be freely controlled anywhere from 90°K up to 130°K. Another advantage of this process is that the cavity can be cooled uniformly. CF_4 lasers in the past used liquid nitrogen gas as a coolant, but this cooling method reached its limit at 150°K. It is said that in CF_4 laser technology, the cooler the CF_4 gas, the higher the output of the laser. In this respect, the cooling process developed by Ishikawajima-Harima has a definite advantage in developing a high output laser. The company plans to further improve the equipment and develop a CF_4 laser pumping unit of even higher output.



Key:
1. CF_4 laser emission system
2. CO_2 laser
3. Beam splitter
4. Reflector
5. Laser beam
6. Resonator 1
7. Outside cooling tube
8. Resonator 2
9. Laser cavity
10. Pressurized liquid oxygen

The CF_4 laser was originally developed by Professor C. (Wittig) of the University of Southern California. Using the CF_4 laser, the separator of uranium isotopes can be accomplished. In other words, by using the CF_4 laser to irradicate the gas mixture of Uranium 235 and Uranium 238, we can isolate Uranium 235 for nuclear fuel use. For this reason, attention is being given to it as a new uranium enrichment method, and various countries are proceding with research and development programs. Since a rather high output laser beam is necessary for separation of uranium isotopes, emphasis is being placed on development of a higher output laser pumping unit.

9564
CSO: 5100

JAPAN

LOCAL GOVERNMENT APPROVES MIYAGI POWERPLANT

OW110707 Tokyo THE DAILY YOMIURI in English 9 Dec 79 p 2 OW

[Text] Sendai, Miyagi--The local government of Onagawamachi, Miyagi-ken, Saturday gave the go-ahead to the construction of a long-pending nuclear power plant in the city. The green light came after Tohoku Electric Power Company and the Onagawamachi city authorities reached agreement that the firm would donate a total of 1,350 million yen in "gratitude" money to the city and in reply the city would acknowledge the project. The power company is now expected to start construction within this month.

Construction of the atomic power plant has been delayed by 12 years because of the strong opposition from local residents.

Officials of the power company said construction work for the nuclear reactor will start late this month.

As a condition to agreeing to the atomic power plant construction, the local government, along with the local residents, had been demanding a total of 2 billion yen in "cooperation" money.

In the negotiations Saturday, the company and the city agreed to set the sum of "cooperation" or "gratitude" money at 1,350 million yen.

Of the sum, 600 million yen will be paid in cash to the city as the local industry promotion fund and the rest of the sum will be spent on three sports grounds and 10 meeting halls.

The company also agreed that a surgical clinic to be built by the company in Onagawamachi will be opened to the local residents as well as company workers.

The Onagawamachi local government will also receive 1,752 million yen in subsidies from the central government in accordance with three laws concerning electric power development.

CSO: 5000

ARGENTINA

NUCLEAR EXPANSION REQUIRES INDUSTRIAL COMPETITIVENESS

Buenos Aires LA OPINION in Spanish 8 Nov 79 p 12

[Article by Martin F. Yriart]

[Text] In a few days, Buenos Aires will again demonstrate its growing role as a center of influence in matters referring to Latin American tendencies in nuclear energy development. Recently, the results of a study carried out by a prestigious group of experts--headed by United States President Jimmy Carter--were made public. This commission analyzed the security conditions surrounding U.S. nuclear power plants, of which there are almost 80 in operation and somewhat more than that number in different stages of construction.

While the United States tries to solve this internal problem, it is carrying out a foreign policy of dissuasion, the effect of which tends to be that countries which have not yet included nuclear energy in their economic balance (something which certainly does not benefit them) defer the decision until later (something which hurts them even more). Three of the four countries of Latin America who have begun to tread the atomic path find themselves within the U.S. sphere of influence. They are Argentina, Brazil and Mexico. Cuba, naturally, is not. Even though, by a strange trick of political pool, it is more "non-proliferationist" than the North Americans themselves. Never mind. The fact is that of the three western countries, Argentina and Brazil have chosen the role of the bad boy, refusing to yield to U.S. pressure, and Mexico, so stridently "anti-Yankee" but in fact strongly influenced by U.S. economic pressure, will not be long in using the "nuclear argument" to affirm its independence.

Buenos Aires is host this week to the second meeting of Latin American nuclear experts, with special participation by the head of the Peruvian Atomic Energy Commission. His presence emphatically marks the special relation uniting these two countries after having agreed on intensive cooperation in atomic matters. Argentina, in what constitutes an unprecedented fact for a developing nation, has begun a program of technology transference to Peru which will permit the nuclear "unfolding" of their sister nation.

In a few days, the Inter-American Nuclear Energy Commission (CIEN) will meet in Buenos Aires. CIEN is the organ of the OAS dedicated to exchange and coordination for atomic energy. Moribund a few years ago, it has revived and has gained a new force, at least at the nation-to-nation political level. The fact that the meeting is being held in Buenos Aires, and being attended by the heads of four nuclear organizations from four countries in the region--including Chile--is a sign that Argentina offers increasingly greater attraction for the rest of Latin America.

For some time it seemed that the ambitious Brazilian nuclear program would tip the balance in Brazil's favor. But the complexity of the nuclear sector, Argentina's solid margin of advance in basic sciences, and its slow but steady movement toward the creation of a (significant) nuclear-electrical industry, backed by the infrastructure of necessary supplies and services, inexorably incline the balance in Argentina's favor. The year 1979 is the year of symbolic jolts, with the Annual Conference of the International Atomic Energy Commission, OIEA, being held in India.

India is the confessed and convicted "sinner" of the nuclear community, who built atomic weapons thanks to the involuntary collaboration of the organisms of international aid. India's atomic bomb, set off in 1974, is the direct cause of the problems Argentina (and other non-nuclear countries) have suffered in their efforts toward nuclear industrialization.

Behind all this, however, there is a severe economic and political problem, which comes to the fore--albeit involuntarily--on the occasion of eminently technical meetings such as the one taking place presently in Buenos Aires. The question is up to what point the countries currently possessing nuclear energy--and who have vast underused installations for the manufacture of heavy components--are disposed to let the debutantes of the Nuclear Era, the countries of Asia, Africa and Latin America, set out on their own road; one which takes their needs into account and is based on the selection of resources and technologies which favor them most.

In this regard the Argentine position is clear.

Nuclear armament is to be deplored. Those who are most at fault are countries like the United States and the Soviet Union, who preach nuclear disarmament but foment vertical proliferation. None of their arguments is sufficient reason for our country to become self-sufficient in equipment, supplies and technology for the peaceful uses of nuclear power, especially in the besieged field of energy.

Argentina does not aspire to regional hegemonies. But we know that by exercising vigorous leadership we help ourselves and our friends.

9077
CSO: 5100

ARGENTINA

ENGINEERING SECTOR READY TO ASSUME STRONG ROLE IN CNEA PLANS

Buenos Aires LA OPINION in Spanish 6 Nov 79 p 24

[Article by Martin F. Yriart]

[Text] The Annual Convention of the Argentine Association of Nuclear Technology (AATN), which started yesterday in Buenos Aires, should have coincided with a spectacular launching of Argentine nuclear industry, which, since the Atucha II award in 1979, should have entered a period of rapid development. This development, the AATN speculated, would be favored by the adoption of the CANDU system for the future reactors under consideration by the Argentine Nuclear Plan.

The AATN, perhaps foreseeing the need for a more resounding environment than in the past, decided to meet in Buenos Aires rather than in one of the localities of the interior (Embalse Rio Tecero, San Rafael, etc) directly connected with nuclear activity that have been the selected sites in the past.

Any existing hope has long ago been destroyed. The adoption of the German KWU system, adequate from many other points of view, is not the most favorable decision to the development of the industry, at least from the point of view of quality. And, if the readaptation to German technology is not impossible in principle, the industry feels that it must put forth a supplementary effort in order to obtain a comparatively smaller return. If, for some enterprises, the short-term business profits will be greater than with Canadian technology, for other sectors the prospects of achieving the critical economic momentum they require for development are now even more remote.

However, all these arguments for and against, look like water under the bridge when one listens to the spokesmen of the National Commission of Atomic Entergy [CNEA] who--it must be recognized--have maintained approximately the same views for 4 or 5 years. It is not the development of the nuclear indistry that is privileged in the Argentine Nuclear Plan. First in line are engineering and the capabilities of assembly and implementation.

In the CNEA strategy the capacity to define the characteristics that must be met by a power plant, a reactor or a principal component, and the ability to set forth their building specifications, seem more important than having an industry capable of building them. The theory is that, due to the Argentine economic scale, the industry would be inefficient and technically obsolete, while the mastering of engineering technology permits buying freely, selecting a seller from the world market without any obligation of adopting a certain design for reasons other than the national interest.

Even though this policy existed in principle at the heart of the Commission (where completely opposite practices are also carried out), it coicides extremely well with the dominant ideas of the present economic policy.

In short, if the nuclear industry must now reconsider its prospects and its hope, the engineering and services sector finds itself vigorously strengthened. The recent CNEA decision of fully assuming the assembly and all engineering details of the Embalse power plant only confirm the direction adopted in 1979.

For this reason, it becomes increasingly difficult to rule out the possibilities for cooperation with Brazil, if one takes into account the Brazilian nuclear program's stress on heavy components (containers, exchangers, turbines, generators), which are now threatened by the lack of demand for their production caused by delays in the Brazilian plan.

9341
CSO: 5100

ARGENTINA

STRONG NUCLEAR LEADERSHIP MUST BE MAINTAINED

Buenos Aires LA OPINION in Spanish 7 Nov 79 p 13

[Article by Martin F. Yriart]

[Text] "State and private sectors should learn to act in coordination, making optimum use of resources such as qualified personnel, materials and finances, which will serve, in the first place, to insure a pool of human talent for research and development, in order to carry out--without pressure and with clear criteria and objectivity--the task of maintaining nuclear activities."

These words, spoken last Monday at the opening of the annual meeting of the Argentine Nuclear Technology Association by R Adm Carlos Castro Madero, head of the National Atomic Energy Commission--words not generally commented on in outside circles--point up one of Castro Madero's main concerns of late.

Passing from a beginning state to one of intense development in the nuclear sector involves the inevitable growing pains associated with such processes, and this is aggravated by the effects of increased business expenditures tied to the Nuclear Plan.

"One of the greatest risks," Castro Madero pointed out, "is the possibility of upsetting the equilibrium which should exist in nuclear activities between the private and public sector. At the base of the equilibrium is the preservation of and respect for the power of decision vested in the state, since nuclear activity cannot be subject to a system dominated by commercial interests or those of the private sector."

Nuclear activity is developing in a "grey zone" where the competitive efficiency of industry is demanded but where the demands of strategic security also operate. To make both compatible without hurting either is a delicate task.

Another element causing concern today is that of human resources. "We should avoid," said Castro Madero, "letting eventual differences in labor

structure be the cause of horizontal transferrences of personnel. These transferrences, if left uncontrolled, can produce a real exodus from the public sector." The number of national enterprises becoming involved in nuclear activity is growing exponentially, and this year the proponents of such a key topic as "quality control" come entirely from the private sector. The CNEA [National Atomic Energy Commission] has been insisting since 1976 on the necessity of maintaining sufficient flexibility to compete adequately in the labor market. No one can reasonably expect an enterprise to stop contracting the personnel it needs in order to develop, and "differential advantages" boil down to remuneration and fringe benefits.

9077
CSO: 5100

USSR

SCIENTISTS DEFEND NUCLEAR ENERGY, TELL PUBLIC FEARS 'GROUNDLESS'

LD201051 London THE TIMES in English 20 Dec 79 p 8 LD

[Article by Michael Binyon: "Scientists Tell Soviet Public that Fears about Safety of Nuclear Power Stations are Groundless"]

[Text] Moscow, 19 Dec--The Soviet Union's most senior scientists have again publicly defended nuclear energy and said the country is determined to press ahead with an ambitious programme of nuclear power station construction.

But they disclosed at an unprecedented open press conference yesterday that ordinary Russians living near power stations are worried by the safety issue. Their fears were dismissed as groundless.

Limited public debate on nuclear power began only six weeks ago when a nuclear scientist in the Soviet Academy of Sciences wrote in an influential ideological journal that nuclear power stations used up too much land and water, could ecologically exhaust populated regions and could lead to radiation leaks during the transport of fuel containers.

His article was given wide publicity and suggested there was disagreement circles over the issue.

Yesterday, however, Professor Aleksandrov, president of the Academy and the chief advocate of nuclear energy, categorically dismissed all doubts: "There are no incurable problems in atomic energy", he said. "Atomic energy is one of the safest industrial technologies."

He said nuclear power stations were safer than oil or coal-fired stations, and posed no threat to the environment or to the environment or to the population.

He gave a surprisingly sharp rebuff to a fellow academician, Professor Nikolay Dollezhal, who wrote in KOMMUNIST that there was no guaranteed safe and economic way of disposing of spent nuclear fuel. The academician, he remarked, was a specialist only in reactor building, not in the broader aspects of nuclear technique.

Professor Aleksandrov told the crowded conference, which included diplomats from Britain and other countries using nuclear energy who had been summoned to hear the Soviet viewpoint, that the Russians intended to develop nuclear energy as rapidly as possible.

At present 5 percent of electricity is generated by nuclear power. In 10 years time this figure would rise to 25 percent, with atomic stations being built with a capacity of up to 1,500,000 kilowatts.

By the year 2000 nuclear power stations would be sited in every part of the country except where coal was plentiful and cheap to extract or where hydro-electric energy was available. A third of all generation would be from fastbreeder reactors.

Future power stations would also be used to heat towns centrally. Two such stations are now being built near Gorkiy and Voronezh. Professor Aleksandrov ridiculed the suggestion by the distinguished Soviet physicist Petr Kapitsa that they should be sited on remote islands, and he asked how transport and communications would be possible there.

The academician admitted that ordinary Russians were frightened by nuclear energy. He said this fear arose from ignorance and from associations with atomic weapons. But every qualified nuclear scientist in the world knew it was safe to site atomic stations in populated areas, and even near big cities, he asserted.

"There has never been a nuclear accident in the Soviet Union", he said. Western reports of an accident at the Shevchenko fast-breeder station in the Ukraine, one of two now in commission, were untrue.

The KOMMUNIST article said the Russians were having difficulties developing fast-breeder reactors, and the programme was at least 15 years behind target.

Until now the Russians have ignored anti-nuclear protests in the West, even by left-wing groups. They have glossed over reports of accidents and blamed Western oil lobbies for artificially exaggerating people's fears.

This position has been increasingly untenable at international conferences however, and the beginning of a genuine public debate in this country may have been made necessary to authorize scientists to discuss such matters with overseas colleagues.

CSO: 5100

CHANGES CONSIDERED FOR EURATOM PROCUREMENT OF NUCLEAR FUELS

Bonn EUROPA-ARCHIV in German 25 Dec 79 pp 747-756

/Article by Dr Jan-Baldem Mennicken, general director, Euratom Supply Agency, Brussels: "Community Procurement of Nuclear Fuels for EC States--Operating Procedures and Problems of Euratom Supply Agency"/

/Text/ Problem of Changes in Supply System

In June 1979, the European Communities Commission submitted to the Council of Ministers a report on the Community's nuclear fuel supply and called for a discussion of issues connected with Clause VI of the Euratom Treaty (EAGV /European Atomic Community Treaty/). Not long thereafter, the French government presented a memorandum containing a formal request for changes in the provisions of this clause. The provisions under discussion regulate supply of the European Atomic Community with ores, raw materials and especially fissionable materials, or essentially naturally occurring uranium, slightly and highly enriched uranium and plutonium.

The political compromise reached during negotiation of the Euratom Treaty had provided that 7 years after its effective date, the Council and Commission "may undertake changes in the supply system that appear necessary on the basis of interim experience or may confirm the original provisions." A simple majority resolution by the Council is sufficient for confirmation, while any change in treaty provisions is made by way of a unanimous Council resolution at the suggestion of the Commission and after a hearing by the European Parliament. The Commission must pursue every petition by a member state for such a change. Article 76 thus makes possible an autonomous treaty alteration by the organs of the Community. Ratification by the national parliaments is not needed.[1]

The Commission submitted to the Council its first proposal for changes in Clause VI in November 1964. The Commission held that developments in the nuclear fuels market necessitated adjustments in the provisions on supply. The proposals were not approved by the Council, however, and no resolution of any kind was passed. The French government's subsequent presentation and practice of the view that Clause VI had become invalid because it had

neither been confirmed within the allotted time nor replaced by new provisions caused the Commission to file a complaint. In its decision dated 14 December 1971, the /European/ Court of Justice overruled the French position, ruling that the member states had agreed to establish for an unlimited time a community with permanent organs, one that would possess actual sovereign rights deriving from restrictions on the authority of the member states or from the transfer of sovereign rights to this community. Only through an express provision of the treaty may the Community be relieved of responsibilities conferred in this way. Article 76 does not carry such authority. This provision is designed to make it possible to adapt the supply system to changed circumstances and may not serve to take away from the Community a possible means for realizing an aim of the treaty. The court's decision says further that the existing provisions must stand so long as no decision has been made on whether they will continue in perpetuity or be replaced by new ones. They are, however, "temporary," since different supply arrangements may be made at any time; despite the lapse of time, Article 76 may not be considered "cast off." Neither did a second proposal by the Commission at the start of the 1970's meet with unanimous support in the Council. The lengthy consultations were finally broken off with a view to the first expansion of the Community and never resumed.

The Commission's present initiative is supported by the desire to produce a decision this time and to clarify the situation, especially with a view to the credibility and earnestness of Community law. The simultaneous French initiative was most probably inspired by a decision of the European Court of Justice dated 14 November 1978. The decision was issued in proceedings conducted under Article 103 of the Euratom Treaty[2] and makes essential determinations in the matter of Euratom's foreign relations in terms of the Community's extensive responsibilities, particularly in the area of safety controls and procurement. An assessment of the French position should also not overlook the fact that France has clearly decided to go ahead with a broad expansion of nuclear power and that this decision will result in special demands on the fuel cycle.

Responsibilities of Supply Agency

Clause VI contains a description of the obligation imposed on the organs of the Community in Article 2 of the Euratom Treaty "to provide for a regular and equitable supply of ores and nuclear fuels for all users in the Community."[3] Supply is to be assured by way of a joint policy based on the principle of equal access to sources of supply. In contrast to other sectors, where Community policy is being implemented only gradually and where treaties prescribe the goals, instruments and procedures for the development and implementation of this policy, the joint policy on supply has an immediate effect in the sense of an exclusively Community-related responsibility, one that leaves no leeway for the member states; its regular implementation is assured by the work of the Euratom Supply Agency, which was established by the treaty "for this purpose."

[redacted]

Agency as Trade Monopoly

The Agency was conceived as a trade monopoly that would compare supply and demand on a centralized basis and provide procurement services to consumers in accordance with their orders. The Agency, which is a legal entity enjoying financial autonomy, has in addition the exclusive right to conclude all contracts on the shipment of ores, raw materials or especially fissionable materials from countries inside or outside the Community. With regard to nuclear fuels that are produced in the Community (for example, naturally occurring uranium, enriched uranium and the plutonium produced through uranium radiation in reactors), the Agency has priority rights to these fuels insofar as the material is not being used in conjunction with the Community's own needs or by associated industrial enterprises, or insofar as it is not being stored with Community approval. Practically speaking, the priority rights (to be more exact, the producers' obligation to offer and the Agency's right of option) are exercised through the conclusion of contracts with producers -- in other words, under negotiated conditions. The Agency is authorized to build up commercial inventories in order to facilitate procurement or current deliveries.

This system is the result of difficult contract negotiations that involved, among other things, the different views of the German and French sides on a solution. Besides the fundamental aspects -- centralized economic conceptions on the one hand and a rejection of dirigism on the other -- an assessment of the supply situation played a substantial role, both in regard to developments in the area of naturally occurring uranium as well as the nuclear power plant program. Added to this was the fact that the arrangement arrived at by the Community also had to fit in with the preconditions that were tied to nuclear fuel transactions, especially from the U.S. side. Even before there was such a thing as the concept of a nonproliferation policy as it exists today, these conditions -- such as participation by public agencies in transactions or public ownership of nuclear fuels -- were an expression of the idea that nuclear fuels, by virtue of their nature, cannot be treated like just any other commodity, but that a specific framework is needed here.[4]

In practical terms, the procurement system outlined in the treaty has never been fully applied. In particular, there have never been regular centralized comparisons of supply and demand, and active commercial intervention in the market by the Agency has been the exception. It has never used its right to conclude accords or agreements on the shipment of fuels from third countries. It was essentially political factors that led to limitations on the Agency's development potential from the very outset. Added to this was the fact that the nuclear energy programs and fuel supply trends followed such a course that the supply situation put no pressure on the Agency to attend to its allocation responsibilities. The fact that the Community has not arrived at a uniform uranium-enrichment policy has not been without influence; the same is true of the circumstance that nuclear policies in general in the member states have largely

developed independently of one another and with different goals. Although these factors placed limitations on the Agency's work from the very beginning, and although it was not fully able to perform the duties assigned to it in the treaty, it has nevertheless found its own way over the years and has, in the opinion of many of those concerned, played a definitely important role in supplying the Community. The Agency's guiding principle here has been to use its efforts to help assure a secure and regular supply for its consumers and to adapt itself -- while maintaining its legal status according to Clause VI -- constructively and pragmatically to existing conditions in the supply system.

General Fuel Supply Conditions

Without being able to go into the Community's supply situation and the structure of nuclear fuels markets in detail, we must at least mention some basic data for the purpose of better understanding the work of the Agency. With a presently installed nuclear power plant output of around 28 gigawatts, the Community has an annual requirement of about 8,000 tons of natural uranium. Approximately 3,500 tons of material must be reduced in order to enrich this uranium for use in light-water reactors, which means increasing the proportion of the fissionable U-235 isotope to a level of up to 3 percent. We must assume a steadily rising demand for the future. The uranium deposits found in the Community, chiefly in France, will fall far short of meeting this demand. So long as the volume of reprocessed uranium and plutonium used is not increased, the Community will be dependent upon imports of naturally occurring uranium for up to about 80 percent of its requirements -- in any event, this is true of the 1980's. Moreover, at the same time these requirements constitute approximately one-third of world demand, a considerable factor in itself.

Non-Community uranium production is presently concentrated essentially in the United States (largely for its own use), Canada, the southern part of Africa as well as Niger and Gabon. Australia will add its considerable potential to this list in the near future. Other producer regions, mainly in developing countries, will expand the supply only gradually. The United States, the Soviet Union and Europe itself will have at their disposal sufficient capacities to supply enrichment services for the next few years. In contrast to the area of natural uranium supply, developments in the field of uranium enrichment are such that the Community's share of supply is steadily increasing.

By reason of the special nature of nuclear fuels, the governments of all producer countries are exerting their influence on the conditions under which such material is transferred from their countries and subsequently used.[5] These conditions have to be incorporated in the delivery contracts in some instances. In addition, the United States, Canada and Australia require that nonproliferation policy stipulations for their material be set down in bilateral agreements as well. The Community has made such arrangements with the United States and Canada within the framework of cooperation

agreements in the area of the peaceful use of nuclear energy.[6] The Commisssion is presently negotiating an accord designed to set conditions for natural uranium deliveries from Australia. The participation of the Community as a partner to such accords assures that the same conditions will apply for the entire Community and that the material may therefore circulate freely. Thus, for instance, the supplier country's right of approval for transfer to third countries does not apply within the Community. Insofar as nonproliferation policy stipulations are incorporated in the delivery contracts, the Euratom Supply Agency sees to it that no instances of discrimination result nor obstructions to free trading on the Community market.

But for other reasons (policies on raw materials, for instance) and with varying degrees of intensity, a variety of regulations and interventions by public authorities are imposed upon the production, transfer, processing and consumption of nuclear fuels. For example, there is the influence exerted over the volume and the marketable portion of production, restrictions on refinement and processing, the right to approve individual delivery contracts, stipulations with regard to pricing and, on the other hand, supply guarantees as well as influences on demand. Consequently, in the overall area of nuclear fuels supply there are certain limits -- quite confining in some instances -- to balancing in an economically sensible way the free play of the market forces of supply and demand. Further constraints result from the structure of the nuclear energy industry and the business enterprises that participate in the fuel cycle.

Agency Control Functions

In fulfilling the function assigned to it, the Agency is striving to accommodate itself to these complex overall conditions involved in supplying fuels. Accordingly, given a normal supply situation, it is not necessary to exercise the procurement monopoly by direct intervention in the market after a comparison of demand and supply in order to assure an adequate and equitable supply for all users in the Community. In practice, the principle of private initiative and corporate responsibility can operate also with regard to nuclear materials procurement. Essential to the assurance of an adequate and equitable supply is the reliability and calculability of the framework within which the market is developing, as well as a guarantee of nondiscriminatory access to the sources of supply. It has thus become a crucial Agency responsibility to exert influence on this framework and to make regular assessments of the supply situation and its ramifications. Accordingly, in order that nondiscriminatory supply and the uniformity of the common internal market may be assured, attention has increasingly been focused on the control aspect, which is similarly substantiated in the treaty's procurement system and covered by the Agency's monopoly. It is particularly the diverse government influences on fuel procurement, with their consequences for the commercial sector, that can lead to cases of discrimination against the Community's business enterprises. They also harbor the trend toward splitting into national markets. By

virtue of its being a party to the delivery contracts and its status as a neutral public institution dedicated to the welfare of the Community, the Agency is especially well suited to the imposition of controls and counter-controls in this mixed zone of politics and commerce.

It should be noted that Agency practices have evolved in line with a supply situation that up to this point has remained generally steady, although not always without tensions. In an emergency situation brought on either by a scarcity of uranium or uranium-enrichment services or by another kind of long-lasting disruption of the market, additional forms of intervention suited to the situation would certainly have been required.

The Agency exercises its right to conclude contracts in a number of ways, with the deciding factors being the nature of the fuel, condition of the market, country of origin and general international conditions.

In the matter of supply and demand trends for naturally occurring uranium, the Agency has basically been able to leave it up to consumers and producers to establish business contacts directly and to negotiate contracts. An implementing order stipulates[7] that the Agency is to be informed of the opening of negotiations; it further stipulates the minimum conditions that delivery contracts must fulfill. Once negotiations have been concluded, the contracts are to be submitted to the Agency "for purposes of closure preparatory to signing." The Agency's exclusive right to conclude contracts is thus respected; this procedure also ensures that the contracts are valid and that shipments made on this basis will come into the lawful possession of the consumer. To demonstrate the special character of Agency participation in these contracts, the practice of terming them three-cornered contracts has developed, a practice in which buyers and sellers establish rights and obligations that directly affect one another and then conclude the contract "with the participation of the Euratom Supply Agency."

A different practice has developed as regards procurement of enriched uranium. In the case of shipments from the United States, as a rule a delivery contract is concluded between the American producer -- the Department of Energy -- and the Agency; the latter then passes the material on via a subcontract to the consumer who issued the original order. This is also most often the rule for orders for special isotopes by research institutions and universities. In the case of shipments of enriched uranium and/or uranium-enrichment services or other especially fissionable materials from countries other than the United States -- and particularly with transactions within the Community -- it has become a general practice to conclude three-cornered contracts among the producer, the consumer and the Agency. There has hitherto been no direct intervention by the Agency in terms of purchase and resale.

As far as the signing of contracts is concerned, it is not merely a formal process of exercising the right to conclude these contracts. Rather, in

each case the Agency assesses the supply aspects, determines whether the contract corresponds to the provisions of the Euratom Treaty and takes into consideration the conditions and obligations affecting transfer of the material in terms of the Community's international agreements with supplier countries. With regard to the Community's procurement system, it is primarily a question of determining whether the contract contains provisions that could have an adverse effect on the uniformity of the market, or whether it might lead to discriminatory practices. Here the concept of nondiscrimination is to be interpreted on the basis of the principle of equal access to sources of supply, denial of special treatment for individual consumers and the Community's obligation to assure an adequate and equitable supply. There has thus far been no instance of refusal to conclude contracts, since negotiations have managed to produce adjustments and improvements. Moreover, the fact that the contract requires for its conclusion the participation of an institution pledged to Community responsibility for secure and equitable supply is a stabilizing factor in terms of precurement policy, one that works in the interest of both parties and contributes to legal safeguards.

With reference to the described procedure, problems have arisen in that not all contracts entered into by Community business enterprises are being concluded through the Agency. This is attributable in part to differing opinions on legal questions, such as on the legal handling of contracts that involve wage incentives and on the classification of commercial enterprises which, according to the economic context within which they operate, cannot be made to conform directly to the contract system, which recognizes only consumer and producer. Also still unsolved are practical problems that have resulted from the preferential position of business enterprises in an industrial association. There are some who hold the view that the practice of the three-cornered contract and, indeed, the exercise of the right to conclude contracts without a formal comparison of supply and demand are of dubious legality. There are essentially only a very few businesses within the Community that avoid full cooperation with the Agency by citing this situation. Since, however, the Commission and the Agency have not enforced their legal position, those enterprises that do cooperate sometimes raise the charge of inequitable treatment.

Advice and Information

In addition to participating in delivery contracts, the Agency has been concentrating on the areas of regular monitoring of the market and information and advice for consumers and producers in the Community. Intensive contacts are also maintained with producers in third countries. Moreover, as part of the overall structure of the Euratom Treaty, the Agency brings to the preparation and negotiation of those safety-control agreements negotiated by the Commission for the Community specific experience that derives from translating such activities into practice as well as experience derived from industry's point of view. It is also considerably involved in implementing Community agreements of this kind. Among other

ways, it does this by providing active assistance in the issuance of export licenses, by obtaining authorization for re-exports to the Community by third countries, and vice-versa, as well as by observing other conditions and restrictions in the handling of the material. In this connection there is very close cooperation between the Euratom safety-control system and the Commission offices responsible for nuclear relations with foreign countries.

Debate on Treaty Changes

There are first of all two aspects to the debate now being conducted on confirming or emending Clause VI -- thus on the future task of the Euratom Supply Agency: In the first place, greater legal clarity is being sought by way of establishing in a binding manner the Agency's responsibilities and instruments; in the second place, it has become obvious that there is interest in undertaking substantial changes in the Agency's role and operating procedures.

The desire for a clear legal status is generally shared. Not only the Commission and the member states, but especially the industry concerned, need a reliable legal foundation in view of the vast financial means that are to be spent on nuclear fuels procurement as well as to provide safeguards for long-range provision for the future. The concern that these are not now assured is due less to the practical application of existing regulations by the Agency than to the apprehension that in case of dispute this interpretation would have no legal standing, and that there is also no guarantee that the Commission and the Agency would not revert to a dirigistic monopoly, as provided for in the treaty.

Insofar as it can be determined, however, while the great majority of business interprises hold that legal clarification should not lead to substantial changes in the actual work of the Agency, and they consider it correct to put these very responsibilities down in writing and leave it to the courts to determine whether a formal emendation of the treaty is needed or merely adjustments in regulatory procedures, the French memorandum also proposes substantive changes. Consequently, it also includes the demand for formal changes in the treaty. This element is in turn of the greatest significance for some member states, since they would prefer on the basis of general European political considerations not to see treaty changes, even if they were to take place within the framework of special proceedings. It is not possible in this space to discuss in detail the proposals for change. The French conceptions are aimed essentially[8] at replacing the present "dirigistic" system of direct participation in nuclear fuels procurement with "a flexible system of a liberal bent" in order to permit a procurement policy that takes into consideration the interests of all member states. The French view is that the role of the Supply Agency should be adapted to the new principles of nondiscrimination, guaranteed provision for the future and Community preference by having restrictions placed upon its opportunities for intervention -- one

way would be to eliminate the Agency's monopoly. The proceedings initiated under Article 76 to study the French petition -- proceedings in which the Commission is being advised by an ad hoc committee of high-level national experts -- have not yet been concluded. At the Council session in September 1979, at which time the entire problem was discussed for the first time, the Commission intimated that it would issue an opinion as soon as possible. Not until the presentation of this opinion, which could take the form of a proposal to emend the treaty, will actual negotiations begin among member states on the future role of the Agency.

The debate thus far has produced two basic elements that will be decisive in determining the substantive direction of the various options. One is the desire of all concerned to limit the debate on changes strictly to the clause in the Euratom Treaty that deals with supply. This establishes the legal framework within which changes must be kept and at the same time makes clear that the clauses on safety controls, ownership of nuclear fuels and the Community's nuclear dealings with foreign countries are to remain undisturbed (a situation that in turn reduces possibilities for changes in Clause VI by virtue of the close interrelationship between these clauses and the procurement regulations).

The second basic element is the unanimous adknowledgement that the aim of the present debate is to strengthen the Community and to establish the most suitable conditions for development of the nuclear industry in the Community. Indeed, European authorities have emphasized again and again most recently that, in view of the world energy situation, the Community is dependent upon nuclear energy and that every effort should be made to support its development.With reference to the special structure of nuclear fuels procurement, as well as from the standpoint of Community dependence upon uranium imports and the great variety of statutory influences affecting this sector, a Community policy on procurement is indispensable.

It is the role of the Community to assure supply, guarantee nondiscrimination and uniformity in the joint market, plan ahead for Community solidarity in times of crisis, safeguard joint interests against external influences and assert its strength. It goes without saying that individual member states have eminent political interests besides these, above all in the area of the policy on nonproliferation, and that specific demands derive from the priority placed on nuclear energy in individual national energy policies. However, the focus of the present debate on Clause VI is not primarily on issues that derive from these concerns. Nevertheless, from the standpoint of fuels procurement it would certainly be desirable if a consensus could be reached in the Community in this regard, at least on those aspects of the overall complex that have direct repercussions on the fuel cycle.

FOOTNOTES

1. Article 85 is similar with reference to provisions on safety- monitoring if "new circumstances require," as well as Article 90 with reference to provisions on the Community's right of ownership.

2. It was up to the Court of Justice to decide whether, in the absence of simultaneous participation by the Community, a member state may become a party to the international agreement on the protection of nuclear material, nuclear technology installations and nuclear transports. The decision was in the negative; the agreement negotiated in the interim was also initialed by the Community. The decision was published in the AMTSBLATT DER EUROPAEISCHEN GEMEINSCHAFTEN, No 302, 16 December 1978. See also Gundolf Fahl, "Impending Revision of Euratom Treaty," ATOMWIRTSCHAFT, October 1979, p 476.

3. From the extensive literature, see Hans von der Groeben, Hans von Boeckh, Jochen Thiesing (editors), "Handbook for European Economics," commentary on Clause VI, collection of leaflets, Baden-Baden; Hans-Hilger Haunschild, "The Euratom Supply Agency," DER BETRIEBSBERATER, 1958, p 1285; Pirotte, "L'Agence d'Approvisionnement d'Euratom /Euratom Supply Agency/," Lille, 1975.

4. Moreover, today it can be said in general that the Euratom Treaty, with its regulations on supply, safety controls and public ownership of nuclear fuels as well as other, institutional capacities on the regional level, provides an overall structure for nonproliferation policy regulations. The latter are presently being discussed worldwide within the framework of the International Fuel Cycle Evaluation /INFCE/. See EUROPA-ARCHIV No 24, 1977, p D 710, concerning the INFCE.

5. See, for example, Uranium Institute, "Governmental Influence on International Trade in Uranium," London, October 1978; literature on arrangements by the Nuclear Suppliers' Group; Ruediger von Preuschen, "Nonproliferation Policy and Nuclear Export," RECHT DER INTERNATIONALEN WIRTSCHAFT, December 1977, p 741.

6. Cooperation agreement between the government of the United States and the European Atomic Community on the peaceful use of nuclear energy, dated 8 November 1958; amended in 1962 and supplemented by the supplementary agreement on cooperation, dated 11 June 1960 and last amended in 1972; agreement between the government of Canada and the European Atomic Community on cooperation in the peaceful use of nuclear energy (AMTSBLATT DER EUROPAEISCHEN GEMEINSCHAFTEN, 24 November 1959), amended through an exchange of notes on 16 January 1978 (AMTSBLATT DER EUROPAEISCHEN GEMEINSCHAFTEN, 8 March 1978, L 65/17). The Community also has agreements with Argentina and Brazil, but these have not -- yet -- been brought up to date in this regard.

7. Implementing order of the Euratom Supply Agency on the procedure for comparing supply and demand for ores, raw materials and especially fissionable materials (AMTSBLATT DER EUROPAEISCHEN GEMEINSCHAFTEN, 11 May 1960, 777/60), in the version dated 15 July 1975 (AMTSBLATT DER EUROPAEISCHEN GEMEINSCHAFTEN, 25 July 1975, L 193/37).

8. See response by French foreign minister to parliamentary inquiry on 12 October 1979 and LE MONDE, 7 March 1979, p 8.

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FRANCE

BRIEFS

NUCLEAR COLLABORATION WORRY--In the decision that Giscard is to make concerning the new delivery system (i.e., submarines or surface vehicles) for nuclear weapons, one important question arises: the above-noted surface vehicles imply Franco-German industrial collaboration. How will the Soviets react to that? [Text] [Paris LA LETTRE DE L'EXPANSION in French 14 Jan 80 p 3]

CSO: 3100

UNITED KINGDOM

GOVERNMENT TO ANNOUNCE PLAN FOR NEW NUCLEAR REACTORS

LD101225 London THE OBSERVER in English 9 Dec 79 p 1 LD

[Adam Raphael report: "Go-Ahead for 15 Nuclear Reactors"]

[Text] A 20,000 million pounds sterling plan to treble Britain's nuclear generating capacity by building 15 thousand-megawatt nuclear reactors by the end of the century will be announced by the government this week.

The secretary for energy, Mr David Howell, will tell the Commons on Wednesday that the plan, which is designed to provide up to half the country's electricity needs, will require a massive civil engineering programme with one new reactor being ordered each year from 1982.

Mr Howell will confirm that the government has decided to press ahead with its first order for the controversial American-designed Westinghouse pressurised water reactor (PWR) subject to planning approval and safety clearances by the Nuclear Inspectorate.

Ministers are clearly apprehensive over the reaction from environmental and anti-nuclear groups that the announcement is bound to create.

The minutes of the Cabinet's main economic strategy committee, which were leaked to the magazine TIME out last week disclose that ministers 'recognised the great importance of appropriate presentation for achieving the government's objective and generally favoured a low profile approach.'

Earlier the minutes of Downing Street meeting on 23 October chaired by Mrs Thatcher suggested: 'A low profile by government was not necessarily incompatible with giving a firm lead to the industry since the industry involved only a few firms.'

This softly-softly tactic will be particularly displayed in the government's reluctance to confirm that it intends to concentrate its future nuclear programme on the Westinghouse PWR reactor. This is similar to the one involved in the Three Mile Island accident in the United States.

The Cabinet minutes disclose: 'The prime minister, summing up the discussion, said that the committee were agreed that the government should aim to achieve a sizeable

nuclear programme, and that this should include the prospect of PWRs....A decision on the balance between PWRs and other reactors in the programme would fall to be made at a later date.'

Even the leaked minute is a tactful summary of the actual position. Ministers have been appalled at the delay in construction and cost of the British designed advanced gas cooled reactors. They are hesitant about jettisoning these completely before safety approval has been gained for the American reactor.

The energy secretary, Mr Howell, will announce on Wednesday that the National Nuclear Corporation is to be reorganised and strengthened. The corporation is to activate its licensing agreement with Westinghouse so that detailed designs can be prepared for the first British pressurised water reactor.

Ministers believe that one advantage of the nuclear programme would be fewer strike threats.

The Cabinet minutes say: 'It was noted that such a programme would not reduce the long-term requirement for coal because of the likely decline in world oil supplies towards the end of the century. But a nuclear programme would have the advantage of removing a substantial portion of electricity production from the dangers of disruption by industrial action by coal miners or transport workers.'

Since 1969, only 1600 megawatts of nuclear energy have been commissioned by the Central Electricity Generating Board. So the plan to build an additional 15 thousand-megawatt nuclear plant by the end of the century represents a fivefold increase.

Mr Howell is expected to stress that nuclear energy is not only competitive with all other fuels, but is likely over the long term to be very much cheaper.

The government's announcement this week on its future nuclear programme will bring to an end a long-running battle that has been waged in the corridors of Whitehall. The Labour government, under the influence of its energy secretary, Mr Tony Benn, deferred a decision on the PWR in the teeth of intense pressure from his permanent secretary, Sir Jack Rampton, most of his officials and the nuclear industry.

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END