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December 1, 1972

Handwritten notes and signatures:
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~~AMK~~
~~DJP~~
See notes, especially p. 7.
File

MEMORANDUM

TO : Mr. Dwight Porter
FROM : ACDA/GC - Charles N. Van Doren
SUBJECT : Background Materials on US Policy Toward a ROC Reprocessing Plant

Attached for your consideration is a 10-page think-piece, together with background materials, on US policy toward a ROC reprocessing plant, which is the subject to be discussed at the meeting called by SCI for December 4 at 9:30 a.m.

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Attachment:

As stated.

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SUBJECT TO CONTROL PROGRAMS AND TON
SCHEDULE OF EXECUTIVE ORDER 12958
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December 31, 1982

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By SPB Date 9/13/18

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SUGGESTED POLICY ON ROC REPROCESSING PLANT

The ROC is seeking foreign help in building a chemical reprocessing plant in Taiwan. The need for clarification of U.S. policy with respect to such a plant is urgent in view of the following:

1. A German firm is seeking (and appears to have a letter of intent with respect to) a contract to furnish essential parts of such a plant, plus engineering services to help construct it. (I understand that a U.S. firm has expressed interest in supplying some of the equipment to the Germans for this purpose). The Germans have approached both the Canadians and the USG, seeking concurrence in their view that (a) this transaction is not covered by the Zangger Committee consensus on requiring IAEA safeguards as a condition of export of a chemical reprocessing plant,* and (b) the NPT safeguards problem will be taken care of through the right of pursuit of U.S. and Canadian nuclear materials. (See Tabs A and B). The preliminary reaction of one Canadian official appears to have indicated concern.
2. A Belgian firm is apparently anxious to compete with the German offer. In this connection a U.S. citizen, formerly employed by AEC, has asked permission under Part 110 of 10 CFR to participate in this activity by furnishing unclassified data with respect to the design of such a plant.** This request is scheduled to come before the Atomic Energy Commission next week.
3. The French and British appear to have decided not to offer assistance (See Tab A, para. 5; a British official confirmed this on November 30, but added that if the project is not successfully squelched, the British would not want to lose the business.

* For further explanation, see Tab D, para. 1.

** For further explanation, see Tab D, para. 5.

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4. It is entirely possible that the ROC will seek assistance from a U.S. firm, or that U.S. firms might be interested in providing chemical reprocessing and fuel fabrication services for the Chinese reactors.
5. Chinese atomic energy officials are coming to Washington the first week of December to discuss fuel supply for their proposed third and fourth nuclear power reactors. This will present an ideal opportunity to discuss the problem with them.

Background

ROC is a party to the NPT, and is thus obligated to place all its peaceful nuclear activities under IAEA safeguards. Its efforts to achieve an NPT safeguards agreement, however, have been totally frustrated, since it has become clear that the Board of Governors of the IAEA would not approve any further agreements between the Agency and ROC. This also means that any further trilateral safeguards agreements with IAEA will be impossible to obtain, as well as any further IAEA-ROC agreements on safeguards.

Nuclear facilities in existence or currently planned for ROC are indicated at Tab C. (This does not include some small research reactors supplied by the U.S., or an additional research reactor that is scheduled to be provided by the U.S.) The IAEA's authority to maintain trilateral safeguards on U.S.-supplied material stems from the fortuitous fact that

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our trilateral agreement, approved before the UN ouster of ROC, covered the then existing bilateral agreement "or a new superseding agreement for cooperation, as amended."* Thus, when we amended our bilateral early in 1972**, it automatically became covered by the trilateral safeguards agreement. The IAEA staff has been discreetly carrying out its safeguards responsibility under the trilateral (having made an inspection in October, 1972), but it is not clear how long it can continue to do so. It is quite clear that if the PRC joins the IAEA, it will insist upon this activity being stopped. In this event, US safeguards rights under our bilateral agreement would be automatically reinstated.

Some parties might raise the question whether we could continue our nuclear cooperation with the ROC in these circumstances without violating our NPT obligation not to furnish nuclear materials or equipment to a non-nuclear weapon state unless the nuclear materials involved will be subject to safeguards under an agreement with the IAEA. However, our internal position has been that, since at the time we entered into the bilateral agreement, this condition was satisfied, and since ROC has done everything possible

* TIAS 7228, p. 2.
** TIAS 7364.

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to continue to meet it, this would be a case of frustration of the purposes of the parties, beyond thier control, and that in these circumstances the best available alternative of bilateral safeguards will satisfy our legal obligations. We may nevertheless expect charges of violation.

The situation with respect to the Canadian research reactor is even less favorable. If IAEA safeguards terminated, the Canadians would have no bilateral safeguards rights to fall back on. And there would be the added difficulty that Canada no longer recognizes the ROC, and presumably could not conclude a bilateral agreement with it.

There are indications that ROC will want a fifth and sixth power reactor. While there are good chances that they would be U.S.-supplied, the possibility cannot be excluded that one or more of these could be of the Canadian type, which could use unsafeguarded natural uranium fuel, and which would produce approximately twice as much plutonium as a comparable sized U.S.-type reactor.

The plutonium produced in a reactor is unusable for nuclear weapons or other purposes until it is reprocessed. Thus a chemical reprocessing plant would give the ROC the capability which it does not now have to produce on its own soil the most

separate

(Pu is produced in the reactors, but must be separated from the irradiated fuel elements for use in weapons or reactor fuel.)

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essential material for making nuclear weapons. When coupled with the fact that there is no apparent economic justification for construction of such a plant at this time (see Tab D, section 3) questions could be raised as to their intentions.

For further background, see SNIE 43-1-72 and Tab D.

Possible Outcomes

1. Reprocessing Plant Not Built in ROC at this Time.

This is clearly the most desirable outcome if the reprocessing needs of the power plants being constructed by the ROC can otherwise be taken care of when needed, since:

- (a) It would make no economic sense for the ROC to have such a plant until well into the 1980s, and the lead time required to construct it is at most 5 years. (ROC's first reprocessing needs will be for 1/3 of the initial core of the first power reactor in 1978; another 1/3 of that core, together with 1/3 of the initial core of the second power reactor in 1979, etc. Such amounts would not justify a reprocessing plant. Moreover, the output could not contribute to the ROC nuclear power program in the absence of a fuel fabrication plant, which ROC does not have.)
- (b) It would avoid an indigenous capability to produce the essential ingredient of nuclear weapons, as well as international suspicions that might be aroused by such a capability. *separate*
- (c) It would avoid the risk that, if the PRC should take over Taiwan, it would acquire a valuable, free chemical reprocessing plant which could substantially augment its supply of plutonium.* *depends upon no. of plants and PRC capacity*

*The first four ROC power reactors will produce enough plutonium for over 50 nuclear weapons per year. The plutonium would, however, be inferior to the grade produced specifically for the PRC weapons program, and plutonium supply does not seem to be the pacing factor in the PRC weapons program.

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The reprocessing needs of ROC could be taken care of by (i) reprocessing services in the U.S. or Europe (if in U.S., we could combine this with fuel fabrication, and we could store the PU in the US until needed. The only question would be whether the transportation costs would be prohibitive.); or (ii) participation in a regional reprocessing plant located outside Taiwan, which could meet Japanese and Korean needs as well, and thus might be economically justifiable.

2. Reprocessing Plant with Entire Throughput Subject to Safeguards

This is the second best outcome, but involves several problems:

- (a) The likelihood that IAEA will cease to be able to apply its safeguards in ROC, thus leaving the Canadian research reactor unsafeguarded, and exacerbating the question of non-compliance with NPT safeguards requirements in ROC.
- (b) The proliferation risks referred to in 1(b) above.
- (c) The fact that even bilateral safeguards would cease if the PRC gained control of Taiwan, and the PRC would acquire, free of charge, not only the valuable plants, but also sizable increments to its plutonium stockpile.
- (d) The problem of how this outcome could be accomplished (discussed in Tab F). *depends on capacity of reprocessing plant and PRC capacity*

3. Reprocessing Plant Safeguarded only to Extent US Nuclear Materials Involved.

This would be an unsatisfactory outcome, since there would be no assurance that other materials (including for example, the irradiated fuel from the research reactor supplied by Canada, which may become unsafeguarded) might not be processed therein without safeguards.

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It is not at all clear that safeguards could not be effectively applied while a batch of U.S.-origin material is being processed. Thus, any concern would be regarding batches of material other than U.S. origin. Was it intended that the determination re. U.S.-origin material reprocessing be dependent on whether non-U.S. origin material reprocessed in the same facility?

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Recommendations

1. That we discuss this problem with the Chinese during their visit in the first week of December, seeking to persuade them not to proceed at this time with the construction of a reprocessing plant in Taiwan. We should stress our view that it would be uneconomical, be prepared to tell them about the comparable study being done by GE on Japan, and give them cost figures showing that it would be cheaper for them to have such reprocessing (and fuel fabrication) done in the U.S. (We might also wish to point out that this could avoid unfavorable speculation in other countries as to ROC nuclear intentions, and avoid adding to the difficulty we may both face in answering charges of non-compliance with the safeguards article of the NPT). We could say we would foresee difficulties in making the determination required by Article VIII (F) of our bilateral agreement that the safeguards provisions of that agreement could be effectively applied on such a plant.*

If they say that their political isolation makes them wish to make their nuclear industry as independent as possible in the interest of reliability, we can point out that our reliability as a reprocessor will be no less than as the supplier of the enriched U-235 needed for their reactors.

(We might also mention the possibility of a regional chemical reprocessing plant in the Pacific.)

* See Tab E, para. A(3).

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2. That we point out to the Germans that we do not think it makes sense for the ROC to have a chemical reprocessing plant at this time, are not inclined to help them to get one, and have so advised them; that the right of the IAEA to pursue the output from U.S. and Canadian reactors into the plant does not afford adequate safeguards protection, since this right may well be lost with respect to the Canadian reactor if the IAEA should cease to be able to apply its safeguards in the ROC; that under our trilateral agreement the right to safeguard such a reprocessing plant would only be "while it is containing, using, fabricating, or processing" U.S. origin material; that this could not provide the full safeguards coverage of the plant that we would consider necessary to make the determination required under Article VIII F of our agreement for cooperation with ROC; that the only way in which we could make the trilateral agreement apply to the entire throughput of the plant would be if it incorporated equipment supplied by the U.S.; and that in view of our conclusion that it would be unwise for the ROC to have such a plant at this time, we do not expect to authorize the provision of such equipment. We could point out the possible alternative of a German offer to reprocess the materials in European facilities. (If the Germans argue that the Zangger Committee consensus only applied

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to entire reprocessing plants, and not to the transfer of parts thereof or design information, we should say that our position was not based on Zangger Committee considerations; and that in any event we disagreed with them on this Zangger Committee point, since it would involve ignoring the substantive effect of the transaction and would undermine the objective sought to be achieved in making the transfer of reprocessing plants trigger safeguards.)

3. That, in line with the foregoing, we do not authorize the U.S. firm to export equipment for incorporation in such a German-built plant. (In this connection, we should make sure that the Department of Commerce is advised of the types of equipment that might be involved, and alert them to this decision.)

4. That we do not authorize the transmission by the U.S. citizen of unclassified information on chemical reprocessing in connection with the Belgian bid for this plant, basing the decision on our conclusion that satisfactory safeguards arrangements could not be made, and hence the objectives of 10 CFR Part 110 could not be met.

5. That we promptly contact the Canadians, British, and Belgians to advise them of our position on this matter and to

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urge them to act consistently therewith. (We should also seek verification of the report that the French are not planning to offer assistance.)

6. That we prepare contingency plans for safeguarding the Canadian research reactor should the IAEA cease to be able to do so.

7. That we seek to establish in the Zangger Committee a consultative mechanism to consider unique problems of this sort when they arise.

Charles N. Van Doren
ACDA/GC December 1, 1972

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By 288 Date 9/13/18



Department of State

TELEGRAM

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ACTION 10-13

INFO OCT-01 EUR-20 EA-11 ACDA-19 CIAE-00 INR-09 L-03
 NSAE-00 NSC-10 OST-04 RSC-01 SCI-05 GAC-01 SS-14
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 TO SECSTATE WASHDC 2137
 INFO AEC GERMANTOWN
 AMEMBASSY BONN
 AMEMBASSY OTTAWA
 AMEMBASSY TAIPEI

SECRET IAEA VIENNA 8229

SUBJ: NUCLEAR SAFEGUARDS IN ROC

1. SUMMARY. FRG IS NEGOTIATING WITH ROC TO SELL SMALL CHEMICAL REPROCESSING PLANT. INSTRUCTIONS BEING SENT TO FRG EMBASSIES WASHINGTON AND OTTAWA TO DISCUSS WITH USG AND GRC HOW TO DO THIS WHILE ASSURING CONTINUANCE OF SAFEGUARDS ON ROC NUCLEAR MATERIALS AND FACILITIES. END SUMMARY.

2. UNGERERE (FRG RESREP VIENNA) INFORMED ME TODAY IN CONFIDENCE THAT HE UNDER INSTRUCTIONS DISCUSS WITH IAEA SECRETARIAT HOW TO ASSURE CONTINUED APPLICATION OF SAFEGUARDS ON NUCLEAR MATERIALS PROCESSED IN SMALL CHEMICAL REPROCESSING PLANT WHICH GERMAN FIRM (UNSPECIFIED) WISHES TO SELL TO ROC. SIMILAR INSTRUCTIONS GOING TO FRG EMBASSIES WASHINGTON AND OTTAWA. UNGERERE NOT INSTRUCTED DISCUSS MATTER WITH US MISSION VIENNA BUT DID SO ON OWN INITIATIVE.

3. CHEMICAL REPROCESSING FACILITY WOULD HAVE SMALL CAPACITY DESIGNED TO PROCESS FUEL FROM THE TWO RESEARCH REACTORS (US AND CANADIAN SUPPLIED) ON TAIWAN PLUS THE TWO ORIGINAL NUCLEAR POWER PLANTS, CHINSHAN 1 AND 2.

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NOW UNDER CONSTRUCTION. UNGERER SAID GERMAN FIRM ASSUMED THAT, SINCE ALL FUEL PRESENTLY LOCATED THESE FOUR NUCLEAR INSTALLATIONS NOW UNDER IAEA SAFEGUARDS, THERE WOULD BE NO DIFFICULTY IN CONTINUING SAFEGUARDS ON THE FUEL DURING CHEMICAL REPROCESSING. HE WAS UNAWARE WHETHER ROC ALSO PLANNED DEVELOP ITS OWN FUEL FABRICATION CAPABILITY.

4. I SAID PROBLEM WAS NOT A SIMPLE ONE. CANADIAN FUEL SUPPLIED TO ROC WAS CURRENTLY SAFEGUARDED UNDER UNILATERAL SUBMISSION AGREEMENT (INFCIRC/133) AND US-SUPPLIED FUEL COVERED UNDER ROC/US BILATERAL AND US/ROC/IAEA TRILATERAL (INFCIRC/158). HOWEVER, BOTH AGREEMENTS, AS FRG KNEW, WERE VULNERABLE AND SUBJECT TO ATTACK IF PRC DECIDED TO PUSH FOR ABROGATION OF THE AGREEMENTS IN IAEA BOARD OF GOVERNORS. SAFEGUARDS IN US CASE, EVEN IF TRILATERAL ABROGATED, COULD THEORETICALLY CONTINUE UNDER BILATERAL AGREEMENT. IN CANADIAN CASE THERE WAS NO BILATERAL AGREEMENT WHICH WOULD ALLOW FALLBACK TO BILATERAL SAFEGUARDS IF UNILATERAL SUBMISSION AGREEMENT WERE NULLIFIED. UNGERER SAID HE UNDER IMPRESSION CANADIANS WOULD THEN APPLY BILATERAL SAFEGUARDS AS THEY HAD IN CERTAIN OTHER INSTANCES, E.G., WEST GERMANY. I RESPONDED USG UNAWARE OF WHETHER CANADA INTENDED OR FELT POLITICALLY ABLE DO SO.

5. I POINTED OUT OTHER PROBLEMS. USG WAS AWARE THAT ROC HAD BEEN SHOPPING AROUND FOR A CHEMICAL REPROCESSING FACILITY IN WEST EUROPE. WE UNDERSTOOD FRENCH HAD DECLINED TO CONSIDER SUCH A SALE, ALTHOUGH TO BEST OUR KNOWLEDGE THERE HAD BEEN NO USG-FRENCH DISCUSSIONS OF MATTER. UNGERER SAID HE UNDERSTOOD UK HAD MADE SAME DECISION AS FRANCE. HE GAVE IMPRESSION THAT FRENCH-UK ATTITUDE DID NOT AFFECT FRG INTEREST IN SALE TO ROC SO LONG AS SAFEGUARDS COULD BE APPLIED, CITING INTER ALIA FACT THAT FRG, AS CONTRASTED TO OTHER STATES, DID NOT MAKE STATEMENT RE TAIWAN BEING INTEGRAL PART OF CHINA WHEN IT RECENTLY ESTABLISHED DIPLOMATIC RELATIONS WITH PEKING.

6. UNGERER ADMITTED POSSIBILITY THAT IAEA/ROC SAFEGUARDS AGREEMENTS MIGHT BE CHALLENGED AND POSSIBLY

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ABROGATED IN FUTURE IAEA BOARD MTG-- PERHAPS EVEN IN UPCOMING YEAR. HE CONJECTURED THAT US BILATERAL SAFEGUARDS WOULD BE CONTINUED IN TAIWAN IN ANY CASE AND ASSUMED THAT THIS WOULD BE ADEQUATE MEASURE TO INSURE THAT SAFEGUARDS WOULD BE APPLIED ON NUCLEAR MATERIAL (OF US ORIGIN) PROCESSED IN GERMAN CHEMICAL REPROCESSING PLANT. I SAID I HAD NO INSTRUCTIONS, BUT THAT IT WAS ILLOGICAL TO ASSUME USG COULD MAKE LONG-TERM COMMITMENTS TO THIRD COUNTRY ON CONTINUATION OF BILATERAL SAFEGUARDS IN TAIWAN. EVEN IF WE WERE PREPARED DO SO ON SHORT-TERM BASIS, ARRANGEMENTS WOULD HAVE TO BE WORKED OUT TO PROVIDE AN APPROPRIATE SOLUTION IF AND WHEN BILATERAL SAFEGUARDS WERE TERMINATED. THERE WOULD ALSO BE QUESTIONS OF COST-SHARING TO BE SETTLED, AND QUESTION OF HOW TO SAFEGUARD PROCESSED FUEL OF CANADIAN ORIGIN, OR FUEL FROM THIRD-COUNTRY (OR INDIGENOUS) SOURCE IF ROC COULD ACQUIRE IT.

7. COMMENT: ABOVE IS PROVIDED AS BACKGROUND WHEN FRG MAKES APPROACH IN WASHINGTON. FACT OF UNGERER'S DISCUSSION WITH ME SHOULD NOT BE DISCLOSED. MISSION'S INITIAL JUDGMENT IS THAT IT COULD BE POLITICALLY DESIRABLE TO GET FRG INVOLVED IN ROC'S NUCLEAR PROGRAM. SINCE FRG MEMBERS OF IAEA BOARD, THIS COULD LEND ADDITIONAL VOTING SUPPORT TO RETENTION EXISTING IAEA SAFEGUARDS AGREEMENTS WITH ROC IN EVENT OF ATTACK IN BOARD. IAEA SECRETARIAT WILL UNDOUBTEDLY WISH DISCUSS THIS QUESTION WITH MISSION AFTER FRG DEMARCHE. WOULD APPRECIATE RECEIVING GUIDANCE SOONEST. PORTER
XGDS-1

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NARA, Date 9/15/18

DEPARTMENT OF STATE

Memorandum of Conversation

For 10:30 Mtg., Monday, 11/27,
Mr. Brewster's office.

DATE: November 22, 1972

SUBJECT: German Inquiry Regarding Safeguards on Export
of Parts to ROC Reprocessing Plant

PARTICIPANTS: Dr. E. Abel, Scientific Counselor
H. Daniel Brewster, SCI/AE

Dr. Abel, Deputy Scientific Attache to the German Embassy, called late on November 20 to inquire regarding the application of Agency safeguards to US-supplied nuclear equipment and fuel on Taiwan. He spoke specifically of the latest orders for U.S. power reactors.

I explained the U.S. posture on safeguards in the ROC, noting the fact that a valid US-ROC-Agency Trilateral was in force. Although we recognized that a potential threat to the Agency ties with the ROC did exist, we expected business in the safeguards field to continue as usual. In fact, a routine inspection by the IAEA had taken place on Taiwan in October 1972.

Dr. Abel then referred to the question of possible supplies of parts and equipment to the existing nuclear power plants stating that he assumed these would be covered by the existing trilateral. He then mentioned that his government was considering a contract by a German firm for the delivery of parts to an ROC reprocessing plant (not a complete plant), as well as a contract for design and construction of such a plant. It was his government's view that the present safeguards covering the materials handled in the reprocessing plant would be adequate, because these materials would be covered by the existing US-ROC-Agency Trilateral or the Canada-ROC Bilateral.

His government had also reviewed its Zangger Committee commitments and believes that the export of parts would be covered within the spirit of these arrangements.

SCI/AE:HD Brewster
(Working Copy of 03/80)

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I said that I would have to consult with my colleagues on this subject before I could give a firm considered reply on this matter, and that I would be back in touch with him.

Distribution:

EA/ROC - Miss McDonnell
EUR/GER - Mr. Nelson
IC/SCT - Mr. Kent
ACDA - Mr. Van Doren
USAEC - Mr. Mahy

Drafted by: H. Daniel Brewster/SCI/AE:lmw
11/24/72 ext. 22433

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ROC NUCLEAR REACTORS

	<u>Fuel</u>	<u>Operational</u>	<u>First Fuel Delivery</u>	<u>First Reprocessing</u>	<u>Safeguards</u>	<u>Approximate Annual PU Production</u>	<u>Equivalent in Nuclear Weapons Per Year*</u>
Taiwan Research Reactor (40 MW - Canadian)	Natural U**	1973			IAEA (no fallback)	10 kg	~ 1
Two 600 MW _e Light Water Reactors under 1972 US Bilateral	Slightly Enriched U	early 1976	1974	1978	IAEA (US fallback)	300	~ 30
		+ late 1976	1975	1979			
Two 850 MW Light Water Reactors under proposed amendment to US Bilateral	Slightly Enriched U	1978	1977	1981	IAEA (US fallback)	430	~ 40
		+ 1979	1978	1982			
Possible Fifth and Sixth Reactors	[Natural U?]						

*Assuming: (1) operation of reactor to produce low PU-240 content (which means more frequent replacement of fuel rods in US type reactors; but is easier, and more difficult to detect, with Canadian type reactors.)
 (2) a chemical reprocessing plant.
 (3) willingness to settle for less than most efficient weapons.
 (4) success in making nuclear weapons from plutonium.

**Obtainable from South Africa or other NPT non-parties

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Additional Background for Non-Experts

1. Article III(2) of the NPT provides that no NPT party will furnish "equipment or material especially designed or prepared for the processing, use or production of special fissionable material" to a non-nuclear weapon state unless the nuclear materials involved will be subject to safeguards under an agreement with the IAEA. Over the past few years an ad hoc group of representatives of Western nuclear supplier countries (the so-called Zangger Committee) has tried to reach a consensus on items that would clearly "trigger" safeguards under this provision and the policy reflected therein. Among the items agreed upon were "chemical reprocessing plants." The provision of design information for such plants was not included on the list, since the NPT provision involved does not by its terms apply to transfers of information. A U.S. effort to specify essential parts of such a plant was not successful, but the Committee concedes that the items on which consensus was reached were not necessarily exhaustive. It is the U.S. position that provision of substantially all the known parts of a chemical reprocessing plant, together with design data and engineering assistance, should trigger safeguards under Article III(2).

2. A chemical reprocessing plant produces somewhat depleted uranium, and plutonium. After mixing such depleted uranium with more highly enriched uranium, the mixture could

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be used in the fabrication of new enriched uranium fuel elements for a reactor if the country had a fuel fabrication plant, as ROC does not. While the plutonium has a potential recycling use in fuel fabrication, this has not yet been reduced to general commercial practice. A much more extensive use of plutonium would be made in breeder reactors, which may come into commercial use in the 1980s, but none of the reactors currently under construction or planned by ROC are of this type. Thus the output of a reprocessing plant does not meet any immediately foreseeable needs of the ROC nuclear power program.

3. Chemical reprocessing plants are generally considered uneconomical unless they service a substantial number of large power reactors. (The U.S. plant in upper New York State has consistently lost money). A study recently conducted by GE concluded that there would be no economic justification for a chemical reprocessing plant for Japan (which has a far greater number of large nuclear power reactors than is proposed for ROC) until well into the 1980s. For this reason, the Japanese have been considering the possibility of a regional reprocessing plant. Consideration was originally given to siting such a plant in Taiwan, but this has become

politically unrealistic, and the current thinking is that it might be located in South Korea. Without such a regional clientele, a reprocessing plant in ROC does not make sense if there is any alternative way of obtaining the benefits of reprocessing when it becomes needed.

4. Construction of a chemical reprocessing plant might take 4 or 5 years; I do not have data on its probable cost, nor on the time or cost involved in constructing a fuel fabrication plant.

5. The technology for making a chemical reprocessing plant is unclassified, but AEC regulations (10 CFR Part 110) do not permit its transmission without AEC review intended to insure that provisions for safeguards on the plant will be adequate. It is not known how practical it would be for ROC to construct such a plant without any foreign assistance, but it would clearly be more difficult, expensive, and time consuming. And ROC would still have the legal obligation under the NPT to put such a plan under IAEA safeguards.

6. I am aware of no unsafeguarded chemical reprocessing plants in any non-nuclear weapon country except India, whose indigenously built plant has been one of the chief sources of concern about proliferation. (At present such plants are located in Belgium, Italy, India, Spain and Argentina and a Japanese plant is being planned.)

pilot plants?

small?

ACDA/GC:CVanDoren
December 1, 1972

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Pertinent Highlights of Applicable Agreements*

A. U.S.-ROC Agreement for Cooperation (TIAS 7364)

1. Does not provide for transfer by USG of chemical reprocessing plants or information relating thereto. (Articles III and IV)
2. Would apparently permit private U.S. citizens and firms to transfer chemical reprocessing plant, parts thereof, or information relating thereto, if permitted by applicable laws, regulations, licenses, and policies. (Articles II and VI)
3. Requires that any reprocessing of any fuel elements containing fuel received from the U.S. be "performed in facilities acceptable to both Parties upon a joint determination of the Parties that the provisions of Article XI[safeguarded] may be effectively applied." (Article VIII F)
4. [If any of the nuclear material involved is transferred by the U.S. by means of a lease, the lessee will take title to the materials resulting from the reprocessing unless otherwise agreed. (Article VIII G)]
5. Provides for bilateral safeguards - except to the extent suspended by virtue of application of IAEA safeguards - including:
 - (a) right to review design of any equipment the design of which the AEC determines to be relevant to the effective application of safeguards and which
 - (i) is made available under the agreement or
 - (ii) is to use, fabricate or process any materials made available under the agreement.

* The purpose of this section is to identify pertinent provisions and their general substance. Selection, paraphrasing, and simplification have been used, and this section should not be considered a substitute for consulting the actual texts of the agreements.

(b) full safeguards on

(i) nuclear materials made available under the agreement

(ii) nuclear materials utilized in, recovered from, or produced as a result of the use of any of the following materials, equipment, or devices made available under the agreement:

- nuclear and moderator materials
- other material designed by the AEC
- reactors
- "any other equipment or devices designated by the Commission as an item to be made available on the condition that the provisions of this paragraph B(2) will apply."

(c) right to require the deposit in storage facilities designated by the AEC of any of the special nuclear material referred to in (b) above which is not currently utilized for civil purposes in the ROC and which is not transferred or disposed of in accordance with the agreement. (Article XI)

6. Provides that the bilateral safeguards rights will be suspended during the time and to the extent that the USG agrees that the need to exercise such rights is satisfied by safeguards agreement with IAEA. (Article XII B).
7. If the IAEA safeguards agreement should be terminated before the bilateral agreement, and the Parties should fail to agree promptly upon a resumption of IAEA safeguards, either Party may, by notification, terminate the agreement, and the USG may require the return of all SNM received pursuant to the Agreement and still in its possession or the possession of persons under its jurisdiction. (USG will pay for returned material at prevailing prices). (Article XII C)
8. Agreement lasts until the year 2002, unless terminated by mutual consent or as specified in 7 above, or for non-compliance with the peaceful uses guarantees or safeguards undertakings (in which cases US could require return of material).

B. U.S.-ROC-IAEA Safeguards Agreement (TIAS 7229)

1. Applies to the 1955 US-ROC agreement for cooperation, as amended, "or a new superseding agreement for cooperation, as amended." (Section 1 (c))
2. IAEA safeguards to apply to material, equipment and facilities while they are listed in the Inventories. (Section 4)
3. USG agrees that its rights to apply safeguards under the US-ROC agreement for cooperation will be suspended with respect to material, equipment and facilities while they are listed in the Inventories." (Section 6)

[Query: does this suspend our right to require the storage of SNM not currently being used, in storage facilities designated by the AEC? See item A-5(c) above? How does it square with item A-6 above?]

4. The Inventory for ROC is in substance, supposed to include:
 - (i) equipment, facilities and materials transferred under the US-ROC agreement for cooperation.
 - (ii) special fissionable material produced in ROC in or by use of such materials, equipment or facilities, or of any facility while it incorporates any such equipment.
 - (iii) special fissionable material produced in another jurisdiction subject to IAEA safeguards and transferred to ROC under the US-ROC agreement for cooperation
 - (iv) other nuclear materials which are processed or used in any of the materials, equipment or facilities in (i), (ii) or (iii)
 - (v) any facility
 - (a) while it incorporates any equipment listed above, or
 - (b) while it is containing, using, fabricating processing any material listed above.

(There is also right to release particular nuclear materials from safeguards upon substitution of equivalent amounts of such materials not already safeguarded.) (See Sections 9-11 and 12)

5. The IAEA may refuse to put items on the Inventory by advising both Governments, within 30 days of their notification that it should be included, "That the Agency is unable to apply safeguards to such items." (Section 9 (d) (ii)).
6. Items are automatically removed from the Inventory if the IAEA is relieved of its safeguards undertaking because of non-compliance by another Party "or if for any other reason the Board determines that the Agency is unable to ensure" such items are not being used for any military purposes. Such removal is to last until the Board determines is again able to apply safeguards thereto. (Section 7)
7. There are also a number of other standard provisions for termination of IAEA safeguards. (Sections 19 and 20)
8. The agreement's duration is coextensive with the Agreement for Cooperation, unless terminated sooner by any Party upon 6 months notice to the other Parties or as many be otherwise agreed. (Section 33)

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HOW ENTIRE THROUGHPUT COULD BE SUBJECTED TO SAFEGUARDS

1. IAEA Safeguards.

The only way to be sure the entire throughput would be subject to IAEA safeguards -- and thus meet the literal requirements of the NPT -- would be under the current U.S. trilateral or the existing IAEA-ROC safeguards agreement applying to the research reactor supplied by Canada. It could be brought under the U.S. trilateral only if there were some U.S. input of the types indicated in Tab E, para. B(4), which do not include the provision of information.

2. Bilateral U.S. Safeguards.

If IAEA should cease to be able to apply safeguards in ROC, it would be possible to safeguard the entire throughput of the plant under our bilateral agreement so long as it incorporated U.S. materials or equipment of the type specified in Tab E, para. A(5)(b). Again, the provision of information by U.S. firms or nationals would not suffice for this purpose.

3. Bilateral Safeguards of Another Supplier.

If it were still possible to have IAEA safeguards on the plant by the means indicated in (1) above, we could complain that the ROC (and the supplier country, if it were a party to the NPT) was violating NPT obligations by not doing so. However, once IAEA safeguards had become impossible, we would be in a poor position -- in view of the arrangements we would be accepting for the power reactors and fuel we supplied -- to complain if the French, Germans, Belgians, British or Japanese resorted to their own bilateral safeguards agreements. Such arrangements would not, however, give us very much assurance, and we would have the legal right, under our bilateral agreement to reject such arrangements as unsatisfactory. (See Tab E, para. A(3)) This right of rejection could also be utilized as a lever to demand higher standards for any such safeguards.

November 30, 1972

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