UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555
~~CONFIDENTIAL~~

anuary 31, 1978 **INFORMATION REPORT** SECY-78-65

or: The Commissioners

rom: James R. Shea, Director
Office of International Programs

hru: for Executive Director for Operations

ıbject: PROPOSED LICENSE TO EXPORT MIXED OXIDE FUEL TO SWITZERLAND (LICENSE APPLICATION NO. XSNM-954)

ırpose: To provide advance information to the Commission of proposed issuance of subject license to Westinghouse Electric Corporation

iscussion: In June 1976 Westinghouse filed an application for a license to export 51.086 kilograms of plutonium as plutonium oxide and 1,550 kilograms of natural uranium to Switzerland (application and end-use statement at Appendix A).

The material, in the form of mixed oxide fuel rods and skeletons, will be shipped to Franco-Belge de Fabrication de Combustibles, S.A. (FBFC) Dessel, Belgium, for final fabrication into four fuel assemblies to be used in the Beznau I reactor located in Baden, Switzerland. Beznau I is a 350 MWe pressurized water reactor which began regular power operation in December 1969. It is owned and operated by Nordostschweizerische Kraftwerke AG, Baden, Switzerland.

In response to our July 9, 1976 request for views, the Executive Branch has (1) concluded that issuance of the proposed license would not be inimical to the interests of the United States, including the common defense and security; and (2) confirmed that the material will be subject to all the terms and conditions of the Agreement

U.S. NRC Declassification Review
1ST REVIEW – DATE: 20030609
REVIEWER 3591
AUTHORITY: ☐ DC ☑ DD
2ND REVIEW – DATE: 20030609
REVIEWER 3470
AUTHORITY: (DD)
DETERMINATION [CIRCLE NUMBER(S)]
1. CLASSIFICATION RETAINED
2. CLASSIFICATION CHANGED TO:
3. CONTAINS NO NRC CLASSIFIED INFO
4. COORDINATE WITH:
(5.) DECLASSIFIED
6. CLASSIFIED INFO BRACKETED
7. OTHER (SPECIFY)

ntact:
A. Guhin (492-7866)
Dunn (492-7984)

Classified by Asst. Director, IPEI (Title)

~~CONFIDENTIAL~~

IAL SECURITY
RMATION

SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652 AUTOMATICALLY DOWNGRADED

Discussion: (continued)

for Cooperation between the United States and Switzerland and to the US-EURATOM Agreement during the time it is fabricated and transiting Belgium (State memorandum of December 13 with attachments at Appendix B).

The Executive Branch response at Appendix B notes that this fuel loading is part of an in-depth research program which will last from four to six years. The program will enable Switzerland to obtain first hand experience with the operation of mixed oxide fuel, to evaluate its various characteristics, and to determine the future suitability of mixed oxide fuel.

Among other things, the State Department memorandum furthe notes that, although it is not the current policy of the Executive Branch normally to support the export of kilogra quantities of plutonium, the Executive Branch recommendation on issuance of this export license is based upon considerations that:

1. The plutonium was brought into the US under an NRC import license substantially before development of the present policy generally limiting plutonium export during the International Fuel Cycle Evaluation (INFCE) to less than kilogram quantities.

2. Switzerland is an NPT party which shares overall US non-proliferation objectives.

3. Switzerland is an active participant in the INFCE and has offered to make the results of this mixed-oxide work available through INFCE.

4. The development program is relatively small scale.

5. Switzerland plans to make no decision for at least six years on commercial use of mixed-oxide fuel in light water reactors until the results of the Beznau program are known. Furthermore, no more major mixed-oxide development work will be undertaken before that time.

This application represents one of three pending cases involving exports of kilogram quantities of plutonium discussed in the NSC Ad Hoc Group memorandum at Appendix C. The memorandum notes the Group's recommendations that, while the US should make no new commitments to export

Discussion: (continued)

significant quantities of plutonium during the course of the INFCE period, the three pending cases involving such quantities of plutonium should be approved as exceptions to current policy.

In the case at hand, the Group noted that, since the plutonium was brought into the US with the knowledge that subsequent re-export was planned, failure of the Executive Branch to recommend approval of the license would be considered grossly inequitable by the Swiss and would raise political and legal issues.

Switzerland and Belgium are parties to the NPT and are committed, under agreements for cooperation, to use US-supplied material for peaceful purposes only. The material will be subject to EURATOM safeguards while in Belgium and IAEA safeguards in Switzerland.

As noted in State's memorandum at Appendix B, (1) the IAEA-EURATOM safeguards agreement has come into force and subsidiary arrangements are now being negotiated to bring IAEA verification into practical effect; and (2) the IAEA has the right to apply the verification procedures of the safeguards agreement prior to completion of the subsidiary arrangements.

The US-EURATOM Agreement provides for the reprocessing and retransfer of separated special nuclear material produced within the Community. However, the Commission will note that the material under this proposed license is not to be irradiated within the Community.

The US-Switzerland Agreement for Cooperation, as amended, (1) provides that US-supplied material or material produced through the use of US-supplied material may not be transferred beyond Switzerland without US approval; and (2) stipulates that any reprocessing of US-supplied material shall be performed in facilities acceptable to both parties upon a joint determination that safeguards may be effectively applied.

Discussion: (Continued)

Based on a 1976 visit of a US physical security review team, subsequent exchanges, and reviews, the physical security program in Switzerland is considered adequate to protect trigger quantities of special nuclear material As noted in the State Department memorandum at Appendix B the US has assurance that Switzerland is committed to providing a level of protection consistent with the recommendations in IAEA INFCIRC/225.

However, the staff is still concerned with the level of protection in Belgium, particularly at the fabrication facility at Dessel. In reviewing a proposed export of HEU to Belgium in the summary of 1977, it was noted that the protection program at the MOL facility would need significant upgrading to conform to international standards. As noted in my memorandum of November 7, 1977 (SECY-77-376A) Belgium has taken several upgrading actions. A recent communication, however, indicates that the improvement program has not been completed (Appendix D).

The staff, in coordination with DOE and State, is seeking assurances that physical security at the Dessel facility (which was not visited by the review team) will be equivalent to the measures being taken at MOL. A quick response is expected and a recommendation on this application will be forwarded after receipt.

The information contained in and attached to this memorandum is being forwarded at this time because of the urgency associated with the license and so that the Commission can begin its review.

The applicant has expressed urgency associated with this license on several occasions (Westinghouse letter at Appendix E). The material was scheduled to be shipped on December 5, 1977. Having missed this schedule, the applicant requests expeditious handling of the application and informs us that the material will be shipped as soon as the license is issued.

On several occasions in discussions with the staff, the Swiss Embassy has also expressed the importance and urgency Switzerland attaches to this license. The Embassy has recently written me, enclosing a copy of the fuel fabrication schedule prepared by Westinghouse and indicating that, if deadlines are missed, the R&D program associated with this fuel and the related contribution to the INFCE would be set back about a year. This would occur because the May 1978 shutdown period for refueling of the Beznau power reactor, during which the research experiment is to be installed, would be missed (Appendix F). To meet the planned schedule, which includes surface shipment (as required by law for plutonium), the applicant states that an export license is needed by February 3.

The Swiss Ambassador has also recently written the Chairman expressing the importance and urgency Switzerland attaches to this license (Appendix G). This information has been provided to enable to Commission to begin its review of the proposed export pending receipt of information concerning the adequacy of physical security measures in Belgium and the subsequent forwarding to the Commission of the staff recommendations concerning issuance of the export license.

Coordination: ELD has no legal objection. NMSS concurs, but wishes to inform the Commission that it has not received country-specific information which permits it to make an independent conclusion as to the effectiveness of IAEA and EURATOM material control and accounting safeguards to deter and to detect national diversions in Belgium and Switzerland.

James R. Shea

James R. Shea, Director
Office of International Programs

Enclosures:
1. Appendix A - Application dtd 6/9/76 and end use statement dtd 6/14/76
2. Appendix B - State memorandum dtd 12/13/77 with attachments
3. Appendix C - NSC Ad Hoc Group memorandum dtd 11/14/77

4. Appendix D - Cable dtd 1/12/78
5. Appendix E - Westinghouse letter dtd 11/29/77
6. Appendix F - Letter to NRC from Swiss Embassy dtd 1/20/78
7. Appendix G - Letter to Chairman from Swiss Ambassador dtd 1/20/78

DISTRIBUTION:
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Secretariat

U.S. ATOMIC ENERGY COMMISSION
Washington, D.C. 20545

Form approved
Budget Bureau No.
38-R0007.

XSNM-95
S-391

APPLICATION FOR LICENSE TO EXPORT BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL

Submit in Triplicate

Carefully Read Instructions on Back

1. APPLICATION ıe 9, 1976	2. APPLICANT'S REFERENCE NO. *(if any)*	3. COUNTRY OF ULTIMATE DESTINATION Switzerland
4. APPLICANT stinghouse Electric Corporation DDRESS O. Box 1918 E, AND ZIP CODE tsburgh, PA 15230		5. ULTIMATE CONSIGNEE IN FOREIGN COUNTRY *(Name and address)* Nordostschweizerische Kraftwerke A.G. (NOK) Baden, Switzerland
IATE CONSIGNEE IN FOREIGN COUNTRY *(Give name . If same as ultimate consignee, state "Same.")* -Belge de Fabrication de bustibles S.A. (FBFC) aan 12 essel, Belgium		7. IF PURCHASER IN FOREIGN COUNTRY IS OTHER THAN ULTIMATE CONSIGNEE, GIVE NAME AND ADDRESS. *(If same, state "Same.")* Same

TY TO BE SHIPPED *tions on back)*	(b) COMMODITY DESCRIPTION *(Include chemical and physical form for special nuclear material and byproduct material also specify isotopic content; if in a device, identify the device, manufacturer, and model number.)*
tachment #1	Mixed plutonium and natural uranium dioxide power compressed into pellets and encapsulated in approx. 788 zircaloy 4 clad fuel rods, or fuel rods as defined in above sentence to be assembled into 4 fuel assemblies.

G AND PACKING PROCEDURES *(Required for special nuclear material. See instructions on back.)*

ging varies according to the shipping plan to be used as defined in attachment

F COMMODITIES COVERED BY THIS APPLICATION: *(Describe fully, stating what will be produced or manufactured, what service red, or the nature of the research that will be performed.) (See instructions on back for special nuclear material.)*

uel assemblies are for installation in region 9 of the Beznau 1 nuclear plant will be used to generate electricity. The plant is located in Baden, erland. An end use statement has been requested by customer and will follow.

ant, and any official executing this certificate on behalf of the applicant named in Item 4, certify that this application is prepared and d in conformity with Title 10, Code of Federal Regulations, Parts 30 and 36 (if for byproduct material) or Part 40 (if for source material), or Part 70 (if for special nuclear material), and Part 71 (for transport of radioactive material, if applicable) and that all information contained herein, including any supplements attached hereto, is true and correct to the best of their knowledge and belief.

Westinghouse Electric Corporation
(Applicant named in Item 4)

ibed and sworn to before me this day of June 1976.

By: D. A. Kenerson, Engineer

APPENDIX A-

ATTACHMENT #1

mixed oxide fuel will be manufactured and export packaged in accordance with of the following plans:

n 1

l rods will be manufactured and export packaged by:

tinghouse Plutonium Fuel Dev. Lab - NFD
swick Avenue
). Box 217
swick, Pennsylvania 15024

ɔe exported to:

ıco Belgium de Fabrication de Combustibles, S.A. (FBFC)
ɔplaan 12
) Dessel, Belgium

manufacturing into fuel assemblies to be shipped directly to Beznau 1 nuclear :rating plant (NOK).

rods will be packaged in Westinghouse model RCC type container in accordance USNRC certificate of compliance no. 5450, docket no. 71-5450 ; US DOT IAEA :ificate no. USA/5450/BF, rev. 3.

II

rods will be manufactured by:

inghouse Plutonium Fuel Dev. Lab - NFD
wick Avenue
. Box 217
wick, Pennsylvania 15024

shipped to:

inghouse Nuclear Fuel Division
. Drawer R
mbia, South Carolina 29250

manufacturing into fuel assemblies and export packaged for shipment by W wick to Beznau 1 (NOK) nuclear generating plant.

assemblies will ship in mixed oxide fuel assembly shipping containers. re presently awaiting approval of these containers. Application was made /76 to the NRC.

Up to 11.1 kilograms of U235 contained in 1550 kilograms of natural uranium. 31 grams of fissile plutonium contained in up to 51,086 grams of total plutonium ıum enrichment 2.75 weight percent Pu.

TELEPHON: BADEN (056) 22 41 01 · ZURICH (01) 32 72 00 · TELEGRAMME: NORDOSTKRAFT
TELEX: 52086

Westinghouse Electric Corp.
P.O.Box 1918

Pittsburgh, Pa. 1523o / USA

attn. Mr. D.A.Kenerson

Received 6/25/76
3:00 P.M.

I/ZEICHEN | I/NACHRICHT VOM | U/ZEICHEN Cl-Ar/br | CH-5401 BADEN (SCHWEIZ) PARKSTRASSE 23

June 14, 1976

Nuclear Power Plant Beznau I

7ol/74o Plutonium fabrication
Statement

Dear Mr. Kenerson

We hereby certify that the four mixed oxide fuel assemblies to be furnished by Westinghouse Electric Corporation will be installed in Beznau Unit I nuclear electric generating plant located in Doettingen, Switzerland.

Total nuclear materials content:

a. 11.1 kilograms of uranium 235 contained in 155o kilograms of natural uranium

b. 4o181 grams of fissile plutonium

c. 51o86 grams of plutonium as plutonium oxide

We hope this information is of use to you and remain

sincerely yours

Nordostschweizerische Kraftwerke AG

[signature] [signature]

APPENDIX A-3

'inghouse
'ric Corporation

Power Systems
Company

Water Reactor Divisions Marketing
International Operations

Box 1918
Pittsburgh Pennsylvania 15230

XSNM-9

Received 6/25/76
3:00 P.M.

June 22, 1976

Mr. Roscoe Pressley
Agreements & Export Branch
Division of Materials & Fuel
Cycle Facility Licensing
Nuclear Regulatory Commission
Washington, D.C. 20545

Dear Mr. Pressley:

Subject: End Use Statement for NOK Mixed Oxide Fuel Shipment

Attached is the end use statement from Nordostschweizerische Kraftwerke A.G. (NOK) showing the end use of the mixed oxide fuel assemblies covered by the fuel license application submitted to your office on June 8, 1976.

If you have any questions please contact this office. My number is (412) 256-4633.

Sincerely,

D. Kenerson

D.A. Kenerson
International Customer Services

ljc
ttachment

c: J. P. Butler

nghouse
ic Corporation

Power Systems
Company

Water Reactor Divisions Marketing
International Operations

Box 1918
Pittsburgh Pennsylvania 15230

June 8, 1976

Mr. G. Wayne Kerr, Chief
Agreements and Export Branch
Division of Materials and Fuel
Cycle Facility Licensing
Nuclear Regulatory Commission
Washington, D.C. 20545

Dear Mr. Kerr:

Attached is our application for an export license covering the supply of nuclear fuel for shipment to Beznau 1 nuclear power generating plant located in Baden, Switzerland.

This application is issued on behalf of Westinghouse Electric Corporation, incorporated in the State of Pennsylvania with headquarters located in Pittsburgh, Pennsylvania.

Westinghouse Electric Corporation is not owned, controlled or dominated by an alien, a foreign corporation or any foreign government.

A decision will be made at a later date as to whether we will ship fuel assemblies directly to the NOK site or ship fuel rods to FBFC (our intermediate consignee) for assembly into fuel assemblies and subsequent shipment by FBFC to NOK site. Therefore we have developed alternate shipping plans as defined in Attachment #1.

Because of current restrictions placed on us we plan to ship by ocean from a port other than New York City ports.

Our earliestscheduled ship date is January 1977 as fuel rods. Therefore, we would appreciate having the license by October 15, 1976 to allow us sufficient time to arrange for shipping and in-transit security. Also, we would like to have a validity date of May 1977.

he uranium and plutonium is being furnished by NOK.

lease address any comments or questions that you may have to me. My phone umber is (412) 256-4633.

egards,

Kenerson

. A. Kenerson
nternational Customer Services

:: J. P. Butler

DEPARTMENT OF STATE

Washington, D.C. 20520

XSNM-954

RECEIVED 70-23
U.S. NRC

December 13, 1977

1977 DEC 14 PM 1 41

MEMORANDUM FOR LEE V. GOSSICK
NUCLEAR REGULATORY COMMISSION

EXPORT/IMPORT AND INTERNAT'L AFFAIRS

Subject: Comments to NRC on Nuclear Export License Application

Your letter of July 9, 1976, requested the views of the Executive Branch on the issuance of a proposed license for the export to Switzerland of 40.181 kilograms of fissile plutonium contained in 51.086 kilograms of plutonium as plutonium oxide and 11.1 kilograms of U-235 contained in 1,550 kilograms of natural uranium.

On the basis of the factors covered by the attached analysis, the Executive Branch has concluded that issuance of the proposed license would not be inimical to the interests of the United States including the common defense and security and is of the view that the license should be issued. The Executive Branch has concluded that the U.S. Government has assurance that the recipient country is committed to providing adequate physical security for their nuclear program, including a level of protection compatible with that envisaged by the recommendations in IAEA INFCIRC/225. The supply of this plutonium and natural uranium is subject to all the terms and conditions of the Additional Agreement for Cooperation between the United States and the European Atomic Energy Community (EURATOM), as amended and the Agreement for Cooperation between the United States and Switzerland, as amended.

David Anderson for

Peter Tarnoff
Executive Secretary

Attachments:

1. License Application Analysis
2. Letter from the Delegation of the Commission of the European Communities dated August 9, 1976
3. Letter from the Embassy of Switzerland dated July 30, 1976

LICENSE APPLICATION ANALYSIS

Transaction: 40.181 kilograms of fissile plutonium contained in 51.086 kilograms of plutonium as plutonium oxide and 11.1 kilograms of U-235 contained in 1,550 kilograms of natural uranium to Switzerland.
Applicant: Westinghouse Electric Corporation
Date of Application: June 9, 1976

1. What is the purpose of the export?

This supply of plutonium and natural uranium in the form of mixed oxide fuel rods and skeletons will be shipped to Franco-Belge de Fabrication de Combustibles, S.A. (FBFC), Dessel, Belgium, for the final fabrication of fuel assemblies for the Beznau I nuclear power plant located in Baden, Switzerland.

Beznau I is a pressurized water reactor with a net power output of 350 megawatts (electric). It began regular power operation in December 1969 and is owned and operated by Nordostschweizerische Kraftwerke AG, Baden, Switzerland.

This fuel loading is part of an in-depth research program which will last four to six years. The purpose of this program is to enable Switzerland to obtain first hand experience with the operation of mixed oxide fuel and to evaluate its various characteristics. The plutonium and natural uranium involved will be incorporated in four mixed oxide fuel assemblies to be used in a total core complement of 121 assemblies. Information gained from this program will provide valuable additional data for Swiss utilities and regulatory authorities to use in the determination of the future suitability of mixed oxide fuel.

2. Does the recipient country have an Agreement for Cooperation with the United States under Section 123 of the Atomic Energy Act, as amended? And, if so, is the export in question covered by the Agreement?

During the time that this plutonium and natural uranium is in Belgium for the fabrication of fuel assemblies and in transport within the European Community (EC), it will be subject to all of the terms and conditions of the Additional Agreement for Cooperation between the United States and the European Atomic Energy Community (EURATOM), as amended. This was confirmed in a letter from the Delegation of the Commission of the European Communities dated August 9, 1976, a copy of which is attached. The Additional Agreement first entered into force on July 25, 1960.

Thereafter, the plutonium and natural uranium will be subject to all of the terms and conditions of the Agreement for Cooperation between the United States of America and the Government of Switzerland, as amended. This was confirmed in a letter from the Embassy of Switzerland dated July 30, 1976, a copy of which is attached. The Agreement initially entered into force August 8, 1966, and was amended on January 29, 1974.

3. Has the recipient country accepted and implemented IAEA safeguards and/or other appropriate supplementary bilateral conditions (including, where applicable, understandings regarding reexport) imposed by the U.S.?

Under the Additional Agreement for Cooperation of 1960, the Community undertakes the responsibility of establishing and implementing a safeguards and control system designed to give maximum assurance that any material supplied by the U.S. or generated from such supply will be used solely for peaceful purposes ("EURATOM safeguards system"). The Agreement further provides that the Community will consult and exchange experiences with the IAEA with the objective of establishing a system reasonably compatible with that of the latter. The Community is responsible for establishing and maintaining a mutually (with respect to the U.S.) satisfactory and effective safeguards and controls system in accordance with stated principles.

All of the member states of the Community, with the exception of France (a nuclear weapons state), are parties to the NPT. An agreement for the IAEA application of safeguards pursuant to the NPT was signed by the IAEA and Belgium, Denmark, the FRG, Ireland, Italy, Luxembourg, the Netherlands, and the European Atomic Energy Community (EURATOM) on April 5, 1973. (As a nuclear weapons state, the United Kingdom permits the application of IAEA safeguards pursuant to the NPT under a voluntary offer which was signed on September 6, 1976.)

On February 17, 1977, the Commission of the European Communities notified the IAEA that all of the necessary steps had been taken for the IAEA/EURATOM Safeguards Verification Agreement to come into force. As a part of this action, the EURATOM accountability system had been adapted to that of the IAEA through the publication of Commission Regulation 322/76, which came into force during January 1977. Currently, EURATOM and the IAEA are negotiating the Subsidiary Arrangements and Facility Attachments which are necessary to bring IAEA veri-

fication of EURATOM safeguards into practical effect. Pending the completion of these negotiations, the IAEA has the right to apply the procedures of the EURATOM-IAEA-Safeguards Verification Agreement even though the Subsidiary Arrangements have not entered into force.

The Additional Agreement prohibits the reexport of special nuclear material supplied by the United States beyond the control of the Community, unless the U.S. Government agrees to such transfer and then only if it is within the scope of a bilateral agreement for cooperation between the United States and the nation to which it is being transferred or within an appropriate multilateral agreement.

Since the U.S.-supplied material will not be irradiated within the EC, there will be no special nuclear material produced which is subject to provisions of the Additional Agreement.

Under the U.S.-Swiss agreement, "When any special nuclear material received from the United States requires reprocessing, or any irradiated fuel elements containing fuel material received from the United States...are to be removed from a reactor and are to be altered in form or content, such reprocessing or alteration shall be performed in facilities acceptable to both Parties upon a joint determination that the provisions of Article X may be effectively applied.

No special nuclear material produced through the use of material transferred to the Government of Switzerland or to authorized persons under its jurisdiction, pursuant to this Agreement...will be transferred to the jurisdiction of any other nation or group of nations, except as the Commission may agree to such a transfer."

A trilateral safeguards agreement between the United States, Switzerland, and the IAEA entered into force on February 28, 1972, and is applicable to this export.

4. In cases in which the recipient country is not required by the NPT to accept IAEA safeguards, does the recipient country or organization have accounting and inspection procedures such as to assure compliance with the requirements of the relevant U.S. Agreement?

The EURATOM safeguards system presently applies to all U.S.-supplied special nuclear material. As noted previously, under the U.S.-EURATOM Agreement, the principles of the EURATOM

safeguards system are compatible with those required by the IAEA and followed by that agency in the implementation of safeguards under the NPT. Further, under the Agreement, the EURATOM materials accountability system and that of the U.S. are required to be reasonably comparable.

As mentioned previously, IAEA safeguards are applied to this export to Switzerland under the terms of a trilateral agreement which entered in force on February 28, 1972.

5. Does the recipient country have adequate physical security arrangements to deal with threats of subnational diversion of significant quantities of nuclear weapon materials (plutonium or highly enriched uranium)?

During April 1976, a team of U.S. Government experts visited Belgium and Switzerland for an exchange of views on physical security, including visits to certain facilities at which this material will be processed, stored and utilized as well as other facilities with similar characteristics. The fixed site reviews included (1) security forces, (2) physical barriers, (3) detection and alarm apparatus, (4) communication and response capabilities, (5) access and exit controls, (6) accountability and reporting procedures, and (7) physical security organization. In the area of transportation, procedures and equipment for protecting nuclear materials while in transit were examined.

The team judged Belgium's and Switzerland's physical protection systems, equipment and procedures and equipment for transportation security adequate to physically protect the material at the facilities in the respective countries, in transit and the material requested in this license application.

6. What is the position of the recipient country with regard to non-proliferation (e.g., party to NPT, LANFZ, public statements)?

Belgium and Switzerland both are parties to the NPT.

7. What understandings does the United States have with the recipient country with respect to the use of U.S.-supplied material or equipment to acquire or develop nuclear explosive devices for any purpose, and as to the recipient country's policies and actions as to such development using equipment and material from any source?

As parties to the NPT, Belgium and Switzerland are committed not to develop nuclear explosive devices for any purpose.

8. What other factors are there which bear on the issuance of the export license, such as further U.S. understandings with the recipient country, other supplier countries or interested regional countries?

Although it is not the current policy of the Executive Branch normally to support the export of kilogram quantities of plutonium, there are a number of extenuating circumstances in this instance which have led it, after extensive review and consideration, to recommend issuance of this particular export license. These considerations include the fact that (a) the plutonium was brought into the United States under an NRC import license substantially before development of the present policy generally limiting plutonium exports during the INFCE to less than kilogram quantities; (b) Switzerland is an NPT party which shares overall U.S. non-proliferation objectives; (c) Switzerland is an active participant in the INFCE and has offered to make the results of this mixed-oxide work available through the INFCE; (d) the development program is relatively small scale (four mixed-oxide assemblies in a total core of 121 assemblies); and (e) Switzerland plans to take no decision on commercial use of mixed-oxide fuel in LWR's until the results of the Beznau program are known -- a period of at least six years -- nor even to undertake further major mixed-oxide development work before that time.

MBASSY OF SWITZERLAND
HWEIZERISCHE BOTSCHAFT
AMBASSADE DE SUISSE

WASHINGTON D.C. 20008,
2900 Cathedral Avenue N.W
Telephone 462-1811/7

651.513 NOK
651.512.1 CF/pr

July 30, 1976

Colonel Vance H. Hudgins
Assistant Director for Politico-
Military Security Affairs
Division of Intern. Security Affairs
U.S. ERDA
Washington, D.C. 20545

Dear Colonel Hudgins:

Reference is made to your letter of July 22, 1976 concerning the application XSNM 954 (S-391) dated June 9, 1976 for a license from Westinghouse Electric Corporation, Pittsburgh, PA 15230, covering a shipment of fuel assemblies to be installed in the Beznau I nuclear plant of the Nord-ostschweizerische Kraftwerke A.G. (NOK), Baden, Switzerland.

I have been authorized by the Swiss Federal Office of Energy to confirm that the material idendified above is intended solely for peaceful uses, pursuant to the terms and conditions of the Agreement for Cooperation between the Governments of the United States and Switzerland.

I have also been authorized to confirm that the ultimate consignee, Nordostschweizerische Kraftwerke A.G. (NOK), is authorized to receive and possess the material.

As far as the intermediate consignee, Franco-Belge de Fabrication de Combustibles, S.A. (FBFC), Europlaan 12, 2480 Dessel, Belgium, is concerned, the Euratom Supply Agency will make the confirmation.

Sincerely yours,

Christian Favre
Scientific Counselor

DELEGATION OF THE COMMISSION OF THE EUROPEAN COMMUNITIES

August 9, 1976
JM/kg

Copy sent to PE

Mr. Vance H. Hudgins
Assistant Director for Politico-
Military Security Affairs
Division of International Security Affairs
Energy Research and Development Administration
Washington, D.C. 20545

Attn.: Mr. Marvin Peterson

Subject: XSNM-954, S-319 - Westinghouse Electric Corporation's application for export of mixed oxides to Switzerland with fabrication services provided by Franco-Belge de Fabrication de Combustibles, Belgium

Dear Mr. Hudgins:

This is in reference to the authorization letter addressed to you by Dr. Favre on July 30, 1976.

As you are aware, in the frame of the export of fuel to the Beznau I nuclear plant in Switzerland, the Franco-Belge de Fabrication de Combustibles (F.B.F.C.) in Dessel, Belgium, will manufacture the fuel rods into fuel assemblies.

We certify that the material mentioned in the above application, namely upto 11.1 kg of U-235 contained in 1550 kg of U and 40,181 g of fissile Pu contained in upto 51,086 g of total Pu, and the transfer of this material will be subject to all terms and conditions of the Addition Agreement for Cooperation.

Further, we certify that Franco-Belge de Fabrication de Combustibles, S.A. (F.B.F.C.), Dessel, Belgium, as intermediate consignee is authorized by EURATOM to receive and possess this material pursuant to the aforementioned Agreement for Cooperation.

After manufacturing of the fuel assemblies, above material will be shipped to the Beznau I station in Switzerland.

Sincerely yours,

DEPARTMENT OF STATE

Washington, D.C. 20520

RECEIVED
DEC

1977 DEC 14 NOV 1977 37

EXPORT/IMPORT
AND
INTERNAT'L SFGRDS

UNCLASSIFIED
MEMORANDUM

TO: NSC AD HOC GROUP ON NON-PROLIFERATION

FROM: Joseph S. Nye, Chairman JSN

SUBJECT: Export of Kilogram Quantities of Plutonium

In the NSC Ad Hoc Group's response to PD-8 on policies related to plutonium separation and use, it was recommended that the U.S. make no new commitments to export significant quantities of plutonium during the INFCE evaluation period. However, it was noted that in several pending cases involving exports of kilogram quantities of plutonium, ". . . we should make one-time exceptions or offer other fuel and appropriate financial compensation . . .", and we recommend approval in such cases. This recommendation subsequently was approved by the President.

The recently-established Subgroup on Nuclear Export Coordination has reviewed three export license applications which are pending before the Executive Branch and the Nuclear Regulatory Commission and which appear to fall into the catetory of such "one-time exceptions". (Insofar as it is aware, these are the only such cases involving kilogram quantities of plutonium based on transactions entered into prior to CY 1977.) These pending export license applications are:

1. S-47: Export to Italy (Date of Application: April 4, 1975)

RECEIVED
DEC

UNCLASSIFIED

1977 DEC 29 PM 1 33

EXPORT/IMPORT
AND
INTERNAT'L SFGRDS

Quantity: 2.48 kilograms of plutonium.

Description: Shipment to Belgonucleaire (Belgium) for clean-up and analysis, after which it would be shipped to the Italian State Electricity Board (ENEL) for storage and later use in ENEL's civil nuclear power program.

Comment: Plutonium involved was produced in the U.K.-supplied Latina reactor from UKAEA-origin fuel which was reprocessed in the U.K. In the mid-1960's ENEL sent a rather large shipment of such plutonium to the U.S. for fabrication of MOX fuel at GE's Vallecitos Nuclear Laboratory. (Italy has long conducted an extensive MOX development program, including essentially full-core power reactor loadings of such fuel fabricated in the U.S., Belgium, and Italy for comparison of fuel performance.) The MOX fuel, consisting of four fuel bundles was exported in 1967. The plutonium under S-47 is the scrap remaining from this fabrication, and is largely in the form of scrap oxide powder (mixed with natural uranium and fuel pellets).

2. S-391: Export to Switzerland (Beznau-I Reactor) (Date of Application: June 9, 197

Quantity: Approximately 51 kilograms of plutonium (40 kg. fissile).

Description: Fuel rods and skeletons of fuel assemblies have been fabricated by Westinghouse at Cheswick, Pa. They then will be shipped to Belgo-Nucleaire (Belgium) for final fabrication into four complete fuel assemblies. These will be loaded into the Beznau reactor (total of 121 assemblie

in core) to obtain first-hand experience with mixed-oxide fuel and evaluate its characteristics. This loading originally was expected to take place about June 1977, but has now been rescheduled for the spring of 1978.

Comments: The plutonium was produced in the Dutch Dodeward reactor (U.S.-supplied) from U.S. fuel which was reprocessed at a European facility. In 1976, NRC issued an import license for this plutonium after obtaining the preliminary views of the Department of State that no difficulties were foreseen in its subsequent export. The Westinghouse fabrication work has been completed. In anticipation of receipt of the assemblies the Swiss accordingly have reduced their contractual requests for enriched uranium for this particular fuel loading.

3. S-566: Export to the Federal Republic of Germany (KWL Reactor) (Data of Application: December 28, 1976).

Quantity: 6.235 Kilograms of Plutonium.

Description: Eight mixed oxide fuel assemblies fabricated by Exxon Nuclear in Richland, Washington will be loaded into the KWL reactor (total of 284 assemblies in core) and irradiated for at least four years as part of a research and development program in mixed oxide fuels.

Comments: The plutonium was produced in the KWL reactor from U.S. fuel which was reprocessed at a facility in the United Kingdom. Exxon Nuclear has completed its fabrication work and the fuel is now in storage in Richland, Washington. The export license for this material

originally was issued by the AEC in September 1974. This license was extended in 1976 by the NRC. The latter license expired on March 1, 1977, and the present request is for an extension to March 1, 1978.

It should be noted in support of these proposed one-time exceptions to current restrictions on plutonium exports that all three applications substantially predate existing U.S. policy on non-proliferation and involve research on mixed oxide fuels at established facilities in friendly countries sharing U.S. long-term non-proliferation goals. Furthermore, the plutonium recycle programs in both the FRG and Switzerland are still on the scale of early research and development, as evidenced by the small mixed oxide component of their respective power reactor fuel cores.

It should also be noted that in the Italian case the plutonium was not produced through the use of U.S.-supplied material or facilities; our present control exists only from the fact that it was imported to the U.S. for purposes of fabrication (an operation which actually decreases the weapons utility from its original form). Further, in the case of the Swiss and Dutch material, the plutonium was brought into the United States under an import license issued by an agency of the U.S. Government in the knowledge that subsequent re-export was planned. Failure of the Executive Branch to recommend these exports would, under the circumstances described, be considered as grossly inequitable by the importing nations and would raise both political and legal issues.

The alternative possibility of a financial or materials credit in the form of slightly enriched uranium also has been explored. There is some question as to whether the DOE currently has the statutory authority to grant such credits. Further, even if the importer were willing to accept such a credit, questions would be raised in the Swiss and Dutch cases as to appropriate compensation for the substantial fabrication costs which have already been incurred over and above the value of the plutonium itself.

In view of the foregoing, the Subgroup on Nuclear Export Coordination is of the opinion that a favorable

recommendation for issuance of these three export licenses should be forwarded to the NRC. Your comments on or concurrence in the Subgroup's proposal are requested by November 25, 1977.

As is the custom, if comments are not received by the above date--and in the absence of a request for an extension--it will be assumed that your Agency has noted and has no objection to this proposal. Comments should be given to Dixon Hoyle (632-4101) or alternatively Dean Cooper (632-1689).

PAGE 01 BRUSSE 00695 121659Z 5593
ACTION OES-07

INFO OCT-01 EUR-12 ISO-00 ACDA-12 CIAE-00 INR-07 IO-13
L-03 NSAE-00 NSC-05 EB-08 NRC-05 SOE-02 DODE-00
DOE-11 SS-15 SP-02 /103 W
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FM AMEMBASSY BRUSSELS
TO SECSTATE WASHDC 4219

~~CONFIDENTIAL~~ BRUSSELS 00695

E.O. 11652: GDS
TAGS: TECH ENRG, BE
SUBJECT: PHYSICAL SECURITY REVIEW OF MOL NUCLEAR FACILITY

REF: (A) STATE 4984; (B) 77 BRUSSELS 14019

1. EMBOFF DISCUSSED MOL PHYSICAL SECURITY QUESTIONS JANUARY 12 WITH VANDENBOSCH, DIRECTOR OF NUCLEAR SECURITY AT MINISTRY OF JUSTICE. THE INFORMATION HE PROVIDED IS KEYED TO THE UPDATE PROVIDED IN REF (B):

2. WITH RESPECT TO COMMUNICATIONS FACILITIES AT MOL (SEE POINTS 3 AND 4 REF B), VANDENBOSCH SAID THAT THE IMPROVED --BUT STILL TEMPORARY--RADIO CONNECTION HAS BEEN INSTALLED AND TESTED SUCCESSFULLY. INSTALLATION OF THE NEW TRANSMITTER WITH SPECIAL SELECTED FREQUENCIES HAS BEEN DELAYED BUT VANDENBOSCH NOW EXPECTS IT TO BE INSTALLED WITHIN NEXT THREE MONTHS.

3. BECAUSE BELGIANS DID NOT SIGN PROCESSING CONTRACT WITH NUKEM UNTIL DECEMBER, [illegible] FACILITY HAS NOT PET NOT YET BEGUN PROCESS OF TRANSFORMING FUEL PLATES (POINT 5 REF B) AS RESULT, FUEL PLATES WILL NOT ARRIVE AT MOL BEFORE SUMMER OF 1978.

4. RADAR INSTALLATION (POINT 9) HAS BEEN COMPLETED AND IS IN OPERATION. VANDENBOSCH SAYS THAT CLOSED-CIRCUIT TV SYSTEM CONNECTED TO GUARD FACILITY HAS BEEN ORDERED TO COMPLEMENT THE PHOTOCELL AND RADAR INSTALLATIONS ALREADY IN PLACE. TV SYSTEM NOT EXPECTED TO BE INSTALLED AND IN OPERATION PRIOR TO MARCH/APRIL 1978.

5. EMBOFFS NOW IN PROCESS OF ARRANGING ORIENTATION VISIT TO MOL FACILITY DURING WEEK OF FEBRUARY 6-10. APART FROM CHECKING SECURITY UPGRADING MEASURES OUTLINED IN REF B AND PREVIOUS, ARE THERE ANY OTHER SECURITY MEASURES OR PROCEDURES THAT DEPARTMENT OR DOE WOULD LIKE VERIFIED DURING OUR VISIT? CHAMBERS

full Religion / Phys. Sec
1/12/78

ICS-6287

J. R. SHEA - Room 3103 - MNBC

istinghouse
ctric Corporation

Water Reactor
Divisions

Water Reactor Divisions Marketing
International Operations

Box 1918
Pittsburgh Pennsylvania 15230

MG

ovember 29, 1977

r. J. Shea
. S. Nuclear Regulatory Commission
ashington, DC 20555

ubject: Export License Application XSNM-394 S-391
Mixed Oxide Fuel for NOK

ear Mr. Shea:

e have been advised by your office that the subject application is still
n the State Department.

e are concerned that unless the State Department releases the application
o the Nuclear Regulatory Commission immediately, you will not have
ufficient time to complete the process and issue the license in time.
ecause of shipping and government required security arrangements, we must
ave the license no later than December 1, 1977 in order to meet our
ommitted ship date of December 5, 1977 from Westinghouse at Cheswick,
ennsylvania.

estinghouse is committed to have the fabricated fuel rods, which used the
OK furnished material, to the FBFC factory in Dessel, Belgium for further
ssembly by the last week of December, 1977. Failure of Westinghouse to
eet this commitment would jeopardize both the FBFC open shop capacity
nd the delivery to the NOK site of the final fuel assemblies in time to
eet the next plant refueling (early 1978).

Due to the critical nature of this situation, any efforts you can exert to expedite the issuance of the export license will be greatly appreciated.

Very truly yours,

W L Boettinger

W. L. Boettinger, Manager
International Customer Services

/cg

cc: M. Guhin - NRC
D. Hoyle - State Department

EMBASSY OF SWITZERLAND
CHWEIZERISCHE BOTSCHAFT
AMBASSADE DE SUISSE

WASHINGTON D.C. 20008,
2900 Cathedral Avenue N.W.
Telephone 462-1811/7

ef.: 651.513 NOK - CF/mh

January 20, 1978

Dr. James Shea
Director
Nuclear Regulatory Commission
International Programs
Washington, D.C. 20555

BY HAND

Dear Dr. Shea,

Following our telephone conversations of yesterday and this morning, it is my pleasure to send you herewith a copy of the "NOK Mixed Oxide Fuel Fabrication Schedule" prepared by Westinghouse.

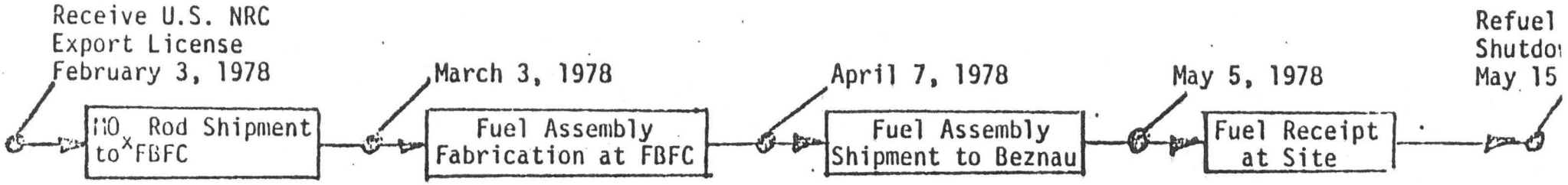
If the deadlines indicated on this schedule are missed, it will be impossible to include the four mixed oxide fuel assemblies covered by license XSNM-954 as part of the annual refueling of the Beznau MWe PWR nuclear power plant (core size of Beznau I is 121 assemblies). As a result, this particular NOK testing and research program would be jeopardized for this year.

Sincerely yours,

C Favre

Dr. C. Favre
Scientific Counselor

Encl.



Apply for MB-10 Form

Apply for Swiss Import License

Arrange for Guard Service for Transport Within the U. S. and at Port of Export

Arrange for Shipment with Domestic Carrier

Arrange for and Book Ocean Carrier

Obtain Lettered Ocean Sea Container

Rental of Equipment Needed to Load MO-1 Container into Sea Container

Final Accountability Calculation

Notification to NRC of Fuel Rod Movement

Arrange Shipment with European Carrier

Arrange for Guard Service in Europe

Load MO-1 Container into Sea Container

- Arrange for Guards at FBFC
- Fixture Arrangement to Make NOK Type Fuel
- Preparation of Personnel to Make NOK Type Fuel
- Arrange for W Q.C. Personnel at FBFC for Fabrication Process
- Arrange for NOK Personnel to be Present for Assembly Fabrication
- Unpacking MO-1 Shipping Container Which FBFC has Never Done
- Preparation of MO-1 Container and Packing Materials to Ship Completed Fuel Assys.
- Fabrication of MO$_x$ Fuel Assemblies

- Arrange for Guard Service
- Arrange for Services of Fuel Carrier
- Accountability and Shipping Documentation Prepared
- Fuel Assemblies Loaded into MO-1 Container
- All Transport Permits Obtained
- Transport of Fuel Assemblies From FBFC to Beznau

- Unload Fuel Assemblies at Beznau
- Conduct Fuel Receivin Inspection at Beznau
- Receipt of Uranium Dioxide Fuel and Receiving Inspection

The Ambassador of Switzerland

Washington, D.C. January 20, 1978

Dear Mr. Chairman:

May I be allowed to submit to you personally a subject that is of prime importance to my Government and also of considerable interest to me. It pertains to the export of advanced nuclear fuel for research purposes. Together with my Scientific Counselor, Dr. Christian Favre, whom you know, I have devoted much attention to this question. As you may recall, I had the honor and privilege to head the Swiss delegation to the International Nuclear Fuel Cycle Evaluation Organizing Conference, held in Washington, D.C., October 19-21, 1977. On that occasion I had an opportunity to have a valuable exchange of views with you on nuclear and non-proliferation policy. Our present concern is the following:

On June 9, 1976, Westinghouse Electric Corporation applied for a license (NRC Reference XSNM-954) for mixed plutonium and natural uranium dioxide to be used in the fabrication of four fuel assemblies. These four elements

e Honorable
seph M. Hendrie
irman of the
. Nuclear Regulatory Commission
7 H Street, N.W.
shington, D.C. 20555

are intended for installation, during the next refueling in May 1978, in region 9 of the Beznau I nuclear power plant in Switzerland. Indeed, the owners and operators of the power station, Nordostschweizerische Kraftwerke AG (NOK) which is essentially controlled by public authorities, have developed an in-depth research program on mixed oxide-bearing fuel assemblies aimed at gaining first-hand experience and evaluating various characteristics of this type of fuel.

By letter of January 17, Westinghouse transmitted to my Scientific Counselor a revised fabrication schedule for the NOK mixed oxide, from which all the contingencies contained in the earlier schedule are removed. Westinghouse at the same time stressed that, in view of the rapidly passing time, it will be extremely difficult for the company to have the fuel on site by May 15 even if the license is received prior to February 3. If this deadline is not met, it will be impossible to include the four mixed oxide elements in the regular, annual refueling of this 350 MW_e PWR reactor, in which case the research program of NOK will be jeopardized for this year.

The present and future information acquired from the NOK research program has and will provide valuable additional data for the Swiss utilities and the Swiss nuclear regulatory authorities. The integration of these data in

the Swiss contributions to INFCE is anticipated. The findings are primarily relevant to point 4c of the INFCE terms of reference.

> "4) Reprocessing, Plutonium Handling, Recycle
>
> 4c. Recycle in thermal reactors
> - study of the technological, economic, environmental and energy aspects of the concept on an industrial scale;
> - safeguards aspects specific to recycling;
> - possible uranium-only recycle; "

However, meaningful scientific and technical results can only be obtained if we have at our disposal the fuel to perform the programmed tests.

Among other considerations, I emphasized in my opening statement to the INFCE Organizing Conference the importance for my country of a continuous research effort on nuclear fuels in these words:

> " In order to insure a substantial and effective contribution by Switzerland to the INFCE evaluation, it is essential that its research teams, working on advanced nuclear projects, be able to continue their work. It is ultimately these groups that will be responsible for the Swiss technical contributions. Research teams of high scientific caliber can only be kept together if the prospect of an interesting and challenging program can be sustained. In the field of advanced nuclear fuel, this means availability of highly enriched uranium and plutonium in research quantities. Uncertainties in this respect may lead to the disbanding of research teams which will jeopardize the prospects of a Swiss contribution to INFCE. "

These remarks were, I believe, well received and reflected in the unanimously accepted final communique:

> " The evaluation will be carried out in a spirit of objectivity, with mutual respect for each country's choices and decisions in this field, without jeopardizing their respective fuel cycle policies or international cooperation, agreements, and contracts for the peaceful use of nuclear energy, provided that agreed safeguards measures are applied. "

Taking into account that the license application was filed on June 9, 1976 as well as the reasons mentioned above, I herewith appeal to you to review the present status of export license application XSNM-954, hoping and trusting that the license can be issued before February 3 to allow Westinghouse to deliver the four fuel assemblies on time so that the physical testing of the mixed oxide can begin in June 1978.

I am at your disposal, as is my Scientific Counselor Dr. Favre, to provide any further information you may need concerning this particular license or on nuclear energy in Switzerland in general.

Wit best personal regards,

Sincerely yours,

Raymond Probst

Copy for information to:

The Honorable Gerald C. Smith
Ambassador at Large
U.S. Special Representative for
Non-Proliferation Matters
U.S. Department of State
Washington, D.C. 20520

Dr. Joseph S. Nye
Deputy to the Undersecretary for
Security Assistance, Science
and Technology
U.S. Department of State
Washington, D.C. 20520