# POLICY ISSUE NOTATION VOTE

May 8, 2001 SECY-01-0081

**FOR**: The Commissioners

**FROM**: Janice Dunn Lee, Director

Office of International Programs

**SUBJECT**: PROPOSED LICENSE TO EXPORT URANIUM OXIDE REFERENCE

MATERIALS TO UKRAINE FOR USE AS CALIBRATION STANDARDS FOR SAFEGUARDS VERIFICATION MEASUREMENTS (APPLICATION

NO. XSNM03174)

PURPOSE:

To request Commission approval of a license for the U.S. Department of Energy (DOE) to export to the Ukraine 1.75536 kilograms of uranium containing 0.970129 kilograms of U-235 enriched to a maximum of 93.18 percent in the form of uranium oxide reference materials for use at the Kiev Institute for Nuclear Research. The application is being referred to the Commission in accordance with 10 CFR 110.40(b)(5) because this is the initial export to Ukraine under the U.S.-Ukraine Agreement for Peaceful Nuclear Cooperation.

#### **DISCUSSION:**

On November 21, 2000, DOE applied for a license (XSNM03174, Attachment 1) to export to Kiev Institute for Nuclear Research in the Ukraine 1.77 kilograms of uranium containing 0.975 kilograms of U-235 at various enrichments up to a maximum of 93.18 percent in the form of uranium oxide as Certified Reference Material - CRM 146. The application was later revised to reflect a total quantity of 1.75536 kg U and .970129 kg U-235. The reference materials would be supplied by the New Brunswick National Laboratory under the DOE Materials Protection Control and Accounting (MPC&A) Program to the Institute, which is a part of the Ukrainian National Academy of Sciences. Specifically, the reference materials will be used for calibration of analytical instruments and/or certification of analytical method reliability used in nondestructive assay measurement of uranium enrichments to verify nuclear material inventories for safeguards reporting.

In response to NRC's request for views on the proposed export, the Executive Branch, in a letter, dated April 9, 2001 (Attachment 2), recommends that the license be approved. The letter notes that the proposed export to the Ukraine would take place pursuant to the U.S.-Ukraine

CONTACT: JEOwens, OIP

415-3684

Agreement for Peaceful Nuclear Cooperation which entered into force on May 28, 1999, as confirmed in the assurance letter from the Embassy of Ukraine dated March 22, 2001 (Attachment 3). The Executive Branch judges that the proposed export will not be inimical to the common defense and security of the United States, and is consistent with the provisions of the Atomic Energy Act of 1954, as amended by the Nuclear Non-Proliferation Act of 1978.

Inasmuch as this is the first export of nuclear material to Ukraine since the passage of the Nuclear Non-Proliferation Act of 1978, the Executive Branch has completed a detailed analysis as to how the requirements of Section 126 a.(1) of the Atomic Energy Act are met, including the specific criteria of Sections 127 and 128, as well as certain additional factors, envisaged by Section 126 a(1) (Attachment 4).

#### **International Safeguards**

Ukraine is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), having deposited its instrument of accession ratification on December 5, 1994, and its Agreement with the International Atomic Energy Agency (IAEA) to maintain safeguards on all its peaceful nuclear activities entered into force on January 22, 1998 (INFCIRC/550). As such, Ukraine accepts safeguards on all source and special nuclear material in its peaceful nuclear activities.

The latest IAEA Annual Report does not list a Facility Attachment as under negotiation or in force for the Kiev Institute in Ukraine. However, on the basis of information provided by the IAEA, we understand that the IAEA is conducting effective ad hoc inspections there on a quarterly basis.

#### **Physical Protection**

Although NRC staff have not performed a physical protection information exchange visit with Ukraine, NRC staff expect that the physical protection system in Ukraine now meets the international guidance (INFCIRC/225, Rev.4). Ukraine has actively worked with the international support programs to improve the protection of its nuclear materials. DOE upgrades to Ukrainian HEU facilities were completed in 1998. Safeguards support to the Ukrainian regulatory authority and other Ukrainian facilities is still being provided by the U.S. and other countries. Ukraine's intent to implement effective physical protection is evidenced through visits by its experts to other countries to observe and discuss physical protection measures and by participation in international meetings enhancing the physical protection guidance and standards. Most importantly, Ukraine requested the IAEA to perform a comprehensive review of its physical protection program, to compare it to international guidelines and practices, and to make recommendations for improvements. This evaluation is currently scheduled for June 2001. The proposed export of four sets of HEU nondestructive analysis measurement standards will further enhance the Ukrainian capability to protect and account for the HEU they possess.

#### **Review of Other Information**

OIP has reviewed available State Department telegrams and other information and has identified no basis for concern about Ukraine's commitment to full-scope international safeguards or its fulfillment of obligations to the U.S. under the U.S.-Ukraine Agreement for Peaceful Nuclear Cooperation.

#### **CONCLUSION**:

The staff concurs with the Executive Branch judgment that the proposed export would not be inimical to the common defense and security of the United States and is consistent with the provisions of the Atomic Energy Act of 1954, as amended by the Nuclear Non-Proliferation Act of 1978. The Office of the Executive Director for Operations concurs. The Office of General Counsel has no legal objection.

#### **RECOMMENDATION:**

That the Commission authorize the issuance of the requested license to DOE.

/RA by Ronald D. Hauber Acting for/

Janice Dunn Lee, Director Office of International Programs

Attachments: 1. 11/21/00 DOE Export License Application and Revision (XSNM03174)

2. 04/09/01 DOS Letter R.J.K. Stratford to J. Dunn Lee

3. 03/22/01 Embassy of Ukraine Letter. From S. Korsunsky to A.M. Scheinman

4. Executive Branch Export License Application Analysis

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NOTE: New Brunswick Laboratory is a Government-Owned and Operated Research Laboratory

20. The applicant certifies that this applic	ation is prepared in conform	ity with Title 10. Code of	f Federal Regulations, and that	all information in this application is correct to
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AUTHORIZED OFFICIAL

NRC FORM 7 (3-91)

gary Ella Downey

b.TITLE Reference Material Specialist

26. The applicant certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information in this application is correct to

b. TITLE Nuclear Reference Material

**Specialist** 

a. SIGNATURE Mary Ellen Downey

the best of his/her knowledge.

**AUTHORIZED OFFICIAL** 

NRC FORM 7 (3-91)

U.S. Department of Energy New Brunswick Laboratory Attn: Mary Ellen Downey 9800 S. Cass Ave., D-350 Argonne, IL 60439

# **END-USE STATEMENT**

THE URANIUM REFERENCE MATERIALS (CRM 146) ARE SUPPLIED UNDER THE DOE MPC&A ASSISTANCE PROGRAM. THESE CRM 146 ARE INTENDED FOR USE AS CALIBRATION STANDARDS IN NONDESTRUCTIVE ASSAY (NDA) MEASUREMENTS OF URANIUM ENRICHMENT. THESE STANDARDS WILL BE USED BY STAFF AT THE FACILITIES IN UKRAINE TO VERIFY THEIR NUCLEAR MATERIAL INVENTORY IN ORDER THAT THEY MAY BE ABLE TO MEET COMMITMENTS TO THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA).

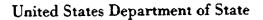
DR. CHARLES T. ROCHE
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# **USER FACILITY**

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NATIONAL ACADEMY OF SCIENCE OF UKRAINE
PORSPEFT NAUKI, 47
KIEV-28, UKRAINE 252028

1991 AT 1 20 TO





Washington, D.C. 20520

April 9, 2001

Ms. Janice Dunn Lee Director, International Programs United States Nuclear Regulatory Commission Rockville, Maryland

Dear Ms. Lee:

I refer to the letter from your office dated November 29, 2000, requesting the views of the Executive Branch as to whether issuance of an export license in accordance with the application hereinafter described meets the applicable criteria of the Atomic Energy Act of 1954, as amended:

NRC No. XSNM03174—The U.S. Department of Energy (DOE) has applied for authorization to export to Ukraine 970.129 grams of U-235 contained in 1,755.36 grams of uranium in the form of uranium oxide reference materials at various enrichments up to a maximum 93.18 percent. The reference materials are being supplied by the New Brunswick National Laboratory under the DOE Materials Protection Control and Accounting (MPC&A) Program to the Kiev Institute for Nuclear Research of the Ukrainian National Academy of Sciences. The reference materials will be used as calibration standards for uranium enrichment measurements to verify nuclear material inventories for safeguards reporting.

It is the judgment of the Executive Branch that the proposed export will not be inimical to the common defense and security of the United States, and is consistent with the provisions of the Atomic Energy Act of 1954, as amended.

The proposed export to Ukraine would take place pursuant to the 1999 Agreement for Cooperation Between the United States and Ukraine, as confirmed in a letter from the Embassy of Ukraine dated March 22, 2001, a copy of which is enclosed.

On the basis of the foregoing, the Executive Branch recommends that the license be issued.

Sincerely,

Richard J.K. Stratford

Director

Nuclear Energy Affairs

Enclosure: as stated.

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# Посольство України у Сполучених Штатах Америки Embassy of Ukraine

3350 M Street N.W., Washington, D.C. 20007 Tel.: (202) 333-0606, FAX (202) 333-0817 http://www.ukremb.com

March 22, 2001

Adam M. Scheinman
Director
Office of Nuclear Transfer and Supplier Policy
Office of Arms Control and Nonproliferation

Dear Mr. Scheinman,

In regard to your requests of December 19, 2000 and March 6, 2001 concerning the export license XSNM3174 on uranium export to Ukraine I was advised to inform you about the following.

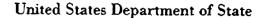
- A The transfer of material, as identified on the license application is in line with all the terms and conditions of the Agreement for Cooperation in civil uses of atomic energy between the Government of Ukraine and the Government of the United States;
- B The Scientific Center "Institute for Nuclear Research" of the National Academy of Sciences of Ukraine is authorized to receive and possess the material;
- C The Scientific Center "Institute for Nuclear Research" of the National Academy of Sciences of Ukraine has been preparing and translating into English all necessary documents for the shipment and customs. The originals will be soon sent to the Embassy to be passed to the DOE:
- D To facilitate the customs formalities in Ukraine, in the documents which will accompany the shipment it is necessary to mention that it is subject to all the terms and conditions of the Agreement between the Department of Defense of the USA and the State Committee of Ukraine on Nuclear and Radiation Security on development of state system of accounting, control and physical defense of nuclear materials to prevent proliferation of nuclear weapons from Ukraine which was signed on December 18, 1993 and continued on July 7, 1999.

Now I would suggest receiving and sending you the mentioned above documents which will only serve as a requested written confirmation from the responsible governmental agency of Ukraine.

Dr. Sergiy Korsunsky

Counselor

Embassy of Ukraine





Washington, D.C. 20520

#### BUREAU OF NONPROLIFERATION AFFAIRS

# MEMORANDUM FOR JANICE DUNN LEE NUCLEAR REGULATORY COMMISSION

Enclosed is an Executive Branch analysis covering the proposed export to Ukraine of 970.129 grams of U-235 contained in 1,755.36 grams of uranium in the form of uranium oxide reference materials enriched to a maximum 93.18 percent. The reference materials are being supplied by the New Brunswick National Laboratory under the Department of Energy Materials Protection Control and Accounting (MPC&A) Program to the National Academy of Science of Ukraine, Kiev Institute for Nuclear Research. The reference materials will be used as calibration standards for safeguards verification measurements.

As stated in my letter of April 9, 2001, the Executive Branch, on the basis of its review of this case, has concluded that the requirements of the Atomic Energy Act, as amended, have been met and that the proposed export would not be inimical to the common defense and security of the United States. Ukraine has adhered to the provisions of the U.S.-Ukraine Agreement for Cooperation.

Therefore, the Executive Branch recommends issuance of the requested export license.

Richard J. K. Stratford

Director

Nuclear Energy Affairs

Enclosure: analysis.

### EXPORT LICENSE APPLICATION ANALYSIS

#### XSNM03174

Destination:

Ukraine

Transaction:

The Department of Energy of behalf of New Brunswick Laboratory has applied for authorization to export to Ukraine 970.129 grams of U-235 contained in 1,755.36 grams of uranium in the form of uranium oxide reference materials enriched to a maximum of 93.18 percent. The reference materials are being supplied by the New Brunswick National Laboratory under the Department of Energy Materials Protection Control and Accounting (MPC&A) Program to the National Academy of Science of Ukraine, Kiev Institute for Nuclear Research. The materials will be used as calibration standards in nondestructive uranium enrichment measurements to verify nuclear materials inventories for safeguards reporting.

Date of Application: November 21, 2000

The proposed export will be subject to the terms and conditions of the Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Ukraine Concerning Peaceful Uses of Nuclear Energy which entered into force on May 28, 1999. This was confirmed by letter from the Embassy of Ukraine, dated [DATE], a copy of which is enclosed with the Executive Branch cover letter.

Ukraine has adhered to all provisions of that Agreement for Cooperation.

#### 2. Extent to Which Export Criteria Are Met

#### A. Section 127 Criteria

As provided in Section 127 of the Atomic Energy Act, as amended, the following criteria govern exports for peaceful nuclear uses from the United States of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology:

#### Criterion (1)

"IAEA safeguards as required by Article III(2) of the Treaty will be applied with respect to any such material or facilities proposed to be exported, to any such material or facilities previously exported and subject to the applicable agreement for cooperation, and to any special nuclear material used in or produced through the use thereof."

Ukraine is a Party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), having deposited its instrument of accession ratification on December 5, 1994 and its Agreement with the International Atomic Energy Agency to maintain safeguards on all its peaceful nuclear activities entered into force on January 22, 1998 (INFCIRC/550).

Article 9 "Safeguards" of the U.S. - Ukraine Agreement for Cooperation provides that safeguards will be applied to material transferred or used in or produced through the use of transferred material, equipment or components.

Therefore, it is the Executive Branch view that criterion (1) is met.

#### Criterion (2)

"No such material, facilities, or sensitive nuclear technology proposed to be exported or previously exported and subject to the applicable agreement for cooperation, and no special nuclear material produced through the use of such materials, facilities, or sensitive nuclear technology, will be used for any nuclear explosive device or for research on or development of any nuclear explosive device."

As a non-nuclear weapon state Party to the NPT, Ukraine is bound not to acquire, or manufacture nuclear explosive devices for any purpose.

Article 8 "No Explosive or Military Applications" of the U.S. Ukraine Agreement for Cooperation provides that material, equipment or components transferred and material produced through the use of such material equipment or components shall not be used for any nuclear explosive device, for research on or development of any nuclear explosive device, or for any military purpose.

It is therefore the Executive Branch view that criterion (2) is met.

"Adequate physical security measures will be maintained with respect to such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof. Following the effective date of any regulations promulgated by the Commission pursuant to Section 304(d) of the Nuclear Non-Proliferation Act of 1978, physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the applicable regulations."

The Executive Branch has assessed the physical security measures maintained by the Government of Ukraine with respect to nuclear material and determined that they are adequate for the material covered by this license application.

Article 7 "Physical Protection" of the U.S.-Ukraine Agreement for Cooperation provides that adequate physical protection shall be maintained with respect to source or special material and equipment transferred pursuant to the Agreement and special nuclear material used in or produced through the use of material or equipment so transferred. Article 7 further provides that these measures shall as a minimum provide protection comparable to the recommendation set forth in the current version of IAEA Document INFCIRC/225, concerning the physical protection of nuclear material.

Therefore it is the view of the Executive Branch that criterion (3) is met.

#### Criterion (4)

"No such materials, facilities or sensitive nuclear technology proposed to be exported, and no special nuclear material produced through the use of such material will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained for such retransfer. In addition to other requirements of law, the United States may approve such retransfer only if the nation or group of nations designated to receive such retransfer agrees that it shall be subject to the conditions required by this section."

Article 5 "Storage and Retransfers" of the U.S.-Ukraine Agreement for Cooperation provides that material, equipment and components transferred to pursuant to the Agreement and any special nuclear material produced through the use of any such material or equipment shall not be retransferred beyond the recipient party's territorial jurisdiction unless the parties agree.

Therefore it is the Executive Branch view that criterion (4) is met.

#### Criterion (5)

"No such material proposed to be exported and no special nuclear material produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material removed from a reactor shall be altered in form or content, unless the prior approval of the United States is obtained for such reprocessing or alteration."

Article 6 "Reprocessing and Enrichment" of the U.S.-Ukraine Agreement for Cooperation provides that material transferred pursuant to the Agreement or produced through the use of material or equipment so transferred shall not be reprocessed, altered in form or content, or further enriched unless the parties agree.

Therefore, it is the view of the Executive Branch that criterion (5) is met.

#### Criterion (6)

"No such sensitive nuclear technology shall be exported unless the foregoing conditions shall be applied to any nuclear material or equipment which is produced or constructed under the jurisdiction of the recipient nation or group of nations by or through the use of any such exported sensitive nuclear technology."

The proposed export does not involve the transfer of sensitive nuclear technology. Criterion (6) is, therefore, not applicable.

#### B. Section 128 Criterion

Section 128 a. (1) of the Atomic Energy Act, as amended, establishes the following additional criterion: "As a condition of continued United States export of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology to non-nuclear-weapon states, no such export shall be made unless IAEA safeguards are maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of the export."

Since Ukraine is a Party to the NPT and has entered into an agreement with the IAEA to maintain safeguards on all of its peaceful nuclear activities, it is the view of the Executive Branch that this criterion is met.

# 3. Additional Factors

The Executive Branch believes the framework of commitments, assurances, and safeguards is adequate for the purposes of this export.

## 4. Inimicality Judgment

Based on review of the proposed export, it is the judgment of the Executive Branch that the proposed export will not be inimical to the common defense and security and that the requested license should be issued.