

APPLICATION FOR LICENSE TO EXPORT NUCLEAR MATERIAL AND EQUIPMENT

ESTIMATED \$ IN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 1 HOUR. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0027), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

REVISED

(See Instructions on Reverse)

Revised

1. APPLICANT'S USE	2. DATE OF APPLICATION 2-11-2000	3. APPLICANT'S REFERENCE TNY: 544	2. NRC'S USE	a. DOCKET NO. 11004440	b. LICENSE NO. XSNMO2611
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3. APPLICANT'S NAME AND ADDRESS a. NAME: Transnuclear, Inc. b. STREET ADDRESS: 4 Skyline Drive c. CITY: Hawthorne STATE NY ZIP CODE 10532 d. TELEPHONE NUMBER: 914-347-5064			4. SUPPLIER'S NAME AND ADDRESS (Complete if applicant is not supplier of material) a. NAME: DOE c/o Lockheed Martin Energy Systems, Inc. b. STREET ADDRESS: Y-12 Plant, c. CITY: Oak Ridge STATE TN ZIP CODE 37830		
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5. FIRST SHIPMENT SCHEDULED To be determined	6. FINAL SHIPMENT SCHEDULED N/A	7. APPLICANT'S CONTRACTUAL DELIVERY DATE same as item 5	8. PROPOSED LICENSE EXPIRATION DATE 5 years from date of issue	9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (if known) To be determined
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10. ULTIMATE FOREIGN CONSIGNEE a. NAME: EURATOM - Joint Research Center b. STREET ADDRESS: Petten Establishment - P.O. Box 2 c. CITY: 1755 ZG Petten d. Country: The Netherlands	
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11. ULTIMATE END USE (include plant or facility name) To be used as fuel in the HFR/Petten reactor in Petten, The Netherlands (see attached end use statement, Reactor check list and HFR uranium supply history) 11a. DATE REQUIRED

12. INTERMEDIATE FOREIGN CONSIGNEE a. NAME: CERCA b. STREET ADDRESS (Facility Site) c. CITY: Romans-sur-Isere d. COUNTRY: France	
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13. INTERMEDIATE END USE For conversion and fabrication of fuel elements 13a. DATE REQUIRED

14. INTERMEDIATE FOREIGN CONSIGNEE a. NAME: Transnucleaire, S.A. b. STREET ADDRESS (Facility Site): 9-11 Rue Christophe Colomb c. CITY: 75008 Paris, France d. COUNTRY: USA	
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15. INTERMEDIATE END USE For transport purposes only. 15a. DATE REQUIRED
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16. COM CODE	17. DESCRIPTION <i>(include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components)</i>	18. MAX. ELEMENT WEIGHT	19. MAX. WT. %	20. MAX. ISOTOPE WEIGHT	21. UNIT
	Uranium in the form of metal, enriched to 93.45 w/o maximum 37.587 U / 35.125 U - 235 Per year for four (4) years	150.348 (U)	93.45	140.500 (U-235)	Kg

22. COUNTRY OF ORIGIN - SOURCE MATERIAL To be advised later *	23. COUNTRY OF ORIGIN - SNM WHERE ENRICHED OR PRODUCED USA	24. COUNTRIES WHICH ATTACH SAFEGUARDS (if known) EURATOM
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25. ADDITIONAL INFORMATION ON CONSIGNEES, END USES, AND PRODUCT DESCRIPTION (Use separate sheet if necessary)
(*) At this time it is unknown whether there will be any Australian or Canadian Origin material, however, Transnuclear, Inc will advise NRC if such is the case.

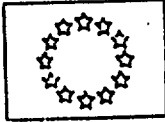
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26. The applicant certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information in this application is true to the best of his/her knowledge.

27. AUTHORIZED OFFICIAL	a. SIGNATURE: Matthew George	b. TITLE: Traffic Coordinator.
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REVISED

Dist made 2-24-00



EUROPEAN COMMISSION
DIRECTORATE GENERAL JRC
JOINT RESEARCH CENTRE
Institute for Advanced Materials
from The Director

Petten, 01.02.2000
AG/et/2000.02.01.01

TO WHOM IT MAY CONCERN

END USE STATEMENT

The undersigned certifies that the following maximum quantities, i.e.

149.60 kg of uranium *

93.30 w/o U-235 enriched

139.60 kg of U-235 content **

in the form of U-metal

to be furnished under the EURATOM/NUKEM/DOE Uranium Enrichment Services Contract will be used as fuel in the HFR Reactor at the Joint Research Centre, Petten, The Netherlands.

CERCA, Romans, France shall perform the manufacturing of the fuel elements.

We authorise Transnuclear, Inc., Hawthorne, N.Y., USA, to apply for the relevant U.S. export licence.

Date : 1 February 2000

Signature :

K. Törrönen
For the European Commission

* quantity for 4 years; 37.40 kg of uranium per year
** quantity for 4 years; 34.90 kg of U-235 content per year

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EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
INSTITUTE FOR ADVANCED MATERIALS

HFR Unit

Petten, 01.02.2000
AG/eV/2000.02.01.01

XSNM

CHECKLIST FOR USE IN REVIEW OF REQUESTS FOR HEU
TO DETERMINE TECHNICAL AND ECONOMIC JUSTIFICATION

1. Name of reactor and facility
High flux materials testing reactor, HFR
2. Location
EC, Joint Research Centre Petten (The Netherlands)
3. Quantity of uranium requested
149.60 kg U_{tot} as metal
4. Enrichment in the isotope U-235
93.3%
5. Quantity of uranium requested
139.60 kg ²³⁵U
6. Type of fuel element and form of uranium
Plate-type MTR element, UAl_x
7. Current reactor power level
45 MW
8. Duty factor, average burn-up
78% annual availability
50% average burn-up

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- 9a. Current core loading
Typically : 12.5 kg ²³⁵U
- 9b. Amount of fuel per element
0.45 kg ²³⁵U in a fresh standard fuel element
0.31 kg ²³⁵U in a fresh control rod follower
- 9c. Number of elements in core
33 (plus 6 control rods)
- 9d. Average core life
25.0 days
- 9e. Active core dimensions
53 x 61 x 60 cm
- 9f. Neutron flux
Thermal $3 \times 10^{14} \text{ cm}^{-2}\text{s}^{-1}$
Fast > 0.1 MeV $5 \times 10^{14} \text{ cm}^{-2}\text{s}^{-1}$
- 10. Annual fuel usage
16 kg ²³⁵U net
- 11. Annual spare fuel requirement, if any
Nil
- 12. Plans to increase, decrease reactor power level
None
- 13. Estimated annual supply of current fuel request
34.90 kg ²³⁵U
- 14. Required manufacturer's working stock, if any,
included in this request
5.65 kg ²³⁵U per annum at CERCA plant, Romans-sur-Isère, France
- 15. Fabrication loss, if any,
included in this request
0.42 kg ²³⁵U per annum
- 16. Name of fuel fabricator : CERCA
- 17. Location
CERCA, Romans-sur-Isère, France
- 18. Inventory, as per 31 December 1999
- 18a. Quantity of non-useable scrap
7.55 kg ²³⁵U (at CERCA)

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- 18b. Quantity of fabricated un-irradiated stored fuel available
33.50 kg ²³⁵U (in HFR vault)
- 18c. Quantity of un-irradiated non-fabricated stored fuel
(which will be available for fabrication planned or in process)
8.36 kg ²³⁵U (at CERCA)
- 18d. Amount of spent fuel stored
354.31 kg ²³⁵U (in HFR pond)
23.85 kg ²³⁵U (in 2 MTR-2 containers)
19. Date of which current inventory, including a, b, c, will be expended
May 2001
20. Date current requested fuel will be needed for reactor operation
May 2001, first annual supply
21. Date current requested fuel will be needed by fabricator
May 2000, first annual supply
- 22a. Time taken for shipment from USA to fabricator
1 to 2 months
- 22b. Lead time for ordering in USA
3 to 4 months (exclusive export license processing)
23. Date at which current requested fuel will be expended
i.e. when a further HEU supply will be needed at reactor
May 2002, second annual supply (as fuel elements, delivery of HEU
to fabricator in May 2001, second annual supply)
24. History and dates of previous HEU supplies by the U.S.
See Annex I
25. Amount of fuel of U.S.-origin previously consumed during operation of the reactor
about 500 kg ²³⁵U
26. Status of LEU test programme
UMo fuel tests under preparation

ANNEX I : HFR Uranium Supply history

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ANNEX I : HFR Uranium Supply history

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18/04/91

DATE	SOURCE	KG	ENRICH	CONTRACT	LICENCE	REMARKS
19/11/63	Union Carbide	25.999	89.810	EU/HL/1-18;AG/79	OR-0344	
14/08/64	Goodyear Atomic Corp.	1.830	89.974	EU/HL/3-15;AG/79	SED-0310	
14/08/64	Goodyear Atomic Corp.	27.024	89.974	EU/HL/3-19;AG/79	OR-0329	
20/01/65	Goodyear Atomic Corp.	24.685	89.840	EU/HL/3-23;AG/79	SED-0309	
06/06/66	Goodyear Atomic Corp.	16.800	89.850	EU/HL/3-53;AG/79-7	SED-0332	
13/07/66	Goodyear Atomic Corp.	0.300	89.850	EU/HL/3-53;AG/79-7	SED-0333	
23/09/66	Goodyear Atomic Corp.	14.653	89.900	EU/HL/3-58	SED-0442	
15/03/67	Goodyear Atomic Corp.	2.450	89.840	EU/HL/3-68	SED-0784	
13/05/68	Goodyear Atomic Corp.	14.492	89.960	EU/HL/3-98;AG/79-12	SED-0338	
27/09/68	Goodyear Atomic Corp.	4.500	89.870	EU/HL/3-10;AG/79-13	SED-0377	
19/03/69	Goodyear Atomic Corp.	23.922	89.850	EU/HL/3-12;AG/79-14	OR-0346	
22/12/69	Goodyear Atomic Corp.	3.000	90.050	EU/HL/3-14	SED-0343	
29/05/70	Goodyear Atomic Corp.	15.691	90.040	EU/HL/9-8;AG/79-16	SED-0344	
06/01/71	Goodyear Atomic Corp.	5.993	90.060	EU/HL/9-18;AG/79-19	SED-0349	
19/03/71	Goodyear Atomic Corp.	10.976	89.940	EU/HL/9-21;AG/79-20	SED-0351	
20/09/71	Goodyear Atomic Corp.	29.993	89.830	EU/HL/9-28	SED-0352	
08/02/72	Goodyear Atomic Corp.	3.501	89.930	EU/HL/9-33	SED-0799	
31/10/74	Goodyear, Piketon	14.950	93.190	AT(49-14)UES/EU/105;AGT/105		
07/08/75	Goodyear Atomic Corp.	33.107	93.110	AT(49-14)UES/EU/139;AGT/139	XSNM-0680	
16/10/75	Goodyear Atomic Corp.	4.893	93.110	AT(49-14)UES/EU/139;AGT/139		
05/12/75	Goodyear Atomic Corp.	16.014	93.090	E-(49-14)UES/EU/142	XSNM-0756	
23/07/76	Goodyear, Piketon	38.000	93.230	E-(49-14)UES/EU/144		
10/03/77	Goodyear, Piketon	3.800	93.100	E-(49-14)UES/EU/144;AGT/144		
15/05/77	UNC Wood River Junction	17.500	93.070	AG/1153		
28/02/79	Goodyear Atomic Corp.	20.924	93.160	E-(40-1)4724-DUE;AG/1362	XSNM-1129	
28/02/79	Goodyear Atomic Corp.	22.556	93.160	E-(40-1)4724-DUE;AG/1362	XSNM-1149	
01/06/79	UNC Wood River Junction	18.003	92.900	AG/1282	XSNM-1212	
26/09/79	Goodyear Atomic Corp.	19.956	93.100	AT(40-1)4724-DUE;AG/1042	XSNM-1238	
23/10/80	Goodyear Atomic Corp.	19.994	93.100	4725-DUE;AG/1491	XSNM-1333	
23/10/80	United Nuclear Recovery	19.270	93.149	AG/1392/2	XSNM-1412	
10/12/81	Goodyear Atomic Corp.	15.761	93.140	AG/1597	XSNM-1632	
10/12/81	Goodyear Atomic Corp.	15.148	93.110	AG/1597	XSNM-1699	
10/12/81	Goodyear Atomic Corp.	24.951	93.130	AG/1597	XSNM-1495	
21/08/82	Goodyear Atomic Corp.	38.017	93.130		XSNM-1824	

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ANNEX I : HFR Uranium Supply history
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DATE	SOURCE	KG	ENRICH	CONTRACT	LICENCE	REMARKS
22/05/84	USA	18.000	93.140	AG/1693	XSNH-1975	Ex-GE material
18/01/85	Goodyear Atomic Corp.	19.957	93.100	AG/1709	XSNH-1975	
08/11/86	Goodyear Atomic Corp.	38.129	93.110	AG/2102	XSNH-2133	
06/10/88	Goodyear Atomic Corp.	37.861	93.167	AG/2102/1	XSNH-2353	
11/10/89	Goodyear Atomic Corp.	38.000	93.000	AG/2102/2	XSNH-2445	
23/10/90	Hartin Marietta	38.000	93.150	AG/2385	XSNH-2491	

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