

APPLICATION FOR LICENSE TO EXPORT NUCLEAR
MATERIAL AND EQUIPMENT (See Instructions on Reverse)

DIS/DF02

1. APPLICANT'S USE		a. DATE OF APPLICATION December 1, 1989		b. APPLICANT'S REFERENCE NUK-503		2. NRC USE		a. DOCKET NO. 11004232		b. LICENSE NO. XSNM02492			
3. APPLICANT'S NAME AND ADDRESS						4. SUPPLIER'S NAME AND ADDRESS							
a. NAME Transnuclear, Inc.						RIS U.S.D.O.E.							
b. STREET ADDRESS Two Skyline Drive						a. NAME c/o Martin Marietta Energy Systems, Inc.							
c. CITY Hawthorne				STATE NY		ZIP CODE 10532		b. STREET ADDRESS					
d. TELEPHONE NUMBER (Area Code - Number - Extension) 914-347-2345 Ext. 3056						c. CITY Oak Ridge				STATE TN		ZIP CODE 37830	
5. FIRST SHIPMENT SCHEDULED ASAP		6. FINAL SHIPMENT SCHEDULED N/A		7. APPLICANT'S CONTRACTUAL DELIVERY DATE Same as item 5		8. PROPOSED LICENSE EXPIRATION DATE Three years from date of issuance		9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known) To be determined					
10. ULTIMATE CONSIGNEE						11. ULTIMATE END USE							
a. NAME C.E.A. - Centre d'Etudes Nucleaires						(Include plant or facility name) To be used as fuel in the Orphee reactor at Commissariat a l'Energie Atomique, Paris, France (see attached end use statement and reactor checklist)							
b. STREET ADDRESS Services des Piles de Saclay						11a. EST. DATE OF FIRST USE							
c. CITY - STATE - COUNTRY Saclay, France						13. INTERMEDIATE END USE							
12. INTERMEDIATE CONSIGNEE						13a. EST. DATE OF FIRST USE							
a. NAME CERCA						For conversion and fabrication of fuel elements							
b. STREET ADDRESS						15. INTERMEDIATE END USE							
c. CITY - STATE - COUNTRY Romans, France						For transport purposes only							
14. INTERMEDIATE CONSIGNEE						15a. EST. DATE OF FIRST USE							
a. NAME Transnucleaire, S.A.													
b. STREET ADDRESS 11 bis rue Christophe Colomb													
c. CITY - STATE - COUNTRY 75008 Paris, France													
16. NRC USE		17. DESCRIPTION (Include chemical and physical form of nuclear material, give dollar value of nuclear equipment and components)				18. MAX. ELEMENT WEIGHT		19. MAX. WT. %		20. MAX ISOTOPE WT.		21. UNIT	
		Uranium, in the form of metal, enriched to 93.45 w/o maximum Uranium-235				(U) 47.356		93.45		(U-235) 44.254		Kgs	
22. COUNTRY OF ORIGIN - SOURCE MATERIAL U.S.A.				23. COUNTRY OF ORIGIN-SNM WHERE ENRICHED OR PRODUCED U.S.A.				24. COUNTRIES WHICH ATTACH SAFEGUARDS (If Known) EURATOM					
25. ADDITIONAL INFORMATION (Use separate sheet if necessary)													
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 the best of his/her knowledge.													
27. AUTHORIZED OFFICIAL		a. SIGNATURE Patricia B. Quinn				b. TITLE Traffic Coordinator							

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COMMISSARIAT A L'ENERGIE ATOMIQUE

INSTITUT DE RECHERCHE TECHNOLOGIQUE ET DE DEVELOPPEMENT INDUSTRIEL (IRDI)
DIVISION D'EXPLOITATION DES REACTEURS PROTOTYPES ET EXPERIMENTAUX

IRDI/DERPE/SPS/MTR/89-4/2

Saclay, November 29, 1989

SERVICE DES PILES DE SACLAY

XSNM02492
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To whom it may concern

END USE STATEMENT

The undersigned certify(-ies) that the following maximum quantities, i.e.

- 47.12 kg of uranium
- 93.30 w/o U-235 enriched
- 43.97 kg of U-235 content
- in the form of U-metal

furnished under the EURATOM/HKG-US/DOE Uranium Enrichment Services Contract will be used as fuel in the Orphée Reactor at Commissariat à l'Energie Atomique, Paris, France.

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

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

Date : 24/11/1989

Signature :

BALLAGNY Alain

(Head of Saclay Reactors Department)

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M02q/MTR/D40207/19/031189/grgnob

IRDI-DEPPE
SERVICE DES PILES DE SACLAY
Centre d'Etudes Nucléaires
91191 GIP SUR YVETTE Cedex
(France)

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

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1. Name of reactor and facility : ORPHEE - Experimental Research Reactor
2. Location : CMI - SACLAY (FRANCE)
3. Quantity of Uranium requested (kgU) : 47 kg
4. Enrichment in the isotope U-235 : 93,15 %
5. Quantity of uranium requested (kg U-235) : 43,78 kg
6. Type of fuel element and form of uranium : MTH Type-UAl
7. Current reactor power level (MW th) : 14 MWth
8. Duty factor, average burn-up : 30 %
- 9a. Current core loading (kg U-235) : 5,9
- 9b. Amount of fuel per element (kg U-235) : 0,84 or 0,630
- 9c. Number of elements in core : 8
- 9d. Average core life : 100 days
- 9e. Active core dimensions : 0,25 x 0,25 x 0,90 m
- 9f. Neutron flux : $3 \cdot 10^{14}$ n.cm⁻².s⁻¹
10. Annual fuel usage (kg U-235) : 15
11. Annual spare fuel requirement, if any (kg U-235) : 0
12. Plans to increase, decrease reactor power level : no

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13. Estimated annual supply of current fuel request : 15 kg ²³⁵U
14. Required manufacture's working stock, if any, included in this request (kg U-235) : 0
15. Fabrication loss, if any, included in this request (kg U-235) : 0,45
16. and 17. Names of converter and fabricator of fuel :
Converter : - D O E
Fabricator : - C E R C A
- 18a. Quantity of scrap U-235, useable, non-useable (kg U-235)
Useable : included in working stock
Non useable : 0,45
- 18b. Quantity of fabricated unirradiated stored fuel available :

kg ²³⁵U : 26,502
- 18c. Quantity of unirradiated non-fabricated stored fuel (which will be available from fabrication planned or in process) :

kg ²³⁵U : 15,0
- 18d. Amount of spent fuel stored (kg U-235) :

kg ²³⁵U : 41,175
19. Date a which current inventory, including a,b,c, will be expected :
15/10/89
20. Date current requested fuel will be needed at reactor : March 1992
21. Date current requested fuel will be needed by converter/fabricator:
January 1991.
- 22a. Time taken for shipment from USA to converter/fabricator : 8 months
- 22b. Lead time for ordering in USA : beginning of 1990.

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- 23. Date at which current requested fuel will be expended i.e., when a further HEU supply will be needed at reactor : Next licence 1993
- 24. Date at which reactor could be converted to 45 % fuel ; to 20 % fuel, including time required for licensing procedure :
ORPHEE is a unique purpose reactor.
- 25. History and dated of previous HEU supplies by the U.S. :

Licence N°	Quantity (kg U-235)	Arrival date in Europe	Observations
) XSNM 987	25,6	13.06.78	U _T = 27,01 kg
XSNM 1543	19,9	22.03.82	U _T = 15 kg
XSNM 02204	30,36	11.88	U _T = 32,6 kg
XSNM 02360	30,36	10.89	U _T = 32,6 kg

- 26. Amount of fuel of U.S. origin previously consumed during operation of reactor :

kg U 235 : 94,19 kg

- 27. Status of cooperation between reactor and Argonne National Laboratory in reduced enrichment program (RERTR) :
CEA and CERCA go on with ANL KEMTH program mainly with irradiation tests in OSIRIS reactor.
- 28. Status of agreement between reactor operator and ANL to reduce enrichment : SILOE and OSIRIS will be converted in 1992 and 1994 respectively.
- 29. Status of cooperation between reactor operator and IAEA reduced enrichment program :
CEA has no formal cooperation agreement with IAEA on this program.

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