

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY GAO
B-180226(R0362)

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

2241

1. APPLICANT'S USE		2. NRC USE		3. LICENSE NO. XSNM-2241		4. DOCKET NO. 11003788	
5. DATE OF APPLICATION 2 August 1985		6. APPLICANT'S REFERENCE TNH-463		7. SUPPLIER'S NAME AND ADDRESS (Complete if applicant is not supplier of material) U.S.D.O.E. C/O		8. RIB	
9. APPLICANT'S NAME AND ADDRESS				10. NAME Transnuclear, Inc.			
11. STREET ADDRESS One North Broadway				12. STREET ADDRESS Goodyear Atomic Corp.			
13. CITY White Plains		14. STATE NY		15. ZIP CODE 10601		16. CITY Piketon	
17. TELEPHONE NUMBER (Area Code - Number - Extension) ***PLEASE CALL 703-820-2450 UPON ISSUANCE		18. STATE OH		19. ZIP CODE 45661		20. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known)	
21. FIRST SHIPMENT SCHEDULED January 1986		22. FIRST SHIPMENT SCHEDULED N/A		23. DELIVERY DATE Same as Item 5		24. PROPOSED LICENSE EXPIRATION DATE 3 years from date of issuance	
25. ULTIMATE CONSIGNEE				26. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If Known)			
27. NAME Institut Max Von Laue-Paul Langevin				28. EST. DATE OF FIRST USE Will be used in the High Flux Reactor at Grenoble (see attached E.U.S.)			
29. STREET ADDRESS Avenue des Martyrs				30. EST. DATE OF FIRST USE			
31. CITY - STATE - COUNTRY 156 X - 38042 Grenoble-Cedex-France				32. INTERMEDIATE END USE For conversion (NUKEM) and fabrication (CERCA and NUKEM) of fuel			
33. INTERMEDIATE CONSIGNEE				34. EST. DATE OF FIRST USE			
35. NAME NUKEM - Hanau-F.R.G.				36. INTERMEDIATE END USE For transport purposes only			
37. STREET ADDRESS CERCA - Romans - France				38. EST. DATE OF FIRST USE			
39. CITY - STATE - COUNTRY				39. EST. DATE OF FIRST USE			
40. INTERMEDIATE CONSIGNEE				40. EST. DATE OF FIRST USE			
41. NAME Transnuklear GmbH				41. EST. DATE OF FIRST USE			
42. STREET ADDRESS D-6450 Hanau II				41. EST. DATE OF FIRST USE			
43. CITY - STATE - COUNTRY FRG				41. EST. DATE OF FIRST USE			
44. NRC USE		45. DESCRIPTION (Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components)		46. MAX. ELEMENT WEIGHT		47. MAX. WT. %	
48. NRC USE		49. Uranium in the form of uranium hexafluoride, enriched to 93.30 w/o maximum		50. (U) 26.9		51. (U-235) 25.0	
52. NRC USE		53. B508090594 B50802 PDR XPORT XSNM-2241 PDR		54. 93.30		55. Kgs	
56. COUNTRY OF ORIGIN - SOURCE MATERIAL * see below		57. COUNTRY OF ORIGIN - SNM WHERE ENRICHED OR PRODUCED U.S.A.		58. COUNTRIES WHICH ATTACH SAFEGUARDS (If Known) EURATOM		59. UNIT	
60. ADDITIONAL INFORMATION (Use separate sheet if necessary) *At this time it is unknown whether there will be any Australian origin material, however Transnuclear will advise NRC if such is the case.							
61. 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.							
62. SIGNATURE Joseph				63. TITLE Manager - Washington Operations			



Grenoble, le July 10, 1985

Vlettre du

Notre référence à rappeler :

MJ/ek-85/256

END USE STATEMENT

We certify that the following quantities based on contractual figures,
and including DOE allowable tolerances on Uranium weight and enrichment:

Kg U	Kg U 235	Maximum enrichment
26,9	25	93,30 %

which application for export licence will be applied by Transnuklear GmbH
will be used in the High Flux Reactor located at GRENOBLE.

For the Director of the INSTITUT
LAUE - LANGEVIN

INSTITUT
MAX VON LAUE
PAUL LANGEVIN

Grenoble, July 10, 1985

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

1. Name of reactor and facility : Réacteur à Haut Flux (High Flux Reactor) at
INSTITUT LAUE-LANGEVIN (ILL)
2. Location : GRENOBLE (France)
3. Quantity of Uranium requested (kg U) : 26,9 kg
4. Enrichment in the isotope U-235 : 93 %
5. Quantity of uranium requested (kg U-235) : 25 kg
6. Type of fuel element and form of uranium : M T R, U Al_x
7. Current reactor power level (MW th) : 57 MW th
8. Duty factor, average burn-up : Duty factor : 74 % - Average burn-up : 40 %
- 9a. Current core loading (kg U-235) : 8.5 kg
- 9b. Amount of fuel per element (kg U-235) : 8.5 kg
- 9c. Number of elements in core : 1
- 9d. Average core life : 44 days
- 9e. Active core dimensions : diameter : 390 mm - Length : 813 mm
- 9f. Neutron flux : 1.2×10^{15} n/cm²/s
10. Annual fuel usage (kg U-235) : 6 fuel elements x 8.5 kg = 51 kg
11. Annual spare fuel requirement, if any (kg U-235) : 2 x 8.5 = 17 kg
12. Plans to increase, decrease reactor power level : None
13. Estimated annual supply of current fuel request : 51 kg
14. Required manufacturer's working stock, if any, included in this request (kg U-235) :
CERCA : 30 kg
NUKEM : 15 kg

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15. Fabrication loss, if any, included in this request (kg U-235) : 1 kg (for 25 kg)
16. and 17. Names of convertor and fabrication of fuel : Convertor : NUKEM (Germany)
Fabricator of fuel : NUKEM (Germany) and CERCA (France)
- 18a. Quantity of scrap U-235, useable, non-useable (kg U-235) :
Quantities of scrap U-235 useable are included in manufacture's working stock (see 14). Quantity of scrap U-235 non-useable are 2 kg per year.
- 18b. Quantity of fabricated unirradiated stored fuel available:
1 fuel element (8.5 kg) at CERCA
4 fuel elements (34 kg) at ILL
- 18c. Quantity of unirradiated non-fabricated stored fuel (which will be available from fabrication planned or in process) :
at CERCA - 55 kg
at NUKEM - 25,4 kg
- 18d. Amount of spent fuel stored (kg U-235): - at ILL $2 \times 5.1 \text{ kg} = 10.2 \text{ kg}$
- at SPR for reprocessing:
 $6 \times 5.1 \text{ kg} = 30.6 \text{ kg}$
- at Portsmouth enrichment plant:
50,5 kg
19. Date at which current inventory, including a, b, c, will be expended:
March 1987
20. Date current requested fuel will be needed at reactor:
Beginning of 1987
21. Date current requested fuel will be needed by convertor and fabricator:
in fabricator's hand: April 1986
in convertor's hand : February 1986
- 22a. Time taken for shipment from USA to convertor/fabricator : 1 month
- 22b. Lead time for ordering in USA : 6 months
23. Date at which current requested fuel will be expended i.e., when a further HEU supply will be needed at reactor : Mid of 1987 (Fabrication : Mid of 1986).
24. Date at which reactor could be converted to 45% fuel; to 20% fuel, including time required for licensing procedure:
Unknown (until now no technical possibility)

25. History and dates of previous HEU supplies by the U.S. :

Licence No.	Quantity (kg U-235)	Arrival date in Europe	Observations
XSNM 02143	50,5	Estimated Sept. 85	Recovered from reprocessing at SRP
XSNM 02012	23,2	11/15/83	Fresh Uranium
XSNM 1924	26,1	08/20/82	Recovered from reprocessing at SRP
XSNM 1764	23,2	12/18/81	Fresh Uranium
XSNM 1536	23,2	12/18/81	Fresh Uranium
XSNM 1521	30,6	12/10/81	Recovered from reprocessing at SRP
XSNM 1362	67,7	10/23/80	Recovered from reprocessing

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

Amount of fuel of U.S. origin consumed since the first start up in
December 1971: 68 fuel elements x 3.4 kg = about 231 kg.

27. Status of cooperation between reactor operator and Argonne National Laboratory
in reduced enrichment program (RERT) :

Close cooperation, e.g. :

- December 12, 1979 : Visit at ILL Grenoble by D. STAHL
and J.L. SNELGROVE (accompanied by MM. CEJA and
MATTERN of U.S. DOE).
- May 7, 1980 : Visit at ARGONNE by MM. GRILLO and JACQUEMAIN
(MM. TRAVELLI, STAHL, MATTOS, SNELGROVE)
- September 23, 1981 : Visit at ILL Grenoble by Dr. John DARDIS,
State Department
- May 4, 1982 : Visit at ILL Grenoble by MM. TRAVELLI and J.E. MATTOS,
with exchange of documents and technical data.

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28. Status of agreement between reactor operator and ANL to reduce enrichment :
Until now no formal agreement.
29. Status of cooperation between reactor operator and IAEA reduced enrichment program:
No direct cooperation between ILL and IAEA. However, connections by the ILL associates : French CEA and German KfK and also by the ILL's fuel elements suppliers : CERCA (Fr) and NUKEM (Germany).