#### U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB 3150-0027 EXPIRES 11-30-84

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

	of APPLICATION h 11, 1987	WC-CA-35		USE -	+//	00 3 9	49	X5/M		327
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Theodore Hart	- US Dept of	Energy		U.S.	Dept	of Energy	У			
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## memorandum

DATE: March 6, 1987

SUBJECT: Request for Export License - TMI-2 Sample Transfers

TO: T. A. Hart
Office of Nuclear Non-Proliferation Policy, IE-13
DOE-HQ. FORS

Confirming recent phone conversations between you and Marilyn Brower of this office regarding the above subject, I am attaching documentation listed below covering the proposed export of TMI-2 core samples containing SNM to various member countries of the Committee for the Safety of Nuclear Installations (CSNI). The transfer will be made by EG&G Idaho and coordinated by Transnuclear, Inc. Shipments are tentatively planned for the end of March or first of April to Europe and early May to Canada, but are dependent upon receipt of the export licenses. We would appreciate your assistance in obtaining licensing or government-to-government approval for making the transfers.

- Letter, L. M. Cordova, EG&G, to John Mangusi, Transnuclear, August 11, enclosing work scope statement and requesting price quotation for coordinating shipment of TMI-2 core samples.
- Letter, John Mangusi, Transnuclear, to L. M. Cordova, EG&G, September 5, 1986, providing cost proposal and outlining shipment responsibilities.
- EG&G interoffice correspondence, M. A. Thom to R. K. McCardell, November 26, 1986, describing status of TMI-2 export project.
- EG&G summary of shipping arrangements, January 7, 1986.
- Example of agreement for responsibility of sample disposal, invoice and financial contribution schedule, and letter of intent compiled by TMI-2 Joint Task Group.
- Address list, February 24, 1987, of CSNI nations participating in TMI-2 sample transfer.
- Quantitative listing of sample transfers, by country and facility, March 3, 1987.
- 8. Contract number assignment forms, revised March 5, 1987:
  - a. WC-SW--10 RWBU
  - b. WC-CA--35 RDAC
  - c. WC-SD--26 RZBD
  - d. WC-EU--288 RFAT, RGFY, RGBX, RUET

If required, additional information regarding the proposed transfer can be obtained in HQ from Dr. Donald McPherson (Nuclear Engineering), Program Manager of TMI-2 Accident Evaluation and Chairman of the TMI-2 Joint Task Group. Also, please contact Ms. Brower, FTS 583-0270, if we can provide further assistance in processing this request.

H. R. Martin, Chief

AR Martin

Safeguards and Mat'ls Mgmt Br. Safeguards and Security Division

Enclosures



August 11, 1986

Mr. John Mangusi Transnuclear, Inc. 1 North Broadway White Plains, New York 10601-2357

REQUEST FOR QUOTATION NO. C86-111085 FOR SHIPMENT OF TMI-2 CORE SAMPLES - COR-97-86

Dear Mr. Mangusi:

Confirming our telecon of this same date, EG&G Idaho, Inc. requests Transnuclear Inc. provide a firm fixed price quotation for providing the required services and performing the work scope described in ATTACHMENT A. The quotation should identify the proposed cost for each task. Your quotation should be in U.S. dollars. It is requested your quotation be submitted to EG&G Idaho, Inc. on or before August 25, 1986.

The shipment of the samples is tentatively scheduled for early February 1987, when the IU-04 cask is expected to be available for use. EG&G Idaho will handle the shipment from the INEL to an east coast port (presumably Portsmouth, Virginia) and Transnuclear Inc. will handle the shipment from there on.

Please complete and return with your quotation the enclosed Representations and Certifications form.

The enclosed document, EG&G Form STC-EG&G-183 (5-82) "Standard Terms and Conditions for Purchase Orders and Subcontracts" issued May 1982, will be incorporated into any purchase order resulting from this Request for Quotation.

Should you have any questions relative to this Request for Quotation you may call me at (208) 526-1636.

Very truly yours,

L. M. Cordova

Subcontract Administrator

CS

Enclosures: As Stated



#### Work Scope

Please provide the following services and equipment to EG&G Idaho in support of a shipment of irradiated samples from the TMI-2 core to CSNI member countries in Europe:

- 1. Revise as necessary, submit and obtain Competent Authority approval of the IU-04 Certificate of Compliance, as required, to permit shipment of the samples from the INEL to Saclay, France.
- 2. Design and fabricate sample containers (assume 14) for the TN-62 cask as required to tranship the samples from Saclay, France to the following countries/facilities:
  - a. Germany Karlsruhe
  - b. Sweden Studsvik
  - c. Switzerland Swiss Institute for Reactor Research
  - d. United Kingdom Atomic Energy Establishment (Winfrith)
  - e. Commission of European Communities EURATOM Joint Research Center - Karlsruhe
- 3. Arrange for, provide and coordinate transportation of the loaded IU-04 cask from a United States seaport (assume the Portsmouth, Virgina Marine Terminal to Saclay, France). Include US and France export/import fees, if required.
- 4. Arrange for, provide and coordinate shipment of the empty TN-62 cask from base to Saclay, France. Include the TN-62 cask rental charges as a cost-per-day.
- 5. Arrange for and coordinate the unloading of the IU-04 cask, repackaging of the samples, loading of the TN-62 cask, and transhipment of the samples to and from the countries/facilities listed under item 2 above. Include export/import and customs fees, as required.
- 6. Arrange for, provide and coordinate the shipment of the empty TN-62 cask from end-point of transhipment to base.
- 7. Provide each user of the IU-04 and TN-62 casks appropriate drawings, Certificates of Compliance, loading and unloading procedures and other documentation, as required, to ensure safe loading/unloading and shipment of the casks.

#### Schedule

The shipment from the INEL to Saclay is tentatively scheduled for early February 1987.

#### Cost Proposal

The proposed costs for performing the above work scope are as follows:

1.	Revise and obtain appropriate Competent Authority approvals IU-04 and TN-62 cask Certificates of Compliance; required export/import charges and customs fees and maritime IU-04	for	the	٠.
	transportation costs	\$		
2.	Design and fabricate TN-62 sample containers	\$		
3.	Ship empty TN-62 from base to Saclay, France	\$		
4.	Unload IU-04 and load TN-62	\$		
5.	Ship TN-62 to and from each identified European country/facility (estimate \$ /facility x 4)	\$		
6.	TN-62 cask rental (assume 50 days at \$ /day)	\$		
7.	Ship empty TN-62 from point of last unloading to base	5		_
	Total firm fixed price:	\$		

# TRANSNUCLEAR, INC.



September 5, 1986

Mr. L.M. Cordova Subcontract Administrator EG&G Idaho, Inc. P.O. Box 1626 Idaho Falls, ID 83475

Re: Request for Quotation No. C86-111085 for Shipment of TMI-2 Core Samples - Cor-97-86

Dear Mr. Cordova:

Transnuclear is pleased to respond to the subject request. This document supersedes all previous estimates provided to EG&G for this shipment.

This submittal follows as closely as practicable the work scope and cost proposal formats in the RFQ.

#### I. Transnuclear Responsibilities

- 1. Revise existing IU-04 documents as necessary for submission's to appropriate Competent Authorities and obtain Competent Authority approvals of the IU-04 packages to permit shipment of the desired samples from the INEL to Saclay, France.
- 2. Design and fabricate sample holder for the TN 6-2 cask to ship the samples from Saclay, France to the following countries/facilities:
  - a. Germany Karsiruhe
  - b. Sweden Studsvik
  - c. Switzerland Swiss Institute for Reactor Research
  - d. United Kingdom Atomic Energy Establishment (Winfrith)
  - e. Commission of European Communities Euratom Joint Research Center Karlsruhe.
- 3. Provide one IU-04 cask to EG&G at DOE Savannah River Plant (SRP). Upon return of the cask to Transnuclear at Portsmouth Marine Terminal, Portsmouth, Virginia, arrange

for and coordinate export of loaded cask from Portsmouth and delivery to Cogema facility, Saclay, France. From the time EG&G accepts control of the cask at SRP, a maximum of six weeks is allowed prior to return of control to Transnuclear at Portsmouth. For time in excess of six weeks, a rental charge will be levied for each day or part thereof.

- Provide one TN 6-2 cask at Cogema, Saclay, France. The cask will be provided at a daily rental rate.
- 5. Arrange for and coordinate the unloading of the IU-04 cask, repackaging of the samples, loading of the TN 6-2 cask and shipment of the samples from Saclay to the countries/facilities listed under item 2 above.
- 6. Arrange for, provide and coordinate the transportation of the empty TN 6-2 from the last sample delivery point to base (Vitry, France). TN 6-2 sample holder is to remain at the site of the last delivery.
- 7. Provide each user of the IU-04 and TN 6-2 casks appropriate drawings, copies of approvals, loading and unloading procedures and other documentation, as required, to insure safe loading or unloading and shipment of the casks.

#### II. EG&G Responsibilities

- 1. During the period of time in I.3 above while the IU-04 cask is under EG&G control, EG&G will be fully responsible for loss and damage of the cask and accessories during all operations for a value not to exceed \$250,000.
- 2. EG&G will be responsible for transport of the IU-04 cask from SRP to Idaho and from Idaho to Portsmouth Marine Terminal. For each of these transports, EG&G is to keep Transnuclear fully informed of schedules and shipment status. EG&G shall provide Transnuclear at least 7 days notice of anticipated shipping date from Idaho to Portsmouth.

Tri-State Motor Transit has been performing the IU-04 cask transports for Transnuclear for approximately 8 years and is recommended as the carrier. Tri-State possesses trailers which have been modified to accept the base support of the IU-04 cask.

3. The IU-04 cask will be turned over to EG&G control with a contamination survey certificate issued by SRP. The levels of contamination will be checked at Saclay after unloading. If contamination levels exceed SRP values, the cost of decontamination plus 5% will be the responsibility of EG&G.

- 4. During operations at Idaho, EG&G is to follow usual loading procedures and provide an inspection sheet listing all measurements taken.
- 5. Design and fabricate debris sample containers. Required leak tightness to be provided by EG&G sample container without assistance from TN 6-2 holder.
- 6. The TN 6-2 cask will be delivered to Saclay in a clean condition in accordance with Schedule I of IAEA 1973 Regulations (Safety Series No. 6) and is to be placed in this same condition following the last unloading prior to return to base.

#### Cost Proposal

5.

The proposed costs for performing the above work scope are as follows:

1. Revision and obtaining of appropriate Competent Authority approvals for the IU-04 and TN-6-2 cask Certificates; additional sea freight transportation costs and inland Europe delivery to Saclay; coordination arrangements in relation to total project. \$28,100

Design and fabrication of TN 6-2 holder for EG&G
 sample containers.

\$ 4,670

3. Shipment of empty TN 6-2 cask from base to Saclay including preparation of cask and tool box. \$ 1,500 c

4. Unloading of IU-04 and loading of TN 6-2 at Saclay. \$20,000

identified European country/facility including
return of empty to base following last delivery.
a. Euratom - Karlsruhe
b. Studsvik
529,000

c. Swiss Institute for reactor research
 d. United Kingdom Atomic Energy Establishment
 e. KFK - Karlsruhe

The TN 6-2 will be shipped from Saclay to the Euratom facility at Karlsruhe and transshipments from the Euratom facility will be performed to KFK, Sweden, Switzerland and the United Kingdom.

6. TN 6-2 cask rental, 50 days at \$100/day \$5,000 Additional days if required at \$100/day.

7. Rental charge for IU-04 cask in excess of 6 weeks from acceptance of control by EG&G at SRP until return to Transnuclear at Portsmouth, Virginia will be provided by separate letter.

Delivery of TN 6-2 to and return from each

Total Costs (items 1-6)

\$144,700

Transnuclear General Administrative Expenses @ 18.9%

\$ 27,348

Total Including G&A

\$172,048

Transnuclear, Inc. Fee

\$ 8,602

Total Price

\$180,650

This proposal is valid through 30 5 ptember 1986. The price is valid for shipments completed prior to 31 March 1987.

We remain available to answer any questions you may have regarding this proposal.

Sincerely,

John Mangusi

General Manager-Operations

JM: hb



#### INTEROFFICE CORRESPONDENCE

Date: November 26, 1986

To: R. K. McCardell

From: M. A. Thom ...

Subject: SNM REQUIREMENTS FOR TMI EXPORT - MAT-23-86

Materials Management has been in touch with International Affairs (IA) in DOE-HQ concerning the export of the TMI samples to various members of the European community. I explained our proposal and asked if any part of this project was going to create any obvious problems. IA didn't forsee any problems based on my summary of the project. I have submitted the paperwork to Martin Marietta in Oak Ridge for a contract number which is assigned to all foreign contracts for tracking purposes. When that has been issued, we will submit our proposal to IA in Washington for processing.

Doug Akers has provided us with a list of the countries involved, as well as the maximum quantity of material which could theoretically be distributed to each interested party. We will be using these values as the basis for our authorization to ship nuclear material to each country. If you receive any indication that the quantities will be increased in any way, please let me know immediately to avoid time-consuming delays in possible reinitiation of the approval chain.

In developing the letter of agreement with each country, the special nuclear material (SNM) issues which should be included are:

Each country will accept the material (by donation or sale) and agree not to return it to the US. This includes any samples which, for any reason, do not get analyzed by the receiving country.

Each country will be responsible for the <u>disposal of all material</u> received through this agreement after analyses have been complete. The material is not to be returned to the US for disposition.

After we receive the contract number from Oak Ridge, I will touch base with you before I proceed with the submittal to International Affairs. If there have been any changes or updates we can address them prior to the review by IA.

Please let me know if I can be of further assistance in this project.

cc: L. M. Cordova

B. R. DaBell

D. S. Shull

M. A. Thom file

Dick:

While the legal issues aren't really under our jurisdiction, I know the is extremely sensitive about the liabilities associated with US-origin SNM in foreign countries. Since we are selling/donating this material, the issue of US DOE liability in the foreign countries may be covered on this point. However, it should be identified somewhere in the agreement at what FOB point the countries take possession of the material and assume these associated liabilities.

Then ali

AS AGREED UPON BY CONTRACT BETWEEN EG&G IDAHO AND TRANSNUCLEAR. INC.

TMI-PROPOSED ITINERARY

E6&6 WILL SHIP THE IU-04 CASK AND SAMPLES FROM THE INEL TO TRANSNUCLEAR (TN) AT PORTSMOUTH MARINE FERMINAL, PORTSMOUTH, VIRGINA

TN WILL ACCEPT THE IU-04 CASK AND SAMPLES AT PORTSMOUTH AND SEA FREIGHT THE CASK AND SAMPLES TO THE COGEMA FACILITY AT SACLAY, FRANCE.

TN WILL COORDINATE AND COGEMA WILL SUPPLY THE SUPPORT NECESSARY FOR THE UNLOADING AND TRANSFER OF THE SAMPLES INTO THE TN 6-2 CASK FOR SHIPMENT/SHIPMENTS TO THE CSNI MEMBER COUNTRIES.

AT EACH COUNTRY TN WILL COORDINATE THE UNLOADING WHILE EACH COUNTRY SUPPLY THE SUPPORT FOR THE SAMPLES TRANSFER.

A SIGNED AGREEMENT BETWEEN DOE-HQ AND EACH COUNTRY STATES THAT ONCE THE SAMPLES ARE UNLOADED FROM THE CASK (IN EACH COUTRY), THEY BECOME THE RESPONSIBILITY OF THAT COUNTRY. THE FINAL DISPOSAL OF THE TMI-2 FUEL SAMPLES IS THE RESPONSIBILITY OF EACH INDIVIDUAL COUNTRY.

Dr. G. Donald McPherson
Program Manager, TMI-2 Accident Evaluation
Chairman, TMI-2 Joint Task Group
U.S. Department of Energy, NE-42
Washington, D.C. 20545

Dear Dr. McPherson:

#### AGREEMENT FOR RESPONSIBILITY OF TMI-2 SAMPLE DISPOSAL

This is to confirm th	at
donated by the United includes any samples	nsible for the disposal of the TMI-2 sample material States Department of Energy for Examination. This which, for any reason, are not examined. The materia to the United States for disposition.
	Signed:
	Title:
	Date:

#### TABLE 2

#### ESTIMATED COSTS FOR SHIPMENT OF TMI-2 SAMPLES TO CSNI MEMBERS IN EUROPE

	Activity	Estimated Cost (\$)	
Shi	pment to Europe		
0	Design and fab 14 sample containers for IU-04 Cask	20,150	
0	Contract Administration for Transnuclear Inc. (EG&G)	17,000	
	Subtotal		37,150
Int	er European Shipments (All Transnuclear, Inc.)	inter turvo	
•	New IU-04 and TN6-2 license and validation in US and UK; additional sea freight and delivery to Saclay; US and French Customs	28,100	
0	Ship empty TN6-2 cask from base to Saclay	1,500	
0	Unload IU-04 and load TN6-2 sample holder	20,000	7
0	Design and fab of TN6-2 sample holder for EG&G designed sample containers	4,600	,,
0	Shipment of TN6-2 to Germany (KFK)	9,000	
0	Shipment of TN6-2 to Switzerland	20,000	
0	Shipment of IN6-2 to UK	27,500	
0	Shipment of TN6-2 to Sweden	29,000	
0	Rental of TN6-2 cask	5,000	
0	Transnuclear General Administrative	27,348	
0	Transnuclear Fee	8,603	
	Subtotal		180,650
			217,800

TABLE 1

## FINANCIAL CONTRIBUTIONS FOR PARTICIPATING NATIONS IN CSNI SHIPMENT OF TMI-2 SAMPLES TO EUROPE BASED ON A TOTAL OF \$253,800

<u>Item</u>	France	Germany	JRC	Sweden	Switz.	U.K.	
Minimum number of samples based on Gross Domestic Product	5	6	1	1	1	4	
	Total of	Minimum Nu	umbers=18,	Thus Cost	Per Sample	\$217,800/18=\$12,100	)
Number of sample containers	3	4	2	1	1	3	
Presently planned number of samples to be shipped	5	11	3	1	3	5	
Financial Contri- bution based on Gross Domestic Product (dollars)	\$60,500	\$72,600	\$12,100	\$12,100	\$12,100	\$48,400	

EXAMPLE

INVOICE

Date

- 00,300		

Sixty Thousand, Five Hundred

U.S. dollars, representing full payment of costs associated with the preparation and shipment of fuel debris from the TMI-2 reactor, the number of samples being indicated in attached Table 1. The above amount is due and payable upon receipt; to avoid any delay in shipment, a cheque made payable to the U.S. Department of Energy should be delivered no later than 31 December 1986, to Dr. G. D. McPherson, NE-42, U.S. Department of Energy, Washington, D.C. 20545, USA.

Dr. Garnet Donald McPherson
Program Manager, TMI-2 Accident
Evaluation Program

Attachment: Table 1

\$ 50 500 US

#### Letter of Intent

Dr. G. Donald McPherson
Program Manager, TMI-2 Accident Evaluation
Chairman, TMI-2 Joint Task Group
U.S. Department of Energy, NE-42
Washington, DC 20545

Dear Dr. McPherson:

This is to confirm that

agrees to part	ticipate in the TMI-2 sample examination program in the manner
discussed by	the Joint Task Group on TMI-2 and reported in meeting
summaries SEN,	/SIN (86) 18 and SEN/SIN (86) 37. As part of our
participation	, we confirm that we intend to accept the samples referred to
in these summa	aries and to pay to the U.S. Department of Energy by
October 31, 1	986, or the sum of
	U.S. dollars,
\$	US, as our share of the cost to prepare and ship the
first shipmen	t of samples.
	Signed

Date

Mr.

Dear Mr.

I am pleased to inform you that the cost of shipment of TMI-2 samples to Europe has been decreased since my letter to you dated September 15, 1986. Please find enclosed new papers relating to the shipment of fuel debris to your country.

First is a new Letter of Intent that you may wish to complete and return to me, if required by your system. It is required by our system only if there will be some delay in making payment.

Second is a new invoice to you with the lower amount filled in, but the signatory and organization left for you to complete. A breakdown of the costs is given in Attachment 1.

Third is an Agreement between your country and the United States stating that the disposal of the TMI-2 fuel samples received by your country is the responsibility of your country and that the samples will not be returned to the United States. This final Agreement is required by our system. The fuel samples become the responsibility of your country when they are unloaded from the shipping cask in your country.

I look forward to seeing you at the February 3-6, 1987 meeting in Idaho during which sample selection will be made. Please understand that your country is not limited to the number of samples listed in Table 1 (attached). The only limit on the number of samples is the geometric constraint of the sample container size (essentially a 2.5-inch diameter by 8-inch long cylinder).

Very truly yours,

G. D. McPherson

Attachment: As Stated

#### CNSI SAMPLES

White Shell Nuclear Research Establishment Piniwa, Manitoba Canada, ROEILO

CEN-S (Saclay Nuclear Research Center)
Centre d'Etudes Nucleaires
de Saclay
F-91191 Gif-Sur-Yvette Cedex
France

Germany - KFK (Karlsruhe Nuclear Research Center) Kernforschungezentrum Karlsruhe GMBH Postfach 3640 D-7500 Karlsrue 1 Federal Republic of Germany

Germany - KFA (Juelich Nuclear Research Center) Kernforschongsanlage Juelich GMBH Postfach 1913 D-5170 Juelich, Federal Republic of Germany

Germany - CEC-JRC:Karlsruhe
Karlsruhe Establishment
(European Institute for Transuranium Elements)
Postfach 2266
D-7500 Karlsruhe
Federal Republic of Germany

Sweden - Studsvik Studsvik Energiteknik AB S-61182 Nykoping Sweden

Switzerland - EIR (Federal Institute for Reactor Research)
Eidgenoessisches Institut fuer
Reaktorforschung (EIR)
CH-5303 Wverenlingen
Switzerland

United Kingdom - UKAEA (United Kingdom Atomic Energy Authority) Windscale Works Seascale Cumbria CA20 IPF United Kingdom

	TMI FUE	EL SAMPLI	E DATA [	a] [e]			3/3/87	
CANADA	FRANCE	GERMANY KFK	GERMANY JRC	GERMANY KFA	SWEDEN	SWITZ.	UNITED KINGDOM	
455	221	221	234	364	0	195	481	
	194	194	206	320	0	172	423	
12	6	6	6	10	0	5	13	
	364	1612	611	0	455	325	611	
	255			0	319			
12	8	34	13	0	9	7	13	7
1014	585	1833	845	364	455	520	1092	,
791	449	1322	634	320	319	400	851	,
> 24	14	40	) 19	10	9	12	26	50
2	1	. 3	3 1	1	1	1	2	12
1	1		2 1	1 1	. 1	1	2	10
=> 130		FOR TRA	ANSFER		154		2 45!	1-235
=> 4295		FOR TRA	ANSFER		5086		99	P4
=> 10	)	TOTAL FOR TRA	PU GMS.=:	======)	> 12	!	12: 11: Fu 3:57	9 P4
		PAGI						85 Pu
	455 400 T. 12 [c] 559 391 IT. 12 1014 791 > 24 2 1 => 130 => 4295	CANADA FRANCE  455 221  400 194  T.  12 6  [c]  559 364  771 449	CANADA FRANCE GERMANY KFK  455 221 221  400 194 194  T.  12 6 6  [c]  559 364 1612  391 255 1128  IT.  12 8 34  1014 585 1833  791 449 1322  24 14 40  2 1 3  1 1 6  FOR TRITTO ALL  FOR TRITTO ALL	CANADA FRANCE GERMANY GERMANY KFK JRC  455 221 221 234  400 194 194 206  T.  12 6 6 6  [c]  559 364 1612 611  391 255 1128 428  IT.  12 8 34 13  1014 585 1833 845  791 449 1322 634  2 1 3 1  1 1 2 1  1 1 2 1  1 1 2 1  1 1 2 1  1 1 2 1  1 1 2 1  1 1 2 1  1 1 1 1	CANADA FRANCE GERMANY GERMANY GERMANY KFK JRC KFA  455 221 221 234 364  400 194 194 206 320  T.  12 6 6 6 10  [c]  559 364 1612 611 0  391 255 1128 428 0  II.  12 8 34 13 0  1014 585 1833 845 364  791 449 1322 634 320  24 14 40 19 10  2 1 3 1 1  1 1 2 1 1  => 130 TOTAL U-235 GMS.====================================	## AFK JRC KFA  ## AFF JRC KFA	CANADA FRANCE GERMANY GERMANY SWEDEN SWITZ.  KFK JRC KFA  455 221 221 234 364 0 195  400 194 194 206 32C 0 172  T.  12 6 6 6 10 0 5  [c]  559 364 1612 611 0 455 325  T.  12 8 34 13 0 9 7  1014 585 1833 845 364 455 52C  791 449 1322 634 320 319 40C  1 1 2 1 1 1 1  1 1 2 1 1 1 1  1 1 2 1 1 1 1	CANADA FRANCE GERMANY GERMANY SWEDEN SWITZ. UNITED KFK JRC KFA  455 221 221 234 364 0 195 481  400 194 194 206 32C 0 172 423  T.  12 6 6 6 10 0 5 13  [c]  559 364 1612 611 0 455 325 611  391 255 1128 428 0 319 228 428  T.  12 8 34 13 0 9 7 13  1014 585 1833 845 364 455 520 1092  791 449 1322 634 320 319 400 851  791 449 1322 634 320 319 400 851  791 449 1322 634 320 319 400 851  791 449 1322 634 320 319 400 851  791 449 1322 634 320 319 400 851  791 449 1322 634 320 319 400 851  791 449 1322 634 320 319 400 851  792 1 3 1 1 1 2 2  1 1 2 1 1 1 2 2  1 1 2 1 1 1 2  1 1 2 1 1 1 2  1 1 1 2 1 1 1 2  1 1 1 1

TOT. PU FISSILE GMS.=>
FOR EUROPEAN
SHIPMENT

TOTAL PU FISSILE GMS.=> 10
FOR TRANSFER
TO ALL COUNTRIES

#### NOTES:

- [a] The listed values are a 30% increase from the reported estimated program values due to engineering uncertainties as great as plus or minus 30% in sample volumes and fuel content variations.
- [b] Rod weights are based on pellet dimensions of  $0.94 \times 1.78$  cm and a conservative density of 10.5 g/cm3. The presence of cladding on the rods is not considered. Rods are assumed to be 88% uranium with the balance being oxygen.
- [c] Agglomerate material is assumed to be 70% uranium by weight.
- [d] Fissile material content is calculated assuming the maximum core enrichment of 2.98% U-235.
- [e] All values are rounded to the nearest gram due to the large uncertainties in the fuel content distribution.
- [f] An ORIGEN-2 analysis has been used to define the average Pu content for the principal isotopes (ci/gmU): Pu-238 = 1.29 E-5, Pu-239 = 1.14 E-4, Pu-240 = 3.50 E-5, Pu-241 = 2.35 E-3.

Subject: REQUEST FOR FOREIGN CONTRACT NUMBER FOR

SWEDEN

(Name of Foreign Agreement Entity)

Date Prepared: 3-5-87 Rev.2

To be completed by Data Input Staff at Oak Ridge Assigned Contract No. WC-SW--10 Date Assigned 12/18/86 End-User RIS Code RWBU Receiver RIS Code RWBU

To:

Attn: Buck Stout

Martin Marietta Corporation

CSD/ORGDP Site

Nuclear Materials Control

Mail Stop 19 P.O. Box P

Oak Ridge, Tennessee 37831

From:

EG&G Idaho Inc. P.O. Box 1625

Idaho Falls, ID 83415

1. Name and Address of Receiver of Material:

Studsvik Energiteknik AB (STUDSVIK) RIS: RWBU

S-61182 Nykoeping

Tel 46155-21-0000 Telex 64013 studs s Sweden

2.	Type of Transaction (Sale, Lease, etc.): Donation
3.	End User (if different from Receiver): N/A
4.	End-Use Statement Code 91 (Refer to attached End Purpose Code Table)
5.	Material Type(s) and Description (Refer to attached Table):
6.	Authorization for Shipment (Check one): Export License (NRC) U.S. Department of Commerce License DOE - Approved Shipper's Export Declaration  X Method of Export Approval Unknown at this Time  General License Material - No Export License or DOE  Approval Required
7.	Has contract already been executed? Yes No $\underline{X}$ If yes, on what date?
Signe	Pate: ( 1)

.0298 = .000888

x .319 = ,00028 eff kgs.

CK for Geal lic.

Subject: REQUEST FOR FOREIGN CONTRACT NUMBER FOR AECL-WNRE (Name of Foreign Agreement Entity)

Date Prepared: 3-5-87 Rev.1

To be completed by Data Input Staff at Oak Ridge

Assigned Contract No. WC-CA--35
Date Assigned 12/18/86
End-User RIS
Code RDAC
Receiver RIS
Code RDAC

To:

Attn: Buck Stout

Martin Marietta Corporation

CSD/ORGDP Site

Nuclear Materials Control

Mail Stop 19 P.O. Box P

Oak Ridge, Tennessee 37831

From:

EG&G Idaho Inc. P.O. Box 1625

Idaho Falls, ID 83415

1. Name and Address of Receiver of Material:

AECL-White Shell Nuclear Research Establishment RIS: RDAC Pinawa, Manitoba ROE ILO Canada Tel 204-753-2311 Telex 0757553

- Type of Transaction (Sale, Lease, etc.): Donation
- End User (if different from Receiver): N/A
- 4. End-Use Statement Code 91 . (Refer to attached End Purpose Code Table)

5.	$\begin{array}{ccc} \text{Material Type(s) and Description (Re} \\ \underline{\text{Material}} & \underline{\text{Code}} & \underline{\text{Element Wt.}} \\ \underline{\text{Enriched U}} & 20 & 791 \text{ gm} \\ \underline{\text{Plutonium}} & 50 & 2 \text{ gm} \\ \underline{\text{The uranium is 2.98 percent enriched}} \end{array}$	Wt.% Isotope U-235 Pu-240	Table):  Isotope Wt.  24 gm 1 gm
6.	Authorization for Shipment (Check on Export License (NRC)  U.S. Department of Commerce Li  DOE - Approved Shipper's Export  Method of Export Approval Unkn  General License Material - No  Approval Required	cense t Declaration own at this Time	
7.	Has contract already been executed?  If yes, on what date?	Yes No	X
Signe	ed: 11 2 2 2	Date:	

10298 = . 000 SEE X.191 NA - 29 PH Subject:

REQUEST FOR FOREIGN CONTRACT NUMBER FOR SWITZERLAND

(Name of Foreign Agreement Entity)

Date Prepared: 3-5-87 Rev.1

To be completed by Data Input Staff at Oak Ridge Assigned Contract No. WC-SD--26 Date Assigned 12/18/86 End-User RIS Code RZBD Receiver RIS Code RZBD

Telex 53714 eir ch

To:

Attn: Buck Stout Martin Marietta Corporation

CSD/ORGDP Site

Nuclear Materials Control

Mail Stop 19 P.O. Box P

Oak Ridge, Tennessee 37831

From:

EG&G Idaho Inc. P.O. Box 1625

Idaho Falls, ID 83415

Name and Address of Receiver of Material:

Eidgenoessisches Institut fuer Reaktorforschung (EIR) RIS:RZBD (Federal Institute for Reactor Research) CH-5303 Wverenlingen

Switzerland Tel 41-56-99-2111

2.	Type of Transaction (Sale, Lease, etc.): Donation
3.	End User (if different from Receiver): N/A
4.	End-Use Statement Code 91 . (Refer to attached End Purpose Code Table)
5.	Material Type(s) and Description (Refer to attached Table):
6.	Authorization for Shipment (Check one):  Export License (NRC)  U.S. Department of Commerce License  DOE - Approved Shipper's Export Declaration  X Method of Export Approval Unknown at this Time  General License Material - No Export License or DOE  Approval Required
7.	Has contract already been executed? Yes No $\underline{X}$ _ If yes, on what date?
Signe	d: Date:

x.4 = .00030 eff. Kgs

CK for GL

Subject: REQUEST FOR FOREIGN CONTRACT NUMBER FOR EURATOM

(Name of Foreign Agreement Entity)

Date Prepared: 3-5-37 Rev. 2

To be completed by Data Input Staff at Oak Ridge

Assigned Contract No. WC-EU--288

Date Assigned 12/18/86

End-User RIS

Code RFAT-RGFY-RGBX-RGBX-RUET

Receiver RIS

Code RFAT

To:

Attn: Buck Stout

Martin Marietta Corporation

CSD/ORGDP Site

Nuclear Materials Control

Mail Stop 19 P.O. Box P

Oak Ridge, Tennessee 37831

From:

EG&G Idaho Inc. P.O. Box 1625

Idaho Falls, ID 83415

1. Name and Address of Receiver of Material:

Centre d'Etudes Nucleaires de Saclay (CEN-S) RIS: RFAT

(Saclay Nuclear Research Center)

de Saclay

F-91191 GIF-SUR-Yvette CEDEX

France Tel 33-16-908-6000 Telex 690641 F Energat Saclay

Kernforschungsanlage Juelich GMBH (KFA) RIS: RGFY

(Juelich Nuclear Research Center)

Postfach 1913

D-5170 Juelich

Federal Republic of Germany Tel 49-2461-610

Telex 83-3556

Kernforschungszentrum Karlsruhe Gmbh (KfK) RIS: RGBX

(Karlsruhe Nuclear Research Center)

Postfach 3640

D-7500 Karlsruhe 1

Federal Republic of Germany

Tel 49-7247-821

Telex 78-26484

	Karlsruhe RIS: RGBX Karlsruhe Establishment (European Institute for Transuranic Elements) Postfach 2266 D-7500 Karlsruhe Federal Republic of Germany
	UKAEA (United Kingdom Atomic Energy Authority) RIS: RUET Windscale Works (BNFL: Sellafield) Seascale Cumbria CA20 IPF United Kingdom Tel 44-9402-8333 Telex 64237/8
2.	Type of Transaction (Sale, Lease, etc.): Donation
3.	End User (if different from Receiver): N/A
4.	End-Use Statement Code 91 . (Refer to attached End Purpose Code Table)
5.	Material Type(s) and Description (Refer to attached Table):
6.	Authorization for Shipment (Check one): Export License (NRC) U.S. Department of Commerce License DOE - Approved Shipper's Export Declaration  X Method of Export Approval Unknown at this Time  General License Material - No Export License or DOE  Approval Required
7.	Has contract already been executed? Yes No _X If yes, on what date?
	d:
Signe	d: Date:

NA-PH