

ISOTOPES 3-2 APPLICATIONS & REQUESTS

Isotopes 3-2 Applications & Requests

	Date	To	From	Class	Pgs. No.	To	From	Class
1	8-7-62	South Africa						
		Lease of Heavy Water to South Africa	vee					
2	7-1-63	Israel	vee					
3	8-2-63	Germany	vee					
4	2-7-64	Germany	skr					
5	4-20-64	AEE 208/3 Belgium Request for Heavy Water	vee					
6	8-27-64	Germany Request for Heavy Water	vee					
7	9-3-64	Canadian Request for Heavy Water	vee					
8	9-17-65	Switz erland	et					

Isotopes-3-2-Applications and Requests

Date	To	From	Class	Pgs. No.	To	From	Class
1	9-15-59	France	Request for Heavy Water	skw u			
2	9-15-59	Germany,	Request for Heavy Water	skw u			

Envelope 3-2

MAY 27 1966

R. E. Hollingsworth, General Manager
THRU: John A. Hall, AGMIA

Original signed by
Abraham S. Friedman

Myron B. Kratzer, Director
Division of International Affairs

SALE OF 1500 POUNDS OF HEAVY WATER TO AUSTRALIA

We are in receipt of a request from the Australian Atomic Energy Commission (AAEC) for the sale of 1500 pounds of heavy water for use as make-up requirements in the HIFAR research reactor.

The Division of Production has assured us that the above quantity of heavy water is available at Savannah River. Its transfer to AAEC pursuant to our Agreement for Cooperation is within Commission policy.

The quantity of heavy water involved exceeds the 1,000 pound limitation in my delegation of authority, AECM Chapter 0103-114 (d). I, therefore, recommend that you approve the sale of 1500 pounds of heavy water to the AAEC.

With your approval, this Division will negotiate and execute the required sale contract.

APPROVED:

John A. Hall for

MAY 31 1966

MAY 25 1966

General Manager

Date

MAY 19 1966

bcc: GM (2)

Exec Asst. to GM

- AGMIA Secretariat (2)
- J. Downing, DIA
- A. Dalton, DIA
- R. Moore, PROD
- C. Lovejoy, OC
- OLC

Is this of sufficient importance that JCAE should be informed? Yes No

If "yes", indicate status and target date of JCAE notification.

action 2454

DIA:OPNS
Downing

DIA:AALA
Dalton

PROD: Moore
Moore

OC: *Lovejoy*

DIA:ADTB
Hoyle

OC: *Moore*

DIA:PAR
Spiegel

DIA:ID
Friedman

OFFICE ▶	DIA:M <i>JDT</i>	DIA:DIR <i>Kratzer</i>	AGMIA <i>Hall</i>	AGM <i>Hollingsworth</i>	DGM	GM
SURNAME	Tatalovich: jv	Rebol.	Kratzer	Hall		
DATE ▶	5/19/66	5/27				

5-21-66

Isotope - 3-2

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OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA GEN. REG. NO. 27

Reference & Reproduction Branch

UNITED STATES GOVERNMENT

GT RECORDS

Memorandum

TO : File SIGNED
W. L. Woodard

FROM : W. B. McCool, Secretary

SUBJECT: AEC SUPPORT OF HALDEN PROJECT, 1967-69

DATE: May 16, 1966

SECY:ICB

1. At Information Meeting 585 on May 13, 1966, the Commission approved AEC participation in the Halden Boiling Water Reactor Project extending from January 1967 to December 1969, as recommended in Mr. Kratzer's May 12, 1966 memorandum to the Commissioners.

2. It is our understanding the Division of International Affairs is taking the required action.

- cc:
- Commissioners
 - General Manager
 - Deputy General Manager
 - Assistant General Manager
 - Exec. Asst. to Gen. Mgr.
 - Asst. Gen. Mgr. for IA
 - Asst. Gen. Mgr. for R&D
 - Asst. Gen. Mgr. for Reactors
 - General Counsel
 - Dir., IA
 - Dir., RD&T

COMMUNICATIONS SECTION
 OFFICE OF THE SECRETARY
 12 1400 201 201 201

RECEIVED 10 13 1966

*Copy filed:
 IA-5- Norway*

DR. WOODARD



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5-16-66



Instops 3-2
IA-5 Norway

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

MAY 12 1966

MEMORANDUM FOR CHAIRMAN SEABORG
COMMISSIONER PALFREY
COMMISSIONER RAMEY
COMMISSIONER TAPE

THROUGH GENERAL MANAGER *(Signed) John V. Vinciguerra for*

SUBJECT: AEC SUPPORT OF HALDEN PROJECT, 1967-1969

Mr. Gunnar Randers, Managing Director of the Norwegian Institute for Atomic Energy, has inquired whether the AEC would be prepared to participate in the next phase of the Halden Boiling Water Reactor Project. The program, extending from January 1967 to December 1969, will be mainly devoted to fuel testing, high fuel heat rating studies, in-core instrument development, thorium physics and fuel studies, water chemistry experiments and reactor on-line computer control studies.

As will be recalled, the Halden project has operated since July 1958 as a joint undertaking of the European Nuclear Energy Agency to carry out research and development on the boiling heavy water reactor concept. The U.S. associated itself with each of the earlier successive phases of the project by assigning a technical representative to the program. In 1962, with Commission approval, a research contract in the amount of \$300,000 was offered to Halden but the offer was later withdrawn by the AEC when the particular work forming the basis for our interest was dropped by Halden. We did continue assignment of a technical representative to the program. In 1964, the Division of Reactor Development and Technology concluded that the Halden program proposed for the period 1964-1966, was of sufficient and timely technical interest to warrant a financial contribution to the project. Mr. Randers indicated at that time that the other member countries felt it appropriate that the U.S., if it planned participation, should make a contribution in addition to assignment of personnel. With Commission approval, we entered into a research contract with the Norwegians under which the AEC contributed (without cost to Norway) 3 tons of heavy water to Halden as consideration for the information to be obtained from the project. In addition, we assigned a technical representative. The heavy water was charged to the DRD&T program at its budgetary figure of \$92,400.

*Info. mtg 585
copy filed
IA-5 Norway*

5-12-66

Since the current program will terminate at the end of this year, Mr. Randers has developed the new 3 year program in the hope that it would be sufficiently attractive to the AEC as well as to the other 6 European members of the current program (Denmark, Finland, Netherlands, Sweden, Switzerland, and the U.K.) as to warrant continued collaboration. The budget proposed for the 3 year period is estimated at \$5 million, of which Norway contributes \$2.2 million. The contributions of the member countries range from \$200,000 to \$600,000. In requesting AEC collaboration, Mr. Randers indicated that participation under similar terms as for the current program (contribution of 3 tons of D₂O and personnel assignment) would be acceptable.

DRD&T has concluded from its assessment of the proposed new program that because of the limited technical interest the work has to its programmatic responsibilities, and considering budget cutbacks, it would be difficult to justify an expenditure of its funds for the cost of an additional 3 tons of D₂O, or additional assignments of personnel to Halden.

The staff has considered other forms of assistance to the Halden program and has concluded that a lease of 3 tons of heavy water, with waiver of use charges, would demonstrate our intent to continue collaboration in some manner and would significantly assist Mr. Randers in conducting the project. The net value of the 3 tons of heavy water is \$161,700. Since present Commission policy (AEC 890/113 approved at Meeting 2018 on May 27, 1964) on lease of materials abroad permits the leasing of heavy water for use in non-power producing reactors only up to \$125,000 per facility, it would follow that the even more favorable arrangement proposed in this case (i.e., lease with waiver of use charges) should be subject to that limitation. However, AEC 890/113 recognizes as an exception to the \$125,000 limitation those cases where support of a project would be beneficial to AEC programs in terms of technical information received.

The Division of Reactor Development and Technology is agreeable to this more limited approach. Specifically, it is prepared to support an arrangement providing for transmittal of U.S. information of interest to Halden, visits of U.S. technical experts to discuss specific problems, and lease with waiver of use charges, as conditions for obtaining agreed technical information on the Halden program.

The situation was discussed in general by phone with Mr. Randers, recognizing that the terms proposed by him already involved much less contribution to the financial needs of the project than being provided by other participants and wishing to avoid any suggestion of participation on an even smaller scale should this prove embarrassing.

Mr. Randers indicated that any expression of interest from the United States would be better than none at all. (Copy of his latest letter dated May 2, 1966, is attached.)

It is recommended, therefore, that we respond to Mr. Randers with an offer to lease 3 tons of heavy water, without lease charges, for use in the new Halden program (January 1967-December 1969), to provide technical information, and to sponsor visits (arranged on a case-by-case basis) of U.S. technical experts to discuss problems of mutual interest in return for agreed information developed in the Halden program. The usual lease provisions concerning reimbursement by the Halden project for any loss of material during the lease period and cost of upgrading the returned material would apply. Commission approval of this proposed arrangement is requested.

Myron B. Kratzer, Director
Division of International Affairs

Attachment:

Cy. ltr. G. Randers to M. Kratzer, dtd. 5/2/66, w/o encl.

cc: GM (2)
AGMIA
Secretariat (2)
OGC
OAGMR, CDalzell
RDT
M. Biles, Paris Office
U. Staebler, IA
European Br., IA
F. Hiser, OC

(all cys. w/attachment)

Is this of sufficient importance that JCAE should be informed? Yes No
If "yes", indicate status and target date of JCAE notification.

CONCUR:

IA:EUR:WYeomans _____ 5/ /66
IA:AD/PD&L:WYeomans _____ 5/ /66
IA:AD/TE:UStaebler *UStaebler* 5/10/66
DRD&T _____ 5/ /66

OAGMR _____ 5/ /66
OC:FHiser _____ 5/ /66

R E L A T E S to Eur. Br.
Action 0345

OFFICE ▶	IA:EUR	IA:DD	IA:DIR	AGMIA	AGM	DGM	GM
SURNAME ▶	WBurke/dw:plg	AFriedman	MKratzer	JHall			
DATE ▶	5/9/66	5/ /66	5/ /66	5/ /66			

71 Statopes 3-2
111

R. E. Hollingsworth, General Manager
THRU: John A. Hall, AGMIA

APR 21 1966

Original signed by
APR 25 1966

Myron B. Kratzer, Director
Division of International Affairs

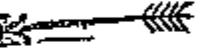
UKAEA REQUEST FOR THE PURCHASE OF 40 METRIC TONS OF HEAVY WATER

We are in receipt of a request from the United Kingdom Atomic Energy Authority for the purchase of 40 metric tons of heavy water valued at \$2,168,250 to be used as moderator material for the Steam Generating Heavy Water Reactor (SGHWR) located at Winfrith. This is a 280 MWT (100 MWE), heavy water moderated, light water cooled reactor, fueled with enriched uranium oxide, designed to study the reliability, safe operation and economics of this type of reactor. We have been advised that the 35 metric tons of uranium enriched to 1.9% to 2.5% will be of U. K. origin.

The Division of Production has assured us that the above quantity of heavy water is available at Savannah River. Its transfer to the UKAEA pursuant to our Agreement for Cooperation is within Commission policy.

The quantity of heavy water involved exceeds the 1,000 pound limitation in my delegation of authority, AECM Chapter 0103-114 d. 1, therefore, recommend that you approve the sale of 40 metric tons of heavy water to the UKAEA.

With your approval, this Division will negotiate and execute the required sale contract.

bcc: GM (2)
AGMIA
Secretariat (2) 
W. Yeomans, DIA
J. Downing, DIA
R. Moore, Prod
C. Lovejoy, OC
OGC
G. Spiegel, DIA

APPROVED:
Is this of sufficient importance that JCAE should be informed? Yes No
If "yes", indicate status and target date of JCAE notification.

Signed:
John V. Vincliguerra

APR 25 1966

General Manager

Date

File: SDT DIA:OPNS DIA:EUROP PROD: OC: DIA:ADTI OGC:
 Downing Yeomans Moore Lovejoy Hoyie Evans/Bourne
 /s/ /s/ /s/ /s/ /s/ /s/ ACTION 1499

OFFICE	DIA:M	DIA:RAR	DIA:DIR	AGMIA	AGM	DGM	GM
SURNAM	Reich:fw	Spiegel /s/	retype	Hall			
DATE	4/18/66						

4-21-66

Isotopes 3-2

UNCLASSIFIED

Ambassy HELSINKI

APR - 4 1966

Department of State

TRANSMITTAL OF LETTER TO PROFESSOR MATTI NURMIA, UNIVERSITY OF HELSINKI

The attached letter is in response to a request made by Professor Nurmia, Institute of Physics, University of Helsinki, to John A. Hall, Assistant General Manager for International Activities, USASC, regarding the availability of a transuranium source to be used for research at the University of Helsinki. If the Embassy sees no objection, it is requested that the attached letter be delivered to Professor Nurmia.

Attachment:

Letter to Professor Nurmia from J. A. Hall, AGMIA

cc: AGMIA
OGC
Secretariat (2) ←
E. Rebol, DIA
Research, DIA
European Br., DIA

Is this of sufficient importance that JCAE should be notified? Yes No
If "yes" is checked, please specify target date of JCAE notification.

CONCUR: DIA:EUR:Wyeomans _____

DIA:AD/FD&L:Wyeomans _____

UNCLASSIFIED

USAEC: DIA: EUR: BH11: dv	3/25/66	DIA: EUR	DIA: DIR	AGMIA
USAEC: AG: STW: GME: JJ		BH11: dv	BR: Kretzer	JHall
DATE		3/25/66		

4-14-66

Isotopes - 3-2

APR 4 1966

Professor Matti Nurmi
Institute of Physics
University of Helsinki
Helsinki, Finland

Dear Professor Nurmi:

You will recall that in the course of our discussion during your recent visit to the United States, you inquired as to the availability of long-lived transuranium sources. I have been advised by the Division of Research that only one-tenth of a microgram of the heavy isotope californium (Cf-252) is available for distribution. The price of this isotope in the form of a fabricated source including packaging is \$380, F.O.B. The fabrication consists of plating the Cf-252 of about 10⁷ fissions per minute on a thin nickel foil.

If the Cf-252 source meets your requirements and if you are interested in this purchase, we will be pleased to forward the necessary sale contract which will permit the export of the Cf-252 to Finland.

Sincerely yours,

Original signed by
John A. Hall

John A. Hall
Assistant General Manager
for International Activities

bcc: AGMIA
OGC
Secretariat (2) ←
E. Rebol, DIA
Research
European Br., DIA

Is this of sufficient importance that
JCAE should be in touch? Yes No
If "yes", indicate source and target
date of JCAE notification.

4-4-66

OFFICE ▶	DIA:EUR	DIA:EUR & AD/FD&L	DIA:MAT	RESEARCH	DIA:DIR	AGMIA
SURNAME ▶	BHill:dW	WYeomans	ERebol		MKratzer	JHall
DATE ▶	3/21/66	3/ /66	3/ /66	3/ /66	3/ /66	3/ /66

Intype - J-2

Copy - Germantown

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OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA GEN. REG. NO. 27

Reference & Reproduction Branch

UNITED STATES GOVERNMENT

Memorandum

TO : File

FROM : W. B. McCool, Secretary

SUBJECT: AEC 751/351 - LEASE OF HEAVY WATER TO EURATOM

SECY: JCH

DATE: December 29, 1965

*Original signed
W. B. McCool*

1. At Information Meeting 544 on December 20, 1965, the Commissioners considered AEC 751/351 and agreed an exception should be made to AEC's general policy to permit the lease of 38 metric tons of heavy water (valued slightly in excess of \$2.0 million) as requested by Euratom for the ESSOR project.

2. It is our understanding the Division of International Affairs is taking the required action.

- cc:
- Chairman
 - General Manager
 - Deputy General Manager
 - Asst. General Manager
 - Exec. Asst. to Gen. Mgr.
 - Asst. Gen. Mgr. for IA
 - Asst. Gen. Mgr. for Plans & Prod.
 - General Counsel
 - Director, Production
 - Director, IA
 - Controller

DEC 29 1965

*Copy filed
F.A. - 6 Preauth use*



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12-29-65



Isotopes 3-2

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

DEC 23 1965

Dear Harry:

Thank you for your letter of December 8, 1965, inquiring as to the conditions for delivery of 150 tons of heavy water for the Marviken Power Station.

I do not believe there would be any problem in making this quantity available to you, provided that you were willing to enter into a contract with us in the near future for delivery in mid-1968. This could be done under the present Agreement for Cooperation. A copy of our standard heavy water contract is enclosed in order to familiarize you with its provisions. The price would be the Commission's published price at the time of delivery, currently \$24.50 per pound.

It is our policy to supply, within existing production capability, heavy water to meet both foreign and domestic requirements. However, as you can appreciate, it is difficult to predict our ability to continue to fill all requests for heavy water into the future, unless such material is put under firm contract while some reserve capacity exists. In light of anticipated increases in heavy water requirements both here and abroad, it may be necessary for us to make it available on a "first come--first served" basis in the future.

I am glad to hear that you are making tentative plans to visit with us some time next year. I will be looking forward to seeing you again and renewing our acquaintances. With best personal regards,

Cordially,

(Signed) Glenn J. Seaborg

Chairman

Chairman Seaborg (2)
Commissioner Remy
Commissioner Alfrey
Commissioner Tapp
A.M.I.A.
Secretariat (2)
Production

Dr. Harry Brynjalsson
Managing Director
Aktiebolaget Atomenergi
Liljeholmen, Box 5042
Stockholm 9, Sweden

CONCUR:

IA:MAT:EWRebol
Production:

Enclosure:

Sale Contract.

IA:MAT	IA:DIR	AGMIA	AGM	DGM	GM
SDTatalovich	MBKratzer	JAHall	Ink	Bloch	Hollingsworth

12/22/65

12-23-65

Isotopes - 3-3

UNCLASSIFIED

Embassy Vienna - IAEA

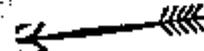
SEP 23 1965

Department of State

MINIMIZING POSSIBILITY OF UNSAFE USE ABROAD OF INTERNATIONALLY SUPPLIED RADIOISOTOPES TO MEMBER STATES

A problem which has caused some concern to the USAEC is that radioisotope exports are made by supplying countries without knowledge as to health and safety provisions employed in countries where these radioisotopes are to be used. We recognize that exporters cannot regulate users in recipient nations with a system patterned after U.S. regulations, for example, because of national sovereignty and competition among radioisotope suppliers. A practical step which could be taken, however, to minimize the possibility of unsafe use would be to notify the appropriate health and regulatory agency of a country when such materials are about to enter that country. They would then be in a position to exercise appropriate controls over the use of these materials by persons under their jurisdiction.

We believe it would be appropriate for the Agency to coordinate such a system with member states. Please explore this possibility with Agency staff. We would appreciate receiving Agency's comments on this request in the near future.

cc: AGMLA (1)
Secretariat (1) 

UNCLASSIFIED

J.M. Wardrop:fb /DIA

DIA:M DIA:IAEA DIA:EURO DIA:ADTI DIA:D
JMWardrop:fb Rebol Clifford Yeomans Hoyle Kratzer

Myron B. Kratzer, Director,
Original signed by
Dixon B. Hoyle for

9/21/65

4-23-65

Islets 32

SEP 22 1965

R. E. Hollingsworth, General Manager signed by
THRU: John A. Hall, AGMIA Original signed by
Dixon B. Hoyle for
Myron B. Kratzer, Director Original signed by
Division of International Affairs Dixon B. Hoyle for

SALE OF 25 METRIC TONS OF HEAVY WATER TO SWITZERLAND

We are in receipt of a request from the Societe Nationale pour l'Encouragement de la Technique Atomique Industrielle (NGA), a Swiss private utility, through the Government of Switzerland for the purchase of 25 metric tons of heavy water valued at \$1,347,500. This heavy water is to be used as a moderator in the Lucens experimental power reactor which will operate at a power level of nine MWe. The reactor, located at Lucens, Switzerland, was designed and built by the Energie Nucleaire S.A. (ENUSA), a Swiss organization composed of 13 companies and will become operable sometime in 1966.

The Lucens reactor is to be fueled with 5.64 metric tons of 0.93% enriched uranium. The enriched uranium was obtained through blending approximately 1.5 metric tons of AEC-supplied material, containing 3% U-235, with natural uranium procured from a non-U.S. source. The 3% enriched uranium is part of a larger quantity of material whose transfer was approved by the Commission on June 18, 1965.

The Division of Production has assured us that the requested quantity of heavy water can be made available at Savannah River. Its transfer to NGA with the approval of the Government of Switzerland and pursuant to our Agreement for Cooperation with Switzerland is within Commission policy.

The quantity of heavy water involved exceeds the 1,000 pound limitation in my delegation of authority (AECM Chapter D103-114 d). I, therefore, recommend that you approve the transfer of 25 metric tons of heavy water to NGA of Switzerland.

Upon approval, we will negotiate and execute a sale contract for this quantity of material.

APPROVED: sufficient importance that JCAE should be informed? Yes No
If "yes", indicate status and target date of JCAE notification.

- bcc: GM (2)
- AGMIA (1)
- Secretariat (1)
- W. Yeomans, Europ Br., DIA
- J. Downing, Opns Br., DIA
- R. Moore, Production
- C. Lovejoy, OC

OCG:
Bourne /s/

Original Signed by
E. J. Bloch

DIA:EUROP: OPNS: OC: PROD:
Yeomans /s/ Downing Lovejoy Moore

Acting General Manager

SEP 22 1965

OFFICE	DIA:M	DIA:DIR	AGMIA	EAGM	AGM	DGM	GM
SURNAME	Tatalovich:jw	Retype II	Hall	Vinciguerra			
DATE	9/20/65	9/20					

9-22-65

Envelope - 3-2

R. E. Hollingsworth, General Manager

THRU: John A. Hall, AGMIA Original signed by Myron B. Kratzer

SEP 17 1965

Myron B. Kratzer, Director
Division of International Affairs Original signed by Myron B. Kratzer

SALE OF 2500 POUNDS OF HEAVY WATER TO SWITZERLAND

We are in receipt of a request from the Swiss Federal Institute for Reactor Research at Wurenlingen for the purchase of 2500 pounds of heavy water valued at \$61,250. This heavy water is to be used to further the heavy water research program at the Institute and falls within the scope of the Agreement for Cooperation between the United States and Switzerland

The Division of Production has assured us that this quantity of heavy water can be made available at Savannah River. Its transfer to the Swiss Federal Institute for Reactor Research is within Commission policy.

The quantity of heavy water involved exceeds the 1,000 pound limitation in my delegation of authority (AECM Chapter 0103-114 d). I, therefore, recommend that you approve the transfer of 2500 pounds of heavy water to the Swiss Federal Institute for Reactor Research.

Upon approval, we will negotiate and execute a sale contract for this quantity of material.

APPROVED:

copy filed Envelope - Heavy Water

Original Signed by
E. J. Bloch SEP 21 1965

EAGM	AGM	DGM	GM

SEP 17 1965

General Manager Acting

- cc: General Manager (2)
- AGMIA
- Secretariat (2)
- J. Downing, Opns Br., DIA
- W. Yeomans, Europ Br., DIA
- R. Moore, Production
- C. Lovejoy, OC
- OGC

Is this of sufficient importance that JCAE should be informed? Yes No
If "yes", indicate status and target date of JCAE notification.

SEP 10 1965

SEP - 7 1965

File: SDT's desk

ACTION 4995

OFFICE	SDT DIA:M	OPNS	EUROP	PROD:	OC	DIA:ADTI	OGC	DIA:DIR	AGMIA
SURNAME	Tatolovich, Jw	Downing	Yeomans	Moore	Lovejoy	Hoyle	Kratzer	Hall	Hall
DATE	9/17/65	9/12/65	9/18		9/9/65	9/9/65			

9-17-65



Isotopes - 3-2 - Appl. Requests Secretariat

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

SEP 17 1965

MEMORANDUM FOR CHAIRMAN SEABORG
COMMISSIONER PALFREY
COMMISSIONER RAMEY
COMMISSIONER TAPE

signed E. J. Block
THROUGH GENERAL MANAGER

SUBJECT: CANADIAN REQUEST FOR 1,000 TONS OF HEAVY WATER

Recently, the AEC's Scientific Representative in Canada informed me that Lorne Gray probably will wish to discuss with the Chairman during the IAEA Conference in Tokyo the possibility of AECL purchasing some 500 to 1,000 tons of heavy water at a price lower than our published price of \$24.50 (U.S.) per pound. This subject had been tentatively discussed during the Commissioners' and General Manager's visit to Canada last June.

Based on the indicated delivery schedule of 250 tons immediately and the balance distributed evenly over the next three years, our present inventory is adequate for the initial delivery but the remainder could be met only by essentially depleting our heavy water stockpile and proceeding as rapidly as possible to start up the second one-third of the Savannah River plant in order to rebuild our stockpile. The rehabilitation and start-up of the second one-third would cost about \$10,000,000 and would require about 18 months to complete. Thus, if funds were authorized in FY 1967 for the rehabilitation (and this item is not included in our current FY 1967 budget submission), production from the rehabilitated portion would not commence until early in Calendar Year 1968 and its contribution towards the Canadian 1,000 ton order would be minimal.

We are aware that the present production capacity of the Halifax plant (200 tons per year) is not sufficient to supply inventory and makeup requirements for the CANDU-type reactors already committed in Canada and overseas; consequently, AECL must develop a second source of supply, either the AEC or by construction of a second plant in Canada. Assuming that a second plant is built in Canada, the Capacity of the two plants would be adequate to supply all immediate future needs for CANDU-type

*eg filed Isotopes - Heavy Water
A-12 - IAEA*

9-17-65

reactors and continued AEC supply beyond the next three years would not be required. As a matter of fact, AEC heavy water potentially would be in direct competition for third country or U.S. markets with Canadian material.

We believe that the \$10,000,000 rehabilitation costs should be distributed over the quantity of material delivered to the Canadians, since our present one-third plant capacity is sufficient to meet current and projected AEC needs. If this were done, we would have to charge a price of about \$20 a pound to recover the \$10,000,000 plus our current out-of-pocket operating costs, without recovery of any amortization of the existing plant. However, the cost of production during the period when two-thirds of the plant are operated as a consequence of the Canadian order would be reduced. By supplying the heavy water to Canada, we would be placing them in a more favorable position to compete with American manufacturers in foreign markets. To the extent that we sell heavy water to Canada, at a price below our cost, we may be furthering this competition. Therefore, we recommend that no commitment be made at this time to the Canadians with respect to furnishing heavy water at a price less than the current \$24.50 per pound, but that we indicate our readiness to explore this problem in detail with them following the Tokyo Conference.

In considering AECL's requirements, we have assumed that the 230 tons of material already under lease contract for the Douglas Point reactor will ultimately be purchased. In entering into any long-term arrangements for AEC supply of heavy water, we would naturally expect AECL to execute a firm contract committing the Canadians to purchase a fixed quantity at a firm price over a time period consistent with the proposed plan for SR plant operation.

Myron B. Kratzer, Director
Division of International Affairs

Isalyes - 3-2

R. E. Hollingsworth
General Manager

SEP 25 1964

Original signed by
Myron B. Kratzer, Director
Division of International Affairs

BELGIUM PURCHASE OF 10 METRIC TONS OF HEAVY WATER

The Belgium Government has requested that the United States Atomic Energy Commission sell to Belgomucleaire (Belgium Society for Nuclear Industry), Brussels, Belgium, 10 metric tons of heavy water. The heavy water is required for the Vulcan Project, a joint U.S.-Belgomucleaire study of the spectral-shift reactor concept, for power experiments to be performed in the BR-3, a pressurized water power reactor located at Mol, Belgium. The total value of the heavy water to be sold is valued at \$540,127 with cash delivery within 60 days.

The quantity of heavy water is being sold to Belgomucleaire by approval of the Government of Belgium under the terms of the U. S. - Belgium bilateral Agreement and is consistent with the Commission's policy. The Division of Production has assured me that the quantity of 10 metric tons of heavy water is available at Savannah River.

Since the quantity of heavy water exceeds the limitation in my delegation of authority, Section 0103-114(d) of the AEC Manual, I, therefore, recommend that you approve the transfer by sale of 10 metric tons of heavy water to Belgomucleaire for use in the BR-3 power experiments.

With your approval, this Division will negotiate and execute the required sale contract.

APPROVED:

/s/ John V. Vinciguerra

for _____
General Manager

RECEIVED
SEP 25 1964

cc: AGMIA Production

C. Capoen, DIA OGC

Secretariat (2) ←

Downing, DIA

DIA:OPNS DIA:EUROP

Fullerton, DIA

Downing Fullerton

Lovejoy, OC File: BE/S/33

ACTION 4607

DIA:M OC

PRODUCTION DIA:AUIP

OGC: DIA:DIR

Garrett:jw

Rebol Lovejoy

Hoyle

Kratzer

9/8/64

9-25-64

Isotopes - Heavy Water

AUG 27 1964

R. E. Hollingsworth, General Manager
TRU: Acting AGMA

W. B. Ritten
~~R. E. Hollingsworth~~, Director
Division of International Affairs

GERMAN PURCHASE OF 6 TONS OF HEAVY WATER

The Government of the Federal Republic of Germany has requested that the United States Atomic Energy Commission sell to the Gesellschaft fuer Kernforschung m.b.H. (Nuclear Research Center) at Karlsruhe, Germany, 6 tons of heavy water. The heavy water is required for the FR-2 research reactor, located at the Research Center. The total value of the heavy water to be sold is valued at \$294,000 with cash delivery within 60 days.

The quantity of heavy water is being sold to the Nuclear Research Center by approval of the Government of the Federal Republic of Germany under the terms of the U.S.-German bilateral agreement and is consistent with the Commission's policy. The Division of Production has assured us that the quantity of 6 tons of heavy water is available at Savannah River.

Since the quantity of heavy water exceeds the limitation in my delegation of authority, Section 0103-11A(d) of the AEC Manual, I, therefore, recommend that you approve the transfer by sale of 6 tons of heavy water to the Nuclear Research Center for use in the FR-2 reactor.

With your approval, this Division will negotiate and execute the required sale contract.

APPROVED:

AUG 28 1964

R. E. Hollingsworth
R. E. Hollingsworth, General Manager

cc: Brussels
Secretariat (2)
AGMA

X - *Isotopes - Heavy Water*

51-2769

UNCLASSIFIED

April 22, 1964

CORRECTION NOTICE

COPY NO. 75

ATOMIC ENERGY COMMISSION

CORRECTION TO AEC 264/161 - INQUIRY FROM BELGIUM
CONCERNING SUPPLY OF HEAVY WATER

Note by the Secretary

Dumb
The subject paper was inadvertently put in the wrong series. Please change your paper from AEC 264/161 to AEC 208/3.

W. B. McCool

Secretary

<u>DISTRIBUTION</u>	<u>COPY NO.</u>	<u>DISTRIBUTION</u>	<u>COPY NO.</u>
Secretary	1,72-79	Isotope Development	33
Commissioners	2-6,80	Ind. Participation	34
General Manager	7 - 8	Public Information	35 - 36
Dir. of Regulation	9 - 11	Inspection	37
Deputy Dir. of Regulation	12	Intelligence	38
Asst. Dir. of Regulation	13	International Affairs	39 - 44
Deputy Gen. Mgr.	14	Materials Licensing	45 - 46
Asst. Gen. Mgr.	15	Nuclear Materials Mgmt.	47
Asst. Gen. Mgr. IA	16	Operations Analysis	48
Asst. GM-Plans & Prod.	17	Plans and Reports	49 - 50
Asst. GM Operations	18	Production	51 - 54
Asst. Gen. Mgr. R&D	19	Reactor Development	55 - 63
Asst. Gen. Mgr. Adm.	20	Manager, Naval Reactors	64
Asst. to the GM (Disarm)	21	Research	65 - 66
General Counsel	22 - 26	Safety Standards	67 - 68
Biology & Medicine	27	Special Projects	69
Congr. Liaison	28	Savannah River Oprns.	70 - 71
Controller	29 - 32		

4-22-64

Isotope 3-d-

UNCLASSIFIED

April 20, 1964

208/3
AEC ~~208/3~~

COPY NO. 75

AEC
208
3

ATOMIC ENERGY COMMISSION

INQUIRY FROM BELGIUM CONCERNING SUPPLY OF HEAVY WATER

Note by the Secretary

The Deputy General Manager has requested that the attached memorandum from the Director, Division of International Affairs, be circulated for the information of the Commission.

W. B. McCool

Secretary

<u>DISTRIBUTION</u>	<u>COPY NO.</u>	<u>DISTRIBUTION</u>	<u>COPY NO.</u>
Secretary	1,72-79	Isotope Development	33
Commissioners	2-6,80	Ind. Participation	34
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Asst. Gen. Mgr.	15	Nuclear Materials Mgmt.	47
Asst. Gen. Mgr. IA	16	Operations Analysis	48
Asst. GM-Plans & Prod.	17	Plans and Reports	49 - 50
Asst. GM Operations	18	Production	51 - 54
Asst. Gen. Mgr. R&D	19	Reactor Development	55 - 63
Asst. Gen. Mgr. Adm.	20	Manager, Naval Reactors	64
Asst. to the GM (Disarm)	21	Research	65 - 66
General Counsel	22 - 26	Safety Standards	67 - 68
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Controller	29 - 32		

X. Isotope-3 - Heavy Water

19-09-11

UNCLASSIFIED

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

April 15, 1964

MEMORANDUM

TO : A. R. Luedecke, General Manager
THRU : AGMIA
FROM : A. A. Wells, Director
Division of International Affairs
SUBJECT: INQUIRY FROM BELGIUM CONCERNING THE SUPPLY OF
HEAVY WATER

We have received an inquiry from Belgonucleaire (Belgium) asking about our terms and conditions for the supply of approximately 10 tons of heavy water, valued at approximately \$490,000. The heavy water would be used to conduct power experiments in the ER-3 reactor for the U.K. - Belgium Spectral Shift Reactor Project (Vulcaïn).

The Division of Production has assured us that this quantity of heavy water is available at Savannah River. Its transfer to Belgium pursuant to the U.S./Belgium Agreement for Cooperation is within Commission policy. The quantity of heavy water exceeds the 1,000 pound limitation in my delegation of authority (Section 0103-114(d) of the AEC Manual), and I, therefore, recommend that you approve the transfer of this heavy water to Belgium.

With your approval, this Division will offer a sale contract for the 10 tons of heavy water.

APPROVED:

/s/ R. E. Hollingswoth
Deputy General Manager

4/16/64
Date

~~OFFICIAL USE ONLY~~

Intaps 3-2
J.H.S.
Reference Section

UNITED STATES GOVERNMENT

Memorandum

TO :

File

DATE: February 7, 1964

FROM :

J.H.S. / J.C.
W. B. McCool, Secretary

SUBJECT:

GERMAN PURCHASE OF HEAVY WATER

SECY:McQ

1. At Information Meeting 347, on February 5, 1964, the Commissioners had no objection to the General Manager's proposal to approve the sale of 32 metric tons of heavy water to the Nuclear Research Center at Karlsruhe, Germany.

2. Attached is a copy of the January 31, 1964 memorandum by the Director of International Affairs which was the basis of the General Manager's discussion.

Attachment:

As noted above

cc:

- Chairman w/o attachment
- General Manager w/o attachment
- Deputy General Manager w/o attachment
- Asst. General Manager w/o attachment
- Director, International Affairs w/o attachment
- Controller w/o attachment
- General Counsel w/o attachment

Copy filed:
Intaps Heavy Water

~~OFFICIAL USE ONLY~~

2-7-64

UNITED STATES GOVERNMENT

GT FILE

Memorandum

TO : A. R. Luedcke, General Manager
THRU: Acting AGMIA *aw*

DATE: JAN 31 1964

FROM : A. A. Wells, Director
Division of International Affairs *A. A. Wells*

SUBJECT: GERMAN PURCHASE OF 32 METRIC TONS OF HEAVY WATER

The Government of the Federal Republic of Germany has requested that the United States Atomic Energy Commission sell to the Gesellschaft fur Kernforschung mbH (Nuclear Research Center) at Karlsruhe, Germany, 32 metric tons of heavy water. The heavy water is required for a multi-purpose research and power reactor, MZFR, located at the Research Center. The total value of the heavy water to be sold is valued at \$1,724,800 with cash delivery within 60 days.

The quantity of heavy water is being sold to the Nuclear Research Center by approval of the Government of the Federal Republic of Germany under the terms of the U.S.-German bilateral agreement and is consistent with the Commission's policy. The Division of Production has assured us that the quantity of 32 metric tons of heavy water is available at Savannah River.

Since the quantity of heavy water exceeds the limitation in my delegation of authority, Section 0103-114(d) of the AEC Manual, I, therefore, recommend that you approve the transfer by sale of 32 metric tons of heavy water to the Nuclear Research Center for use in the MZFR.

With your approval, this Division will negotiate and execute the required sale contract.

APPROVED:

A. R. Luedcke FEB 5 1964
A. R. Luedcke, General Manager

UNITED STATES GOVERNMENT

~~OFFICIAL USE ONLY~~

Reference Section

Memorandum

TO : File

DATE: August 2, 1963

FROM : 
Maide Kari, Asst. Recording
Secretary, Meeting Branch

SUBJECT: GERMAN ACQUISITION OF 65 METRIC TONS OF D₂O

At Meeting 1925 on April 19, 1963, the Commission had no objection to the General Manager's recommendation to lease and sell 65 metric tons of D₂O to Germany, for use in the FR-2 research reactor and the MZFR multi-purpose reactor.

The recommendation for this action is contained in the attached memorandum from the Director, Division of International Affairs, to the General Manager.

~~OFFICIAL USE ONLY~~

8-2-63

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Liedtke, General Manager
THRU: Acting ADMIA *Dowells*

DATE: APR 16 1963

FROM : *Mj* A. A. Walls, Director
Division of International Affairs

SUBJECT: GERMAN ACQUISITION OF 65 METRIC TONS OF D₂O

The Government of Germany has requested that the United States Atomic Energy Commission provide the Karlsruhe Research Center in Germany with 65 metric tons of heavy water. The heavy water is required for a multi-purpose research and power reactor, MWR, and does not qualify for lease under existing AEC leasing policy.

Nevertheless, Germany has asked to lease 44.5 metric tons of the 65 total for the FR-2 research reactor which has been operating with D₂O purchased from the U.S. in 1958. The balance of 20.5 metric tons they propose to purchase.

The purpose of this memorandum is twofold.

1. To seek your approval for the transfer of the requested heavy water since the quantity involved is in excess of my delegation of authority of 1,000 pounds, and
2. To resolve the problem of whether 44.5 metric tons can be leased.

As to the first question, the Division of Production has assured us that the quantity of 65 metric tons of heavy water is available at Savannah River. This transfer of the requested material is within the terms of our Agreement for Cooperation and is consistent with Commission's policy. The heavy water is essential to the operation of the equipment specified.

As to the second question, the matter of leasing, we would offer the following background and commentary:

1. The Commission's policy, as adopted in AEC 983/1, and announced in a press release of August 15, 1958, attached, is to lease heavy water for the "initial inventory requirement" of research, medical, or testing reactors.
2. The German purchase of a total of 44.5 metric tons D₂O for the initial inventory for this FR-2 research reactor was consummated by contracts of October 1, 1958 and September 22, 1959.

However, it is not evident from the correspondence between the AEC and the German representatives regarding this sale that the latter were aware, and presumably they were not aware, of the Commission's policy to permit the lease of heavy water for the "initial inventory requirement" of research, medical, or testing reactors.

It would have been within the Commission's policy to have leased the 44.5 metric tons of this material to the Germans in 1958 and 1959 if they had asked for lease of the material, and the Division of International Affairs believes it would not run counter to the Commission's policy to permit the lease of an equivalent quantity of material for the FR-2 research reactor in light of the fact that the Germans apparently were not aware at the time of executing the original sale contract that they could lease heavy water for the FR-2 research reactor.

4. There have been two similar situations, i.e., Sweden and France, where the AEC has leased heavy water inventory requirements subsequent to the initial loading of the facility involved. In the case of the Swedes, this also involved the substitution of leased heavy water for heavy water which had previously been purchased.
5. The net effect of handling this transaction as requested (44.5 metric tons of heavy water by lease and 20.5 metric tons by sale) would, when combined with the earlier FR-2 sale of 44.5 metric tons, result in 44.5 metric tons of material on lease for the FR-2 research reactor and 65 metric tons of purchased material for the NEPA power reactor.

Division of International Affairs recommends that you approve the transfer of 65 metric tons of heavy water to Germany, 44.5 by lease and 20.5 by sale.

The Division of Production concurs in this recommendation. In this connection, the Division of Production has expressed the desire to obtain 6 to 12 FR-2 fuel elements for testing at Hanford. The German Government, subsequent to this request for lease of heavy water, has shown its usual willingness to cooperate by agreeing to make the desired elements available to the AEC at cost.

The Office of the General Counsel has no legal objection; but, together with the Controller, points out that sale of the 44.5 metric tons of this material would result in current dollar credits to the U.S. of nearly \$2.4 million, as compared to the use-charge payments, at the current rate (4-3/4%), of about \$114 thousand annually.

A. R. Luedcke

- 3 -

We recommend that you call this matter to the attention of the Commission.

With your approval, this Division will negotiate and execute a time contract and lease agreement as required.

Attachments:

As stated above

APPROVED:

A. R. Luedcke 4/19/63
General Manager

9

*DP 275-19
e/2 gm/1A*

THE WHITE HOUSE
WASHINGTON

July 11, 1963

MEMORANDUM FOR

THE CHAIRMAN
Atomic Energy Commission

After checking, I see no objection to AEC going ahead with the lease of four tons of heavy water for a research project, as proposed in your letter to me of 1 July 1963. I note that it will be given under periodic safeguard inspections, and is not for Israel's Dimona reactor.

McGeorge Bundy

McGeorge Bundy

7-11-63



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

JUL 1 1963

Dear Mr. Rundy:

The Government of Israel has requested that the U. S. Atomic Energy Commission furnish, under lease, four (4) tons of heavy water which would be used in a heavy water - uranium oxide (D_2O-UO_2) lattice research project which the Department of Nuclear Science at the Israel Institute of Technology (Technion) is initiating. Technion, in collaboration with the Israel Atomic Energy Commission, is in the process of establishing a Nuclear Science and Engineering Center at the new Technion campus for the purpose of broadening their program of instruction and research in nuclear engineering at the undergraduate and graduate level. The Center will be equipped with various experimental facilities including a small reactor, a reactor physics laboratory, a pulsed neutron generator and associated nuclear instrumentation. The reactor physics laboratory, as one of its principal items, will house a D_2O-UO_2 natural uranium exponential experiment for lattice studies. The subject heavy water will be used in this exponential assembly.

According to our records, Israel has received no other quantities of heavy water from the United States. The USAEC has, in the past, supplied other countries quantities of heavy water for their peaceful uses programs, in excess of the current Israeli request. Technion is located at Haifa and is not to be confused with the Dimona nuclear power project which is located some 200 miles away in the Negev Desert. The Dimona reactor, as you will recall, is a 24 MW(t) heavy water moderated research reactor which the Israelis are building with French assistance.

X-Isotopes - Heavy Water

29-1-63

Mr. Dandy

- 2 -

The Department of State, in response to our inquiry, has informed us that it presents no objection to this transaction. We intend, therefore, to fulfill the Israelis' request. The heavy water will be supplied pursuant to our Agreement for Cooperation for the Civil Uses of Atomic Energy with the Government of Israel and periodic safeguards inspections will be conducted to ensure that this material will not be diverted to non-peaceful purposes.

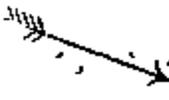
Sincerely,

(Signed) Dean T. Seaburg

Chairman

Honorable McGeorge Bundy
Special Assistant to the President
The White House

- cc: Chairman (2)
- Commissioner Harworth
- Commissioner Polfrey
- Commissioner Remy
- Commissioner Wilson
- General Manager
- Dept. of State (2)
- Secretary (2)
- ADMLA



100-1070

Internal Comments:

- H. D. Bangs _____
- D. B. Hoyle _____
- F. J. Haycock _____
- A. D. Kishner _____

LA:AA/LA:AZD

DIA:DIR:ACRHA

ACM

DCM

CM

DARWIN:chr

6/17/63



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

JUN 28 1953

MEMORANDUM FOR CHAIRMAN BOARDMAN
THROUGH GENERAL MANAGER SIGNED, A. R. LUEDECKE
SUBJECT: LETTER TO McGEORGE BUNDY

There is attached for your signature a letter to Mr. McGeorge Bundy, Special Assistant to the President, concerning the transfer of four metric tons of heavy water to the Government of Israel by the AEC. The letter to Bundy has been prepared at the suggestion of the General Manager who felt that because of the sensitivity of Israel's activities in the nuclear field as related to the Dismas Project it was appropriate to inform him of our action and to make a clear distinction between the Dismas Project and the Technion, where the heavy water will be utilized.

Submission of this letter to you for signature has been delayed pending a statement from the Department of State that they have no objection to this transaction. Such verbal assurance has just been received and will be confirmed by a memorandum from the Department.

Signed by:
A. A. Wells

A. A. Wells, Director
Division of International Affairs

Attachment:
Ltr to McGeorge Bundy

cc: Commissioner Haworth
Commissioner Falfrey
Commissioner Boney
Commissioner Wilson
General Manager

AGMIA
Secretariat (5)

6-28-53

Isotope 3.2

10

C/S
47/12
DL-274

TELEPHONE 69-199 699-199

All correspondence to be addressed to Director



NEW ZEALAND

In replying, please quote these numbers
INS 50/126/2-TAR

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH
THE INSTITUTE OF NUCLEAR SCIENCES

PRIVATE BAG, LOWER HUTT

26 June, 1963.

Dr G.T. Seaborg,
Chairman,
U.S. Atomic Energy Commission,
Washington, 25, D.C.,
U. S. A.

Dear Dr Seaborg,

I hope you do not mind me writing to you requesting information on the possibilities of a change in U.S.A.E.C. policy concerning the loan of stable isotopes to foreign investigators.

It was in April 1949 that I last had the pleasure of meeting you at the Radiation Laboratories, Berkeley. Since then I have been gathering together in New Zealand a team of scientists working on the applications of radioactive and stable isotopes. You may have heard of our work on Carbon-14, tritium, fission products in fall-out and sulphur isotope studies. We have had over the years excellent financial assistance from your government and through a U.S.A.E.C. Contract AT (30-1)-2167 and more recently an I.A.E.A. Contract : No. 164/RB.

A few weeks ago Dr W.F. Marlow, Fallout Studies Branch, Division of Biology and Medicine, U.S.A.E.C., passed through New Zealand and spent two days with us. Should you wish, he could give you a more up-to-date assessment of our scientific work.

In addition to studies using isotopes we are planning a modest programme of work in nuclear physics that will use a 3 Mev Van de Graaff Accelerator that we have already in New Zealand, but not yet housed. Until this machine is in operation, we have the use of a 400 Kev accelerator. We plan to specialise in the study of the nuclear properties of short lived nuclides for

29.9.63

this field still offers opportunities for fundamental nuclear physics and will assist another programme of work on activation analysis that I feel has many applications to New Zealand's agricultural, dental and medical problems.

I have attached to this letter a suggested submission for an U.S.A.E.C. Contract, but before sending it through the normal diplomatic channels I have enclosed copies for your comments.

The main point at issue is either the outright purchase of our stable isotope requirements from Oak Ridge National Laboratory estimated at \$10,000 per annum for three years, or the possibilities that under an U.S.A.E.C. Contract, loan facilities could be granted to a foreign recipient on the same basis as domestic users. If the latter course could be adopted this would mean in effect that under a contract with your Agency, we would only be asking for the nominal loan and transport charges amounting to \$780 per annum.

I would appreciate your advice as to how a request of this nature could best be initiated.

Yours sincerely,

T.A. Rafter

(T.A. Rafter)
Director

Encls.

SUBMISSION FOR U.S.A.E.C. CONTRACT

1. TITLE OF PROJECT: Angular correlations in short half life nuclei.
2. INSTITUTION: Institute of Nuclear Sciences, Lower Hutt, New Zealand.

3. SCIENTIFIC BACKGROUND AND SCOPE OF PROPOSED RESEARCH:

Using a 400 kev Van de Graaff accelerator as a neutron source it is proposed to irradiate samples and measure the induced radioactivity. It is proposed to study nuclei having half lives of the order of $\sim 1 - 100$ seconds. It is proposed to study nuclei which decay by beta emission followed by cascade gamma de-excitation and isomeric transitions in which two or more gamma rays are in cascade. Gamma-gamma angular correlations will be made in an attempt to elucidate decay schemes. Direction-polarization correlations will be made where the level of induced activity permits. To date very few angular correlations involving such short half life nuclei have been carried out; this work is motivated by the desire to fill in the gaps of our knowledge of these nuclei.

4. SCIENTIFIC PERSONNEL: The program is being organised by

G.J. McCallum, M.Sc., who has recently returned to New Zealand after working for 3 years at the Atomic Energy Research Establishment, Harwell, England, and for 2½ years at the Chalk River Laboratories of the Atomic Energy of Canada Ltd. Mr McCallum is in charge of our 3 Mev Van de Graaff accelerator project. A list of his recent publications is appended.

Mr McCallum will be able to spend at least half his time on the project. The time that the accelerator will actually be available will depend on the requirements of the Physics Department of the Victoria University of Wellington.

OTHER PERSONNEL: Technicians will be available as required.

7. OTHER FINANCIAL ASSISTANCE: None.

8. MATERIALS, EQUIPMENT AND FACILITIES: A pneumatic rabbit system has been constructed together with an automatic control system to irradiate, transfer and count samples according to pre-determined schedules. A remotely controlled angular distribution table and a variety of NaI (Tl) detectors are available. It is anticipated that approval to purchase a multi-channel pulse height analyzer will be granted in the forthcoming fiscal year.

9. TRAVEL AND OTHER FEES: Nil.

10. BUDGET - INSTITUTE OF NUCLEAR SCIENCES CONTRIBUTION:

- (i) Salaries: £1,800 per annum (1 professional officer $\frac{1}{2}$ time - 1 technician full time).
- (ii) Equipment £8,000 (Estimated value of equipment installed to date, excluding accelerator).
- (iii) Equipment £10,000 (Budget for 1963/64 fiscal year).

SUGGESTED U.S.A.E.C. CONTRIBUTION - see Para 11.

11. FINANCIAL ASSISTANCE REQUIRED: In this project we will undertake all necessary expenditure to carry out the program detailed above. However, where enriched stable isotopes are called for we would like an arrangement to hire them from the

Stable Isotopes Division,
Oak Ridge National Laboratory,
Oak Ridge,
Tennessee.

with the U.S.A.E.C. contribution to the contract covering hire, packing and transport charges. (The charge to U.S.A.E.C. laboratories is normally \$78 per loan). It is understood that at present laboratories outside the United States may receive isotopes on a sale basis only. As the experiments contemplated will demand samples of the order of 0.1 - 1 gram the use of enriched isotopes could not in general be entertained unless the assistance requested above is forthcoming.

A definite annual budget for the project is difficult to

assess since the amount of financial assistance requested is dependent on how our Institution is considered for contract purposes.

As a foreign user we would have to purchase outright our stable isotope requirements. On the basis of 10 1-gm samples at \$1 per mg per annum our budget would be \$10,000 per annum. If we were afforded the same loan facilities as non-A.E.C. domestic users our annual budget for isotopes would be \$1,180 while if the accounting were done on the same basis as A.E.C. laboratories the budget would be \$780 per annum. Initially we would request that this contract run for a 3-year term.

SEP 12 1962

Honorable Carl Albert
Chairman, Joint Committee on
Atomic Energy
Congress at the United States

Dear Mr. Albert:

Reference is made to my letter of March 7, 1962, informing you of the Commission's approval, subject to the execution of an appropriate agreement, of a loan of 4700 pounds of heavy water to the United Atomic Energy Commission.

We have recently been informed that upon further consideration of the experiments to be undertaken with the heavy water, the United Atomic Energy Commission does not now plan for this program to be carried out in the near future. Therefore, they have withdrawn the request for loan of the material. It is the great pleasure that they are able to conduct the experiments at a later date, we may wish to provide the heavy water but will review their proposal at that time.

Sincerely yours,

(Signed) Dwight A. Ink

Assistant
General Manager

10-12-62

UNITED STATES GOVERNMENT

Memorandum

TO : A. A. Wells, Director
Division of International Affairs

DATE: September 13, 1962

FROM : W. B. McCool, Secretary

Original signed
W. B. McCool

SUBJECT: AEC 1043/8 - LEASE OF HEAVY WATER FOR USE IN CANADIAN CANDU
POWER REACTOR

SYMBOL: SECY:MK

1. We informed your office on September 12, 1962, that at Meeting 1870 on September 10 the Commission:

a. Approved the supply of heavy water required for the Canadian CANDU reactor (approximately 210 tons) on the basis of lease (charges to be computed at AEC heavy water charges and the U.S. domestic use charge rates prevailing from time to time) for a period not to exceed five years; by or before the expiration of this period the material will either be returned to the AEC or purchased by Canada;

b. Noted that a lease contract embodying these principles will be negotiated and executed by the staff;

c. Noted that supplying heavy water under lease in this instance does not alter the Commission's general policy of providing heavy water for power reactors only on a sale basis;

d. Noted that the Joint Committee for Atomic Energy will be notified by a letter similar to Appendix "A" to AEC 1043/8;

e. Noted that a public announcement on this subject will be made by a press release similar to Appendix "B" to AEC 1043/8; and

f. Noted that AEC 1043/8 is unclassified.

~~OFFICIAL USE ONLY~~

A. A. Wells
(AEC 1043/8)

-2-

September 13, 1962

2. The Commission requested that:

a. Canada be asked to give a one year advance notice of their intent to purchase or return the material; and

b. It be clarified with Canadian officials that return of the material may occur as it is being produced.

3. The General Manager has directed you to take the action required by the above decision and request. It is our understanding that your office will prepare the correspondence to the JCAE. A copy of this letter together with other pertinent correspondence should be provided the Office of the Secretary.

cc:

Chairman

General Manager

Deputy General Manager

Asst. General Manager

Asst. Gen. Mgr. for International Activities

Asst. Gen. Mgr. for Plans and Production

General Counsel

Controller

Director, Production

Director, Reactor Development

Director, Public Information

Congressional Liaison

~~OFFICIAL USE ONLY~~

Pages - 3-2
~~OFFICIAL USE ONLY~~

UNITED STATES GOVERNMENT

Memorandum

TO : File

DATE: August 7, 1962

FROM : *for* W. B. McCool, Secretary
Harold D. Anamos

SUBJECT: REQUEST OF GOVERNMENT OF SOUTH AFRICA FOR LEASE OF HEAVY WATER

SYMBOL: SECY:JCH

1. At Information Meeting 181 on August 1, 1962 the Commissioners had no objection to a proposed agreement whereby the AEC would lease 11,000 lbs. of heavy water to the South African Atomic Energy Board.

2. Attached is a copy of Mr. A. A. Wells' memorandum dated July 30, on the matter.

Attachment

As noted above

cc:

Chairman w/o attachment

General Manager w/o attachment

Deputy General Manager w/o attachment

Asst. General Manager w/o attachment

Asst. Gen. Mgr. for International Activities w/o attachment

Asst. to the Gen. Mgr. w/o attachment

Director, International Affairs w/o attachment

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8-7-62



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

JUL 30 1962

MEMORANDUM FOR CHAIRMAN SEABORG
COMMISSIONER HAWORTH
COMMISSIONER WILSON

THROUGH GENERAL MANAGER

SUBJECT: REQUEST FROM THE GOVERNMENT OF THE REPUBLIC OF
SOUTH AFRICA TO LEASE HEAVY WATER

The Government of the Republic of South Africa has requested the United States Atomic Energy Commission to provide 11,000 pounds of heavy water under a lease agreement to the South African Atomic Energy Board. The heavy water will be used as initial inventory in an exponential assembly forming a part of the Board's Reactor Engineering Research Program.

This quantity of heavy water (value \$308,000) is available, and its transfer is in consonance with Commission policy and previous approvals of similar transactions involving Spain and Sweden.

The purpose of this memorandum is to inform the Commission, prior to the transaction, that the staff intends to take the necessary steps to execute an appropriate lease agreement.

A. A. Wells, Director
Division of International Affairs

Memorandum

TO : A. E. Laddo, Special Agent
TITLE: ISMIA

DATE: OCT 26 1961

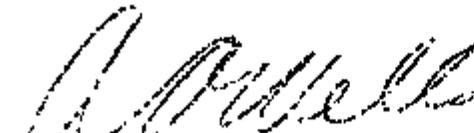
FROM : A. A. Wells, Director
Division of International Affairs

SUBJECT: REQUEST FROM THE JAPAN ATOMIC ENERGY INSTITUTE (JAERI)
TO PURCHASE HEAVY WATER

On October 16, 1961, the Japan Atomic Energy Institute (through Kairi H. E. Agents, Michison Company, Inc.) requested the purchase of 60,000 pounds of heavy water for the research reactor JRR-3, and 500 pounds of heavy water for the research reactor JRR-2. The heavy water in the JRR-3 is to be used as moderator in the natural uranium fueled LWR type reactor located at Tokai-mura and the heavy water for JRR-2 is to be used as additional inventory to supplement the 104 tons previously sold to JAERI. The Division of Production has assured us that this quantity of heavy water is available at Savannah River. Its transfer to JAERI, subject to the safeguards provisions of our Agreement for Cooperation with Japan, is within established Commission policy. It is desirable that this sale be approved since the heavy water will assist JAERI in the operation of the JRR-2 and JRR-3 research reactors and its associated programs. The quantity of heavy water involved exceeds the 1,000 pound limitation in my delegation of authority (Section 6103-114(6) of the AEC Manual), and I therefore recommend that you approve the transfer of this heavy water to JAERI.

With your approval this Division will negotiate and execute a sale contract with JAERI for the 60,500 pounds of heavy water.

APPROVED:


A. A. Wells
Director

10-26-61

Steps 302

(11)

OCT 24 1961

**MEMORANDUM FOR CHIEF OF BUREAU
COMMISSIONER GENERAL
COMMISSIONER NORTH
COMMISSIONER OLSON
COMMISSIONER WILSON**

THROUGH GENERAL WILSON

**SUBJECT: REQUEST FROM THE JAPAN ATOMIC ENERGY RESEARCH
INSTITUTE (JAERI) TO PURCHASE HEAVY WATER**

Recently the Japanese Atomic Energy Research Institute requested the purchase of 60,000 pounds of heavy water (\$1,004,000) for the JM-2 and JM-3 research reactors. The heavy water for the JM-3 (40,000 pounds) is to be used as initial inventory as a moderator in the natural uranium fueled reactor and the heavy water for JM-2 (20,000 pounds) is to be used as additional inventory to supplement the D₂O that was previously sold to JAERI. The transfer of the heavy water to JAERI is subject to the safeguards provisions of our Agreement for Cooperation with Japan and is within Department policy. We are planning to authorize shipment of the heavy water by October 27 in order that JAERI may plan to ship material from the Research Park on November 2. If shipped at this time, the heavy water will avoid the freezing weather and reduce costs to JAERI for additional heating and costs for heated cargo space.

**A. A. Wells, Director
Division of International Affairs**

cc/ **Commissioner Galt
Commissioner Galt-2
Commissioner North-2
Commissioner Olson-2
Commissioner Wilson-2
G
W**

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AMIA**

Class Action #1007

**IA:WBE
Rebel:vic
10/23/61**

IA:WBE

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Step 714 77

102-01

UNITED STATES GOVERNMENT

Isotopes - 3-2
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Memorandum

TO : File

DATE: September 7, 1961

FROM : W. B. McCool, *W. B. McCool*
Secretary

SUBJECT: REQUEST FROM THE GOVERNMENT OF SWEDEN TO PURCHASE AND LEASE
HEAVY WATER

SYMBOL: SECY:ANE

At Information Meeting 64 on September 6, 1961, the General Manager informed the Commission that he had approved the lease of heavy water to the Swedish Atomic Energy Company in accordance with Mr. Wells' recommendations as set forth in his memorandum to the General Manager dated August 8, 1961.

cc: General Manager
Deputy General Manager
Asst. General Manager
Asst. General Manager for IA
General Counsel
Asst. to the General Manager
Director, IA

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9-7-61

Isotopes 3-2
AUG 9 1960

B-421

Honorable Clinton F. Anderson, Chairman
Joint Committee on Atomic Energy
Congress of the United States

Dear Senator Anderson:

By a letter dated July 5, 1960, the Government of Yugoslavia requested the assistance of the United States Atomic Energy Commission in obtaining 6.5 tons of heavy water for use in the zero power reactor at the Boris Kidric Institute. Yugoslavia is submitting a project request to the International Atomic Energy Agency for the transfer of the water under Agency auspices.

Cooperation with Yugoslavia in a matter such as this will not only provide the national interest of the United States in supporting Yugoslavia's independent position outside the Soviet bloc, but will also further the support which the United States gives to the progress of the IAEA.

We have, therefore, advised the Government of Yugoslavia that the United States Atomic Energy Commission is willing, in principle, to make the requested heavy water available under suitable arrangements established under IAEA procedures. We have also called attention to the Commission's policy permitting it to lease the initial inventory of heavy water required in foreign research reactors.

Sincerely yours,

IS/R.E. Hollingsworth

Acting General Manager

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X- IA-2-Yugoslavia
- IA-12-IAEA
Isotopes - Heavy Water
01 71-7-2 CAE

Comments:

- Fullerton _____
- Yocum _____
- Resplund _____
- Kistner _____

ADIA DCM

09-6-8

See memo-3-12-Requests

Office Memorandum • UNITED STATES GOVERNMENT

TO : A. R. Lucdecke, General Manager

DATE:

FROM : A. A. Nellis, Director
Division of International Affairs

SEP 15 1959

SUBJECT: REQUEST FROM KERNREAKTOR TO PURCHASE HEAVY WATER

On March 4, 1958 the Director of International Affairs was authorized to commit the sale of up to 29 tons of heavy water to Kernreaktor for use in the Karlsruhe research reactor. Kernreaktor has now requested an additional reserve of 15.5 short tons of heavy water for the operation of the same reactor. The Division of Production has assured us that this additional quantity of heavy water is available at Savannah River. Its transfer to Kernreaktor pursuant to our Agreement for Cooperation with Germany is within established Commission policy and is desirable as it will assist Kernreaktor in the operation of the Karlsruhe reactor and its associated programs.

The quantity of heavy water involved exceeds the 1000 pounds limitation in my delegation of authority (Section 0103-114(d) of the AEC Manual) and I therefore recommend that you approve the transfer of this additional heavy water to Kernreaktor. With your approval this Division will negotiate and execute an amendment to the existing sale contract with Kernreaktor.

Approve

A. R. Lucdecke
General Manager SEP 19 1959

See A.P.C. - 2477

6-5-59

Office Memorandum • UNITED STATES GOVERNMENT

TO : A. R. Luedcke, General Manager

FROM : A. A. Pells, Director
Division of International Affairs

SUBJECT: LEASE OF HEAVY WATER TO FRANCE

DATE: SEP 15 1953

The French Commissariat à l'Énergie Atomique has requested the lease of 17 metric tons of heavy water for their zero energy research reactor "Aiguillon II".

In the implementation of the lease policy (AEC 983/1) approved by the Commission at Meeting 1295 on August 8, 1953, we have determined that the transfer of this heavy water to the French is desirable and will assist them in their research program on the peaceful uses of atomic energy.

The Division of Production has assured us that the requested quantity of heavy water is available at Savannah River and since the quantity involved exceeds the 1000 pounds limitation in my delegation of authority (section 0103-114(d) of the AEC Manual), I therefore recommend that you approve the transfer of this material to France pursuant to an appropriate lease contract.

With your approval this Division will negotiate and execute an appropriate lease contract with the Commissariat.

Approve

G. R. Luedcke
General Manager

SEP 19 1953

*See 420.899/115**9-15-53*