

ISOTOPES PROGRAM-3-2
India Request for Heavy Water

3-2

ISOTOPES ~~2-3~~ INDIAN REQUEST OF HEAVY WATER

10-27-55	AEC paper	AEC 741/5 Sale of Heavy Water to India. India.	frd		
11-21-55	AEC paper	AEC 741/6	frd		
12-19-55	AEC paper	AEC 741/7	frd		
1-6-56	AEC paper	AEC 741/7	ves		
2/17/56	AEC paper	AEC 741/8	frd		
6-18-58	AEC paper	AEC 741/9	skw	c	4

TITLE

ISOTOPES PROGRAM-3-2-India Request for Heavy Water

N	DATE	TO	FROM	CL.	PG.	NO.	DATE	TO	FROM	CL.	PG.
1	7-31-58	ADD 741/10	vee	u							

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

August 7, 1958

MEMORANDUM FOR ALL HOLDERS OF AEC 741/10

1. Copy (ies) 26 - 37 of AEC 741/10 was (were)
distributed to your office on July 31, 1958.

2. Please make the following correction to AEC 741/10:

On the cover page, in the first line of the
subject - change the fourth word to "LEASE" in
lieu of "LEAVE".

Done

W. B. McCool
Secretary

81-7-58

Castro -

UNCLASSIFIED

AEC 741/10

July 31, 1958

COPY NO. 36

ATOMIC ENERGY COMMISSION

INDIAN REQUEST TO LEASE HEAVY WATER FOR USE
IN A ZERO ENERGY RESEARCH REACTOR

Note by the Secretary

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

W. B. McCool
Secretary

DISTRIBUTION

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7-31-58

UNCLASSIFIED

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

July 22, 1958

MEMORANDUM FOR THE GENERAL MANAGER

SUBJECT: INDIAN REQUEST TO LEASE HEAVY WATER FOR USE IN A ZERO ENERGY RESEARCH REACTOR

Reference is made to my memorandum to you of June 9, 1958, subject as above, which enclosed a letter from Mr. J. A. Hall to Mr. N. S. Siva, Deputy Secretary of the Indian Department of Atomic Energy, of the same date (circulated as AEC 741/9) setting forth a proposal to the Government of India under which the USAEC would sell India 15 tons of heavy water for use in a zero energy research reactor with the stipulation that the controls and safeguards provisions would be administered by the IAEA as soon as it was in a position to effectively do so.

Attached is a copy of a letter recently received from Mr. Siva* in which it is stated that the Indian's desire to lease the material, with U.S. implementation of the controls and safeguards provisions, remains unchanged, both as a matter of policy and in light of the increased seriousness of their foreign exchange shortage.

A joint DIA-OD staff paper is presently in staff concurrence which will recommend the adoption of a general policy of the lease of heavy water to both domestic and foreign users. It is expected that the paper will be ready for Commission consideration in the near future, and if approved will make possible the lease of heavy water to India. You may recall that the State Department recommended that the Commission consider lease in the event the Indians refused to accept the proposal contained in Mr. Hall's June 9th letter.

Copies of Mr. Siva's letter have been sent to the State Department and to the U.S. Mission to the IAEA for comment.

I recommend that this memorandum and attachment be circulated for the information of the Commission.

/s/ R. L. Kirk for

A. J. Vander Weyden, Acting
Director
Division of International
Affairs

Attachment:
Ltr fm Siva

* (Secretariat Note) A similar letter from Dr. H. J. Bhabha, received subsequent to the date of this memorandum, is also attached.

UNCLASSIFIED

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

APOLLO PIER ROAD
BOMBAY 1

July 21, 1958

Dear Professor Libby,

I thank you for your letter of July 2, 1958, which has apparently crossed my Deputy Secretary's letter of July 7, 1958, to Mr. Hall. I attach a copy of his letter for ready reference.

As you will see from this letter, the last proposal contained in the letter from John A. Hall does not meet our difficulties. Our objections are not to inspection by the United States, which we consider a friendly country, but to inspection in principle, as long as such inspection is not universally accepted and applied. These objections on our side can be waived if the material is on lease, and it is for this reason that we made our proposal, which we thought would meet your point of view as well as ours. I shall be grateful, therefore, if you could look at the matter again, in the light of the points set forth in Mr. Siva's letter of July 7.

Looking forward to seeing you in Geneva and with kind regards,

Yours sincerely,

/s/

Dr. H. J. Bhabha

Professor W. F. Libby
Acting Chairman,
United States Atomic Energy Commission,
Washington 25, D.C.,
U. S. A.

Enclosure

UNCLASSIFIED

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

N. S. Siva
Deputy Secretary

APOLLO PIER ROAD
BOMBAY 1

July 7, 1958

Dear Mr. Hall:

I thank you for your letter of June 9, 1958, regarding our requirement of heavy water for a zero energy research reactor.

2. We regret you have not been able to see your way to agree to our proposal to lease the requisite quantity of heavy water, but greatly appreciate your efforts at finding an alternative solution. We regret to inform you that your present proposal raises the same difficulties as before. As you will recall, we explained in our letter of August 7, 1957, that, consistently with the stand taken by us at international conferences in regard to the general question of the application of controls and safeguards in respect of materials purchased outright by us, by whomsoever administered, so long as these were not universally applicable and discriminated between one State and another. In this connection, the Government of India would like to take the opportunity of assuring your Government that this objection is not directed against the administration of the control and safeguards provisions by the U.S. Government, as your letter appears to have assumed. On the contrary, if we were to accept the principle of safeguards in the present instance, we would prefer that they be administered by your Government with whom we have such friendly relations, than by any other authority, including the International Atomic Energy Agency. The position, however, is that our objections to the application of safeguards are of a fundamental nature. At the same time, we are fully conscious of your difficulties in agreeing to a sale without imposing the controls and, in an earnest endeavour to arrive at a mutually acceptable arrangement, we suggested the alternative of a lease, where we would be in a position to accept your conditions regarding safeguards, as administered by yourselves but by no third party.

3. I would emphasize again that the Indian atomic energy programme has no military components and our Establishment is open to accredited scientists from all friendly countries.

4. As you are aware, our foreign exchange difficulties have now assumed greater proportions, and we have now no alternative but to obtain the heavy water on lease. I would greatly appreciate an early reply to this letter, since if it is still not possible for you to accede to our request, we will have to make arrangements to obtain the heavy water from elsewhere.

With kind regards,

Yours sincerely,

(N. S. Siva)

Mr. John A. Hall
Director
Division of International Affairs
United States Atomic Energy Commission
Washington 25, D. C. (USA)

AEC

Informations

*Scotland - 5-2 - Heavy Water to India
B. Y. Man*

B 421

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

No. B-112
Tel. Hazelwood 7-7831
Extension 3446

FOR IMMEDIATE RELEASE
(Monday, July 13, 1959)

PRESS RUN *9 am*

U.S. LEASES 15 TONS OF HEAVY WATER
TO INDIA FOR USE IN RESEARCH REACTOR

The United States Atomic Energy Commission and the Government of India have signed a contract for the lease of 15 tons of heavy water to India for use as initial inventory for a zero energy research reactor located at Trombay, India. This reactor will be used by India for conducting research into the peaceful uses of atomic energy.

This is the first occasion on which the Commission has leased heavy water to a foreign government. On August 15, 1958, the AEC announced that heavy water could henceforth either be sold or leased for use in domestic or foreign research, medical or testing reactors. Previously, all Commission transactions in heavy water were conducted on a sales basis.

71359

*Porter 3
India*

JUL 2 1958

Dear Dr. Habba:

I have your letter of June 9th inquiring about the status of your request to procure heavy water from the Commission for use in a Zero Energy Research Reactor. I assume that you have by now seen Mr. Hall's letter to Mr. Siva, dated June 9, which obviously crossed your letter in the mails. A copy of this letter is enclosed.

I realize that the time it has thus far taken to carefully explore the alternative methods of handling the transfer of the material may seem unreasonably long, but, as I am sure you agree, there are some important principles involved in the consideration of the matter. I hope that you will find the proposal set forth in Mr. Hall's letter acceptable, as I believe it would be of mutual benefit.

Sincerely yours,

Chairman

*Sign
7/8/58*

CNC

Enclosure:
Ltr to N. S. Siva

Dr. Homi Habba, Secretary
Department of Atomic Energy
Government of India
Apollo Pier Road
Bombay 1, India

cc: Chairman
GM
AGMIA
Secretary ✓
State (2)
DIA (4)

Internal Concurrences
Mallison
Vander Weyden

Handwritten stamp:
DIA WASHINGTON
RECEIVED
JUL 14 1958
8:20 AM
DIA WASHINGTON

DIA:AA
RNSlayton:mks
6-24-58

DIA
Hall

AGMIA

GM

7-2-58

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Dist. 3-2 - India Request for Heavy Water

JUN 27 1958

MEMORANDUM FOR THE CHAIRMAN

TO: Assistant General Manager for International Activities
General Manager

SUBJECT: REPLY TO DR. BHABHA RE INQUIRY ON HEAVY WATER REQUEST

The attached letter to Dr. Bhabha (Attachment "A") is for your signature, and is in reply to an inquiry from Dr. Bhabha (Attachment "B") regarding the status of the GOX request to produce fifteen tons of heavy water from the Comstock. The status of the request, as well as a copy of my letter to Dr. W. S. Glyn, Deputy Secretary of the Indian Department of Atomic Energy, were circulated as ABC 337/9, dated June 26, 1958 and are also attached (Attachment "C"). 74119

John A. Hall, Director
Division of International Affairs

Attachments:
1cc to Dr. Bhabha
1cc to Dr. Glyn
1cc to Mr. Glyn

Handwritten notes and stamps

AMIA
Secretariat ✓

Without Attachments
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DOE NSI DECLASSIFICATION REVIEW E.O. 12958
BY JOSE BUCKNER DOE/NN-623

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IA:AM IA:AM IA
RHL:avac:ms Mallison Vester Waples Hall

~~CONFIDENTIAL~~

Isotopes - India Request for Heavy Water

Don

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

June 25, 1958

MEMORANDUM FOR ALL HOLDERS OF AEC 337/9

1. Copy (ies) 31-32 of AEC 337/9 was (were) distributed to your office on June 18, 1958.
2. Please make the following change to AEC 337/9:
Change the number of this paper from AEC 337/9 to AEC 741/9.

6-25-58

See page 3-2 - India

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

June 18, 1958

744/9
AEC 331/9

COPY NO. 31

ATOMIC ENERGY COMMISSION

INDIAN REQUEST TO LEASE HEAVY WATER
FOR USE IN A ZERO ENERGY RESEARCH REACTOR

Note by the Secretary

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

W. B. McCool
Secretary

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
1ST REVIEW DATE	DETERMINATION (CIRCLE NUMBER(S))
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NAME <i>Do Stamp below</i>	2 CLASSIFICATION CHANGED TO
2ND REVIEW DATE <i>8/23/70</i>	3 CONTAINS UNCLASSIFIED INFO
AUTHORITY DO	4 COORDINATE WITH
NAME <i>H. Rossi</i>	5 CLASSIFICATION CANCELLED
	6 CLASSIFIED INFO REMOVED
	7 OTHER (SPECIFY) <i>all documents</i>

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H. Rossi
Date *6/21/70*

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C. CHAMBERLAIN
L.S.M.
K. G. ...
7-11-73
18-58

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

June 9, 1958

MEMORANDUM FOR THE GENERAL MANAGER

THROUGH: Assistant General Manager for International Activities

SUBJECT: INDIAN REQUEST TO LEASE HEAVY WATER FOR USE IN A ZERO
ENERGY RESEARCH REACTOR

In order to bring you up to date on a request made by the Government of India in October 1956 to procure a quantity of heavy water for use in a zero energy research reactor, I have attached for your information a copy of a letter recently dispatched to the Deputy Secretary of the Indian Department of Atomic Energy on this subject.

This is the latest in a series of letters we have exchanged with the Indians in connection with their October, 1956 request to purchase 20 tons of heavy water for use in the subject reactor. The Commission, at Meeting 1232 on October 8, 1956, approved the sale of 20 tons of material to India subject to (1) State Department concurrence and (2) satisfactory solution of problems with respect to the safeguards provisions of the contract.

The State Department concurred in the sale and the Indians were informed of the safeguards we would require for the quantity and use of the material desired, which would include the right of the USAEC to: (1) require and request reports on the use of the material and (2) observe from time to time the condition and use of the material and to observe the performance of the research reactor in which it is used.

The Government of India, when informed of the safeguards, said it could not accept, under a sales contract, the rights accorded the USAEC since they would be considered an infringement of Indian sovereignty. In subsequent correspondence, however, in which the request was changed from 20 to 15 tons, the Indian Government said it could accept these rights under a lease arrangement because title to the material would then be vested in the USAEC and could, therefore, according to the Indians, logically carry with it the rights we desired. The Indians also mentioned that a foreign exchange shortage made a lease more attractive than a sales arrangement.

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Sec. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

We have attempted to dissuade the Indians from their position concerning lease by pointing out that our policy on the transfer of heavy water abroad is on a sale basis only. The Department of State had informed us that the Government of India could, if necessary, obtain funds internally for the purchase of the material (\$840,000 plus container, handling and shipping costs). In order to reach a compromise position on the transfer and safeguards questions that would be acceptable to the Indians and to ourselves, you will note in the attached letter that it is being proposed to the Government of India that we sell them the heavy water with the understanding that the IAEA would be asked to administer the safeguards as soon as it is in a position to do so. In the meantime and as necessary, the USAEC would administer the safeguards.

The State Department concurs in the above approach, but has recommended that the Commission give further consideration to leasing the material if the Government of India refuses to accept the proposal.

We shall keep you informed of further developments on this matter.

/s/ A. J. Vander Weyden for
John A. Hall, Director
Division of International
Affairs

Attachment:
Letter to Government of India

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

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

June 9, 1958

Mr. N. S. Siva
Deputy Secretary to the Indian Government
Department of Atomic Energy
Apollo Pier Road
Bombay 1, India

Dear Mr. Siva:

I am writing with further reference to the contemplated transfer of fifteen tons of heavy water to the Government of India for use in a zero energy research reactor.

During the past several weeks we have given thorough consideration to the respective difficulties our two Governments would encounter through the adoption of a lease or sales arrangement for the transfer of the heavy water your Government desires. We have been especially aware of your position regarding the acceptability of controls and safeguards under a bilateral transfer arrangement. As the result of our review we have developed a proposal which I am confident will satisfy the requirements of our respective Governments. Specifically, I would like to propose for your consideration an arrangement whereby the U.S. Atomic Energy Commission will sell the desired heavy water to your Government with a stipulation in the contract that the controls and safeguards provisions will be administered by the International Atomic Energy Agency as soon as the Agency is in a position to effectively do so. It is our belief that in view of the time that would normally elapse in consummating a contract and shipping the material to India, the relative simplicity of the reactor that would be subject to the safeguards, and the impetus the Agency would have to prepare for the implementation of the safeguards if requested to do so by our two Governments, it is probable that the Agency would be in a position to assume this responsibility at the appropriate time. In the event the Agency was not ready to assume this responsibility at the desired time, the U.S. Government would have to perform this function on an interim basis.

I hope that your Government will give favorable consideration to this proposal since, in addition to resolving your Government's difficulties in accepting U.S. administration of safeguards under a sales arrangement, it would promote early assumption by the Agency of its safeguards functions, an objective which I believe both our Governments consider very desirable. In the event the proposal is acceptable to you, I suggest that as an early step our two Governments communicate with the Agency and inform it of the contemplated use of its services in administering the controls and safeguards aspects of the contract.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

We have considered the possibility of leasing the heavy water in the light of your foreign exchange problem and are at this time unable to overcome the difficulties which this change in our policy would cause. I hope that with the passage of time you have been able to resolve your difficulties regarding the expenditure of exchange funds for the material and that we can move ahead rapidly with the proposed transfer arrangement.

I am sorry for the time needed for us to complete our review of this matter, but I am sure you can appreciate the many factors that we have had to consider in formulating the proposal outlined above.

Best personal wishes.

Sincerely yours,

/s/ John A. Hall

John A. Hall, Director
Division of International
Affairs

~~CONFIDENTIAL~~

December 14, 1956

His Excellency
Mr. Caganvihari Lallubhai Mehta
Ambassador of India
Washington, D. C.

My dear Mr. Ambassador:

I would be most appreciative if you would arrange to have the enclosed letter delivered to Dr. Homi J. Bhabha of the Indian Department of Atomic Energy. The letter to Dr. Bhabha transmits, for his review, a draft sales contract providing for the transfer of twenty tons of heavy water to the Government of India for use in a zero energy research reactor.

Copies of the above, as well as letters exchanged by Dr. Bhabha and Chairman Strauss, are enclosed for your retention.

Sincerely yours,

John A. Hall, Director
Division of International Affairs

Enclosures as
noted above

cc: G. C. Smith/State (3)
✓ Secretariat

December 14, 1956

Dr. H. J. Bhabha, Chairman
Department of Atomic Energy
Government of India
Apollo Pier Road
Bombay 1, India

Dear Dr. Bhabha:

I write with reference to your exchange of letters with Chairman Strauss in October of this year concerning your Government's interest in procuring twenty tons of heavy water for use in a zero energy research reactor, and our willingness to sell your Government this quantity of material.

I have enclosed for your consideration a draft sales contract covering the transfer of the heavy water. You will note that in numbered paragraph 4, the delivery schedule for the heavy water has not been included and your advice on this matter would be appreciated.

I am sorry for the delay in sending you this draft, and hope that we may hear from you in the near future.

Sincerely yours,

John A. Hall, Director
Division of International Affairs

Enclosure:

As noted above

cc: G. C. Smith/State (3)
H. E. Hoffman/OGC
B. W. Menke/PROD
✓ Secretariat

AGREEMENT made this _____ day of _____, 1956, by and between the United States Atomic Energy Commission (hereinafter referred to as the "Commission") and the President of India (hereinafter referred to as the "Government").

WITNESSETH THAT the parties agree as follows:

1. The Commission shall sell and deliver to the Government and the Government shall buy and accept twenty (20) short tons (twenty thousand (20,000) pounds avoirdupois) of heavy water (deuterium oxide D₂O) of not less than 99.775 percent (i.e., the content of deuterium, calculated as D₂O, shall not be less than 99.775 mol per cent or 99.775 per cent by weight.) Impurities may include trace quantities of tritium.
2. The price to the Government shall be Twenty-Eight Dollars (\$28.00) (U.S.) per pound of heavy water, payable in U. S. currency at the time of delivery, plus such additional amounts as shall represent the actual cost to the Commission under paragraph 3.
3. The foregoing price shall be f.o.b. plant site to be designated in each instance of delivery by the Commission and delivery shall be accepted by the Government at such site.
4. Delivery and acceptance of the heavy water sold and purchased under this Agreement shall be made in accordance with the following schedule:

The Government may postpone any of the above scheduled deliveries

It is notified the Commission at least ten weeks prior to the specified delivery date of the shipment which the Government wishes to purchase. The Commission shall make delivery of the shipment as purchased on a date indicated by the Government, which date shall be communicated to the Commission at least thirty (30) days before the date the shipment is desired. Delivery shall under the above conditions may be advanced by mutual agreement of the parties.

5. Prior to delivery, the heavy water sold under this agreement shall be packed for shipment in stainless steel containers provided by the Commission. The containers shall be cleaned, tested and marked for delivery by the Commission. Cost of containers and other costs incurred by the Commission under this paragraph shall be certified by the Commission and reimbursed by the Government as provided in paragraph 2.
6. Heavy water sold under this Agreement shall be at the sole risk of the Government from the time delivery is accepted by the Government and from then shall be without warranty, either expressed, implied or statutory. Such risk shall include any loss or damage resulting from containers or packaging, or other acts of the Commission performed in accordance with paragraph 5 of this Agreement. Notwithstanding the foregoing, the Commission will furnish additional quantities of heavy water to replace any heavy water lost or damaged in transit at the same price and under the other terms and conditions of this Agreement.
7. Weight and Assayable content of heavy water sold under this Agreement shall be ascertained by the Commission in accordance with the usual practice and shall be certified. In accordance

- with provisions to be mutually agreed, the Government may test the heavy water for purity prior to accepting delivery. Any claim must be made before delivery and acceptance.
8. The Commission shall not be liable for any failure to deliver or delay in delivering the heavy water under this Agreement when such failure or delay is due to any cause beyond its control.
 9. The Government agrees that neither this Agreement nor any interests thereunder shall be assigned. The Government further agrees that the heavy water and uranium shall be for use only in a new energy research reactor in connection with research into the use of atomic energy for peaceful purposes and shall be retained by the Government and not resold or otherwise distributed.
 10. The Purchaser shall assume responsibility of the heavy water and uranium, maintain records relating to the utilization and expenditures of such heavy water and the operation of the new energy research reactor in which such heavy water is used and make annual reports to the Commission on these subjects.
 11. If the Commission requests, the Purchaser shall permit representatives of the Seller to observe from time to time the condition and use of any of the heavy water and uranium and to observe the performance of the new energy research reactor in which such heavy water is used.
 12. This Agreement shall be construed in accordance with the laws of the United States of America.

- 4 -

IN WITNESS WHEREOF, the parties hereto, by representatives duly authorized, have executed this Agreement as of the day and year first above written.

WITNESSES:

FOR AND ON BEHALF OF THE
UNITED STATES ATTORNEY GENERAL

WITNESSES:

FOR AND ON BEHALF OF THE
PRESIDENT OF INDIA

Oct - 17, 1956

Allen J. Vander Weyden, Acting-Director
Division of International Affairs

W. B. McCool, Secretary

SAFEGUARD PROVISIONS FOR SALES OF HEAVY WATER

SYMBOL: SECY:WLO

1. On October 10, 1956, we sent you a memorandum concerning the Commission's decision on the sale of heavy water to India. During the discussion at Meeting 1132 on October 8, 1956, when the commission authorized this sale, the Commissioners briefly discussed problems with respect to the safeguard provisions to be incorporated into the sales agreement with India. Since this is the first time the question of safeguard provisions has been raised with respect to sales of heavy water and since this question has been raised in the staff with regard to the previously approved sale of heavy water to Isreal, the General Manager has requested that you prepare, for Commission consideration, a staff paper containing recommendations on appropriate safeguard provisions for future heavy water sales.

2. We will be pleased to assist you in circulating to the Commission your recommendations on this matter.

- cc; General Manager
- Asst. Gen. Mgr., Int'l Activities
- Asst. Gen. Mgr., Mfg.
- General Counsel
- Director, Operations Analysis
- Director, Production
- Director, Inspection
- Director, Civilian Application
- Policy Analysis Branch.

cf filed: Scales - 2

10-17-56

~~OFFICIAL USE ONLY~~

Isotopes 3-5 - Sale of Heavy Water to India

Allen J. Vender Weyden, Acting Director
Division of International Affairs

October 10, 1956

W. B. McCool, Secretary

COMMISSION DECISION ON SALE OF HEAVY WATER TO INDIA

SYMBOL: SEGY:NE

1. This will confirm our telephone notification that at Meeting 1232 held on October 8, 1956, the Commission:

a. Authorized, subject to State Department concurrence and satisfactory solution of problems with respect to the safeguard provisions of the contract, the sale of 20 tons of heavy water to India, for use in India, at the established price of \$28.00 per pound;

b. Noted that the Manager, Savannah River Operations, will coordinate the necessary shipment and billing upon receipt of the India order, including export licensing arrangements through the Division of Civilian Applications;

c. Noted that an appropriate public announcement will be issued after coordination with the Department of State and the Ambassador of India;

d. Noted that the Government of India will be informed of this action by appropriate letter from the Chairman to the Ambassador of India; and

e. Noted that the Joint Committee on Atomic Energy will be advised of this action by appropriate letter.

2. Please furnish this office with correspondence reflecting your action on this decision.

cc: General Manager
Asst. Gen. Mgr., I. A.
Asst. Gen. Mgr., Mfg.
Director, Production
Director, Information Services
Congressional Liaison

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authorization

OCT 13 1956

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OCT 13 1956

OFFICE	SECRETARIAT				
SURNAME	<i>R. Thomas</i>				
DATE	10/10/56				

~~OFFICIAL USE ONLY~~

10-11-56

OCT 12 1956

Dear Dr. Shatta:

With reference to your letter of October 5, 1956 and our subsequent conversation in New York, I am pleased to state that the Commission has approved in principle your request for an additional twenty (20) tons of heavy water for use in a zero energy research reactor.

As I discussed with you, it will not be necessary to include in the conditions of sale the same type of controls that prevail in the case of accelerator material for other than research reactors. However, in order to give consistency to positions we have taken in connection with safeguards generally, certain conditions in addition to those which applied in the previous sale will be required. I am confident that you will find these acceptable and consistent with the free relationship which exists between the Department and the Commission. I have asked our Staff to prepare a draft contract for your review. This will be forwarded as soon as it is completed.

Sincerely,

(Signed) Lewis L. Strauss

Chairman

Dr. H. J. Shatta
c/o Permanent Mission of India
to the United Nations
3 East 64th Street
New York 21, New York

RECEIVED
OCT 12 1956
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CO: Orig & cc - Addressee
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Gen. Mgr.
Secretary
Paul Foster/AGSIA
State Dept
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Vogel:bnd

Vanderheyden

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10-12-56

Isotopes - India

1232nd AEC
Meeting (ES) 1. Sale of Heavy Water to India
10-8-58
cuo

10-8-58

Anticip. 3-2 Sale of Heavy Water to India

PERMANENT MISSION OF INDIA
TO THE UNITED NATIONS
3 EAST 64TH STREET
NEW YORK 21, N. Y.

5th October 1956

C
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Dear Admiral Strauss,

The Department of Atomic Energy has decided to proceed immediately with the construction of a zero energy research reactor of the same type as the one named "Dimple" at Harwell. Its purpose is to enable a study of different lattices, size and shape of rods, effect of holes, etc.

This reactor will be constructed by our own engineers, and we hope to have it in operation by the end of 1957. I am writing to enquire whether your Commission would agree to sell the Department 20 tons of heavy water for this reactor on the same terms and conditions as previously.

We would greatly appreciate your agreeing to do so, and I am sure it will strengthen further the good relations which already exist between your Commission and this Department.

With my kindest regards,

(mirrored bleed-through text)

Yours sincerely,

(mirrored bleed-through signature)

(H. J. Bhabha)
Secretary to the Government of India
Department of Atomic Energy

Admiral Lewis L. Strauss
Chairman,
Atomic Energy Commission
19th St. & Constitution Ave. N.W.,
Washington, D.C.

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10-5-56

AEC

Isotope -3.2 - India, Request for Heavy Water

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

No. 795
Tel. ST 3-8000, Ext. 307

FOR RELEASE IN AFTERNOON NEWSPAPERS
TUESDAY, MARCH 13, 1956

FIRST HEAVY WATER SHIPPED ABROAD:
SALES OF 129 TONS APPROVED

Approval of the sale of 129 tons of heavy water to six nations for assistance in their peacetime applications of atomic energy was announced today by the U.S. Atomic Energy Commission. Sixteen tons of the material have been shipped abroad.

The initial consignments of 11 tons to Great Britain and 5 to France were manufactured at the Commission's plant at Dana, Indiana. Heavy water also is produced at its facilities in South Carolina. All sales are at the price of \$28 per pound announced August 8, 1955.

Included in the 129-ton total was an additional 11 tons for the Government of India. An original order of 10 tons for India, announced February 12, 1955, was the first to be approved for this special reactor material under the President's atoms-for-peace program.

The 21 tons will be used by the Government of India in a research reactor which the Government of Canada has announced it plans to give India under the Colombo Plan.

The total amounts approved for sale are as follows: United Kingdom -- 50 tons, France -- 30, India -- 21, Australia -- 11, Italy -- 10 and Switzerland -- up to 7, with 2 tons to be delivered by August, 1957.

Britain will use the material in several of its civilian research reactors. The Swiss order is to go to Reactor, Ltd., the private group which carries on nuclear research in Switzerland and operates the pool type research reactor purchased from the United States at the close of the atoms-for-peace Conference in Geneva last August.

Heavy water is used as a moderator in several types of reactors to slow down the speed of neutrons emitted in the splitting of atoms of the fissionable Uranium-235.

*Copies filed: Isotope -3.2 - U.S. Request for Heavy Water - 30 -
" " - France, Request for Heavy Water
31256 " " - Australia, Request for Heavy Water
" " - Italy, Request for Heavy Water
" " - Switzerland, Request for Heavy Water*

3-13-56

Boyd - 3-3 *John Regan for Heavy Water*
~~OFFICIAL USE ONLY~~

Morse Salisbury, Director
Division of Information Services
Attn: Charter Hasler

February 20, 1956

John A. Hall, Director
Division of International Affairs

DRAFT PRESS RELEASE ON SALE OF HEAVY WATER TO INDIA

SYMBOL: DIA:RNS

You may recall that a draft press release on the sale of an additional eleven tons of heavy water to India was attached to AEC 741/7 dated January 6, 1956, which was approved by the Commission on January 11, 1956. Pursuant to recommendation (f) of the paper, the draft release has been reviewed by the State Department and by representatives of India and Canada and there is no objection to its use except for the following minor changes:

1. Addition of the words "under the Colombo plan" at the end of the third paragraph.
2. Reverse the order of the penultimate and last paragraphs.

Attached is a copy of the press release with the suggested changes.

Since the sale of heavy water to Switzerland appears in the current AEC semiannual report, I believe Switzerland should be included in the list of countries mentioned in the draft release.

Please advise Mr. Slawson of this Division of the date the press release will be issued in order that the State Department and the United States Embassy in New Delhi may be informed accordingly.

Attachment:
Press Release

cc: Secretariat ✓

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25-20-52

ATOMIC ENERGY COMMISSION APPROVES SALE TO INDIA OF
AN ADDITIONAL ELEVEN TONS OF HEAVY WATER

Lewis L. Strauss, Chairman, U.S. Atomic Energy Commission, announced today that the Commission has agreed to the request of the Government of India for the sale to that country of an additional eleven tons of heavy water.

This quantity is in addition to ten tons of heavy water the Commission has already agreed to sell the Government of India, as was announced on February 12, 1955.

The total quantity of twenty-one tons will be used in an NRI type research reactor which the Government of Canada has announced it plans to give to India under the Colombo Plan.

Other countries to which the sale of heavy water for use in various research type reactors has been approved are the United Kingdom, Australia, Italy and France. The sale of this material will be made at the announced price of \$28.00 per pound.

This action is in line with President Eisenhower's Atlas for Peace policy to assist friendly countries in developing the peaceful uses of atomic energy.

*Isotope 3-2 - Indian Request
for Heavy Water*

UNCLASSIFIED

AEC 741/8

February 17, 1956

COPY NO. 24

ATOMIC ENERGY COMMISSION

HEAVY WATER TO INDIA

Note by the Secretary

1. The General Manager has requested that the attached letter from H. J. Bhabha, Secretary to the Government of India for Atomic Energy, be circulated for the information of the Commission.

2. The attachment has been referred to the Division of International Affairs.

W. B. McCool

Secretary

DISTRIBUTION

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Secretary	1
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General Manager	7
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AEC
741
8

2-17-56

35-56

UNCLASSIFIED

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

Ref: Tech.II/59(1)55

February 9, 1956

Dear Admiral Strauss,

I thank you for your letter of January 23, 1956[†] informing me that the United States Atomic Energy Commission is prepared to sell the Government of India eleven short tons of heavy water, in addition to the ten tons agreed to earlier.

2. On behalf of the Government of India I wish to thank the United States Government and the United States Atomic Energy Commission for agreeing to sell the Government of India twentyone short tons of heavy water at a price of \$28.00 per pound f.o.b. plant site. We appreciate that, in acceding to our request for this heavy water, the United States Government has been motivated by its desire to assist other countries in the peaceful uses of atomic energy. The Government of India's entire programme in this field is directed towards the peaceful uses of atomic energy, and the Government of India can readily give the assurance that the heavy water, which we are buying from you, will be used solely for research purposes and for the NRX type reactor to be built in India.

3. The changes we are suggesting in the draft agreement you gave me are minor verbal ones, except for an alteration of the total quantity of heavy water as agreed to in your present letter, and a consequent alteration in the delivery dates. We would like

Secretariat Note: *On file in the Secretariat.

UNCLASSIFIED

to have the first five tons of heavy water delivered to us by the 15th of March at the latest, as we have made financial provision for this quantity in the budget of the current year, which ends on March 31, 1956. The delivery dates for the remaining sixteen tons of heavy water will be adjusted accordingly.

4. Our Embassy in Washington is being asked to deal direct with Mr. John A. Hall, Director of the Division of International Affairs of your Commission, regarding this matter. We would like to purchase the appropriate containers for this heavy water in the United States, and Mr. Hall will no doubt be able to assist our Embassy in this also.

With my renewed thanks and kind regards,

Yours sincerely,

/s/ H. J. Bhabha

Secretary to the Government of
India

Admiral Lewis L. Strauss,
Chairman, United States Atomic
Energy Commission
WASHINGTON 25, D. C.
U. S. A.

JAN 27 1958

Dear Senator Anderson:

By letter dated February 8, 1955, the Joint Committee was notified that the Commission had approved the sale of ten tons of heavy water to the Government of India for use in a research reactor.

The Government of India has recently asked to purchase an additional eleven short tons of heavy water which, with the ten tons already agreed to, they plan to use in charging an HTI-type reactor which it is reported that Canada has offered to provide to India. They have asked that the material be delivered in 1956.

In view of the policy of our Government to assist other countries in the peaceful uses of atomic energy and pursuant to the appropriate provisions of the Atomic Energy Act of 1954, the Commission has approved the sale to India of an additional eleven tons of heavy water at a charge of \$25.00 per pound f.o.b. plant site.

Sincerely yours,

W. F. Libby

Chairman

Wendell H. Clinton, Jr., Secretary
Chairman, Joint Committee
on Atomic Energy, U.S.A. 80
Congress of the United States

cc: Chairman (1)
General Manager (1)
Secretary (1)
Cong. Comm. (2)
Wells/OGC (1)
Hesch/Prod (1)

1-27-58

Envelope 3-5 Indian Request for Heavy Water

Jan 29, 1956

**Dr. H. J. Krishna, Chairman
Department of Atomic Energy
Government of India
Apollo Pier Road
Bombay 1, India**

Dear Dr. Krishna:

I refer to your letter of November 6, 1955 in which you indicated that the Government of India would like to purchase eleven short tons of heavy water, in addition to the ten tons earlier agreed to, for use in charging the BHI type reactor that is to be constructed in India.

I am very pleased to inform you that in accordance with the United States Government's desire to assist other countries in the peaceful uses of atomic energy, the Atomic Energy Commission is prepared to sell the Government of India an additional eleven short tons of heavy water for use in the BHI type reactor with the understanding and your assurance that the heavy water will be used solely for research purposes and for the BHI reactor. As with the original ten tons, the charge for the material will be \$28.00 per pound f.o.b. plant site.

With respect to delivery, the Commission is prepared to deliver the heavy water in accordance with the schedule you have indicated subject, of course, to completion of a contract and the necessary arrangements provided for therein for actual transfers of the material. In connection with the five tons you wish to receive by February 1, 1956, it appears doubtful that there will be sufficient time to complete arrangements for delivery of the material by this date. You may be sure, however, that we stand ready to expedite shipment of the material. In this connection, any comments you may have on the draft contract covering the sale of heavy water would be appreciated. Inasmuch as the draft contract provided only for the transfer of the original ten tons, we shall forward you, after receipt of any comments you may have, another contract with the appropriate changes.

OFFICE				
SURNAME				
DATE				

FORMS A 90-1018 Rev. 5-4

1-23-56

May I suggest, in order to simplify and expedite implementation of the contract, that you designate a representative in the United States who could confer with the Commission staff on matters connected with the contract. Mr. John A. Hall, Director of the Commission's Division of International Affairs, will be your point of contact on this matter.

With respect to the draft Agreement for Cooperation that we discussed during your visit, we hope to have a firm policy on the distribution of fuel for power reactors in the near future. You may be sure that we shall be in touch with you promptly at that time.

Kind regards.

Sincerely yours,

Chairman

cc: Chairman
General Manager
Secretariat
E. J. Koch/PROG
A. A. Walls/OGG
D. G. Smith/ State (2)

W.C.

OFFICE	DIA	CHAIRMAN	OGG	1/19/56	1/20/56
SURNAME	<i>Roe</i>	<i>Stovell</i>	<i>JK</i>		
DATE	1/17/56				

FORM 4 (10-21-54) (1) 11-571
U. S. GOVERNMENT PRINTING OFFICE 16-5226-1

Notes - 3-2 India Request for H.W.

~~OFFICIAL USE ONLY~~

John A. Hall, Director
International Affairs

January 12, 1956

W. B. McCool, Secretary

COMMISSION DECISION ON AEC 741/7 - INDIAN REQUEST FOR ADDITIONAL HEAVY WATER

SYMBOL: SECY:JEA

1. This is to confirm that at Meeting 1163 on January 11, 1956, the Commission:

- a. Determined that the sale of an additional 11 short tons of heavy water to India for use in an NRX-type reactor is in the interest of the national security;
- b. Approved the sale of 11 short tons of heavy water to India;
- c. Noted that a price of \$28.00 per pound, f.o.b. plant site, will be charged for the material;
- d. Noted that the contract covering the sale of this quantity, and the 10 tons of heavy water approved earlier, will provide that the material will be used in the Indian research reactor program and that the material will not be transferred beyond the jurisdiction of the Government of India;
- e. Noted that Dr. Bhabha will be notified of this action by letter such as Appendix "C" to AEC 741/7;
- f. Noted that the JCAE will be notified of this action by letter such as Appendix "D" to AEC 741/7;
- g. Noted that the AEC and Department of State will coordinate with the Indian and Canadian Embassies in the issuance of press release such as Appendix "E" to AEC 741/7.

2. You are requested to take the action necessary to implement this decision.

3. Copies of any implementing papers should be furnished this office.

cc: General Manager
General Counsel
Director, Production
Congressional Liaison

~~OFFICIAL USE ONLY~~

OFFICE	Secretariat				
SURNAME	JEAmons: dvg				
DATE					

1-12-56

~~OFFICIAL USE ONLY~~

October 11, 1956

COPY NO. 1

ATOMIC ENERGY COMMISSION

Decision on AEC 741/7

Indian Request for Heavy Water

Note by the Secretary

At Meeting 1163 on January 11, 1956, the Commission:

a. Determined that the sale of an additional 11 short tons of heavy water to India for use in an NRX-type reactor is in the interest of the national security;

b. Approve the sale of 11 short tons of heavy water to India;

c. Noted that a price of \$28.00 per pound, f.o.b plant site, will be charged for the material;

d. Noted that the contract covering the sale of this quantity, and the 10 tons of heavy water approved earlier, will provide that the material will be used in the Indian research reactor program and that the material will not be transferred beyond the jurisdiction of the Government of India;

e. Noted that Dr. Bhabha will be notified of this action by letter such as Appendix "C" to AEC 741/7;

f. Noted that the JCAE will be notified of this action by letter such as Appendix "D" to AEC 741/7;

DISTRIBUTION

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Savannah River Oprns	18-19

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g. Noted that the AEC and Department of State will coordinate with the Indian and Canadian Embassies in the issuance of press release such as Appendix "E" to AEC 741/7.

W. B. McCOOL

Secretary

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~~CONFIDENTIAL~~

January 6, 1956

AEC 741/7

COPY NO. 31

ATOMIC ENERGY COMMISSION

INDIAN REQUEST FOR ADDITIONAL HEAVY WATER

Note by the Secretary

The General Manager has requested that the attached report by the Director of International Affairs be circulated for consideration by the Commission during the week of January 9, 1956.

W. B. McCool
Secretary

<u>DISTRIBUTION</u>	<u>COPY NO.</u>
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DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
1ST REVIEW DATE	(DETERMINATION (CIRCLE NUMBER))
AUTHORITY (E) EC	1 CLASSIFICATION RETAINED
NAME <i>John R. ...</i>	2 CLASSIFIED UNDER E.O. 11652
2ND REVIEW DATE <i>2/2/82</i>	3 DOWNGRADED OR DECLASSIFIED
AUTHORITY (D) <i>...</i>	4 CONFIDENTIAL
NAME <i>...</i>	5 UNCLASSIFIED
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CLASSIFICATION CANCELED
DOE NSI DECLASSIFICATION REVIEW E.O. 12958
BY: JOIS. BUCKNER DOENI-523

AEC
741
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1-9-56

1-9-56

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ATOMIC ENERGY COMMISSION

INDIAN REQUEST FOR ADDITIONAL HEAVY WATER

Report to the General Manager by the
Director, of International Affairs

THE PROBLEM

1. To consider the sale of an additional eleven tons of heavy water to the Government of India.

SUMMARY AND CONCLUSIONS

2. Dr. H. J. Bhabha, Chairman, Indian AEC, indicated, during a meeting with Chairman Strauss on October 13, 1955, that the Government of India would like to purchase a quantity of heavy water, in addition to the 10 tons approved for sale to India by the Commission earlier this year (See AEC 741/2, AEC 741/4 and Addendum to AEC 741/4) for use in charging an NRX-type reactor that Canada has decided to give to India. By letter dated November 6, 1955, (Appendix "A"), Dr. Bhabha has informed the Commission that 42,000 lbs. (21 short tons) of heavy water will be required for the reactor, and that India would therefore like to purchase 11 additional tons of this material. Deliveries have been requested as follows: 5 tons on April 1, 1956 and 6 tons on August 1, 1956. With respect to the 10 tons already approved, Dr. Bhabha has asked that 5 tons be delivered by February 1, 1956 and 5 tons be delivered by June 1, 1956.

3. The Canadians have announced that the reactor, which they will give to India as a contribution under the Colombo Plan, will be a replica, with modifications to meet Indian conditions,

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Sec. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

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OR CHANGED BY [Signature]
DATE [Signature] 11-23

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

of the NRX reactor at Chalk River. It is understood that the Canadian Government will contribute about \$8 million toward the reactor, and that the Government will let contracts to Canadian and American firms for manufacture of the various parts of the reactor and related equipment. It is reported that the remainder of the costs of the reactor project, which will consist of local costs connected with the construction of buildings, facilities, will probably be financed by India. Unlike the United States plan to establish a regional reactor training center for the Asian Colombo Plan countries, the Canadian gift to India is a bilateral transaction within the general framework of the Colombo Plan. Although the Indians have reportedly agreed that foreign scientists may collaborate in the use of the reactor, it is not intended that the project will become a regional training center. It is understood that the Indians will determine the manner in which the training of foreign scientists will be carried out.

4. The Division of Production has advised that there are sufficient quantities of heavy water to meet the Indian request without interfering with the AEC's internal requirements or our commitments to other countries.

5. The Department of State has advised by memorandum dated December 23, 1955 that they strongly support the sale of additional quantity of heavy water to India (Appendix "B").

6. Section 161.j of the Atomic Energy Act of 1954 provides that the Commission may make such disposition as it may deem desirable of (1) radioactive materials, and (2) any other property the special disposition of which is, in the opinion of the Commission, in the interest of the national security.

7. In view of the policy of this Government to assist friendly foreign countries in the peaceful utilization of atomic energy and the views of the Department of State, it is concluded that it will be in the national interest to sell this material to the Government of India.

STAFF JUDGMENTS

8. The Division of Production and the Office of the General Counsel concur in the recommendation of this paper.

RECOMMENDATION

9. The General Manager recommends that the Atomic Energy Commission:

a. Determine that the sale of an additional 11 short tons of heavy water to India for use in an NRX-type reactor is in the interest of the national security, and approve the sale of this quantity to India;

b. Note that a price of \$28.00 per pound, f.o.b. plant site, will be charged for the material;

c. Note that the contract covering the sale of this quantity, and the 10 tons of heavy water approved earlier, will provide that the material will be used in the Indian research reactor program and that the material will not be transferred beyond the jurisdiction of the Government of India;

d. Note that Dr. Bhabha will be notified of this action by letter such as Appendix "C";

e. Note that the JCAE will be notified of this action by letter such as Appendix "D";

f. Note that the AEC and Department of State will coordinate with the Indian and Canadian Embassies in the issuance of press release such as Appendix "E";

LIST OF ENCLOSURES

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APPENDIX "E" - Atomic Energy Commission Approves Sale to India of an Additional Eleven Tons of Heavy Water.	12

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APPENDIX "A"

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

November 6, 1955

Dear Admiral Strauss,

I refer to the draft contract for the sale of heavy water by the U.S. Atomic Energy Commission to the Government of India, which you gave me during our last meeting in Washington, and my subsequent letters to you of the 19th and the 21st of October from New York.

2. As you will have seen from the letter to me of Mr. J. S. Gray of Atomic Energy of Canada, Limited, a copy of which I enclosed with my letter of the 21st October, we shall require in all 42,000 pounds of 21 short tons of heavy water for our NRX project. This is not much more than the 18 long tons I mentioned in our conversation (it is 18.75 long tons, to be precise). We trust you will agree to supply the full amount, and I greatly appreciated your personal assurance in this regard. In clause 4 of the draft contract I was given, it is suggested that 5 short tons shall be made available at any date requested by us prior to June 1, 1956, and the remaining 5 tons at any such date after June 1, 1956, but prior to September 1, 1956. Accordingly, we request that 5 short tons be delivered by February 1, 1956, and another 5 short tons by June 1, 1956. As regards the remaining 11 short tons, we would appreciate having them at your earliest convenience after April 1, 1956. We suggest that 5 short tons might be delivered on April 1, 1956, and the last lot of 6 short tons on August 1, 1956. If these delivery dates are suitable to

~~CONFIDENTIAL~~

[REDACTED]

you, I will have the contract form filled in appropriately.

3. There are several matters of detail regarding containers, etc., about which I need not trouble you. I should be glad, however, if you would designate some officer in your organization with whom the appropriate person in this Department could correspond regarding these details.

With my kindest regards,

Yours sincerely,

/s/

H. J. Bhabha

Admiral Lewis L. Strauss,
Chairman, United States Atomic
Energy Commission
Washington 25, D. C.
U. S. A.

~~CONFIDENTIAL~~

APPENDIX "B"

SPECIAL ASSISTANT TO THE SECRETARY OF STATE
WASHINGTON

December 23, 1955

MEMORANDUM FOR

Mr. John A. Hall,
Atomic Energy Commission.

I am pleased to advise you that the Department of State strongly supports the sale to India of the additional eleven tons of heavy water as proposed in your memorandum to me of November 28, 1955.

As of interest, I am attaching for your retention a copy of the telegram giving the concurrence of Embassy New Delhi to this proposal.

/s/

Gerard C. Smith
Special Assistant to the Secretary

Attachments:

~~CONFIDENTIAL~~

DEPARTMENT OF STATE

MEMORANDUM

December 22, 1955

TO : Secretary of State

FROM: New Delhi

In view of Indian determination for advancement the Atomic Energy Embassy believes that continued and somewhat increased cooperation of Atomic Energy field, by us and other free countries essential in order to minimize effect, Russian assistance offers this field. The Embassy strongly favors prompt authorization sale of additional heavy water.

~~CONFIDENTIAL~~

APPENDIX "C"

DRAFT LETTER TO DR. BHABHA, INDIAN AEC

1. I refer to your letter of November 6, 1955 in which you indicated that the Government of India would like to purchase eleven short tons of heavy water, in addition to the ten tons earlier agreed to, for use in charging the NRX type reactor that is to be constructed in India.

2. I am very pleased to inform you that in accordance with the U. S. Government's desire to assist other countries in the peaceful uses of atomic energy, the Atomic Energy Commission is prepared to sell the Government of India an additional eleven short tons of heavy water for use in the NRX type reactor with the understanding and your assurance that the heavy water will be used solely for research purposes and for the NRX reactor. As with the original ten tons, the charge for the material will be \$28.00 per pound f.o.b. plant site.

3. With respect to delivery, the Commission is prepared to deliver the heavy water in accordance with the schedule you have indicated subject, of course, to completion of a contract and the necessary arrangements provided for therein for actual transfers of the material. In connection with the five tons you wish to receive by February 1, 1956, it appears doubtful that there will be sufficient time to complete arrangements for delivery of the material by this date. You may be sure, however, that we stand ready to expedite shipment of the material. In this connection, any comments you may have on the draft contract covering the sale of heavy water would be appreciated. Inasmuch as the draft contract provided only for the transfer of the original ten tons, we shall forward you, after receipt of any comments you may have, another contract with the appropriate changes.

~~CONFIDENTIAL~~

[REDACTED]

4. May I suggest, in order to simplify and expedite implementation of the contract, that you designate a representative in the United States who could confer with the Commission staff on matters connected with the contract. Mr. John A. Hall, Director of the Commission's Division of International Affairs, will be your point of contact on this matter.

5. With respect to the draft Agreement for Cooperation that we discussed during your visit, we hope to have a firm policy on the distribution of fuel for power reactors in the near future. You may be sure that we shall be in touch with you promptly at that time.

[REDACTED]

~~CONFIDENTIAL~~

APPENDIX "D"

DRAFT LETTER TO CHAIRMAN, JCAE

1. By letter dated February 8, 1955, the Joint Committee was notified that the Commission had approved the sale of ten tons of heavy water to the Government of India for use in a research reactor.

2. The Indians have recently asked to purchase an additional eleven short tons of heavy water which, with the ten tons already agreed to, they plan to use in charging an NRX-type reactor Canada plans to provide India. They have asked that the material be delivered in 1956.

3. In view of the policy of this Government to assist other countries in the peaceful uses of atomic energy, the Commission has approved the sale to India of an additional eleven tons of heavy water at a charge of \$28.00 per pound f.o.b. plant site.

~~CONFIDENTIAL~~

APPENDIX "E"

ATOMIC ENERGY COMMISSION APPROVES SALE TO INDIA
OF AN ADDITIONAL ELEVEN TONS OF HEAVY WATER

1. Lewis L. Strauss, Chairman, U.S. Atomic Energy Commission, announced today that the Commission has agreed to the request of the Government of India for the sale to that country of an additional eleven tons of heavy water.

2. This quantity is in addition to ten tons of heavy water the Commission has already agreed to sell the Government of India, as was announced on February 12, 1955.

3. The total quantity of twenty-one tons will be used in an NRX type research reactor which the Government of Canada has announced it plans to give to India.

4. This action is in line with President Eisenhower's Atoms for Peace policy to assist friendly countries in developing the peaceful uses of atomic energy.

5. Other countries to which the sale of heavy water for use in various research type reactors has been approved are the United Kingdom, Australia, Italy and France. The sale of this material will be made at the announced price of \$28.00 per pound.

~~CONFIDENTIAL~~

Drafts 3.3 Indian Request for Heavy Water

DEC 12 1955

Dr. M. J. Shukla, Chairman
Department of Atomic Energy
Government of India
Apollo Pier Road
Bombay 1, India

Dear Dr. Shukla:

Your letters of October 19 and November 6, 1955 have been received and I shall be in touch with you again in the near future following Commission consideration of your request for an additional eleven short tons of heavy water for use in the BHK-type reactor.

Thank you very much for the copy of the report you delivered on the Geneva Conference before the First Committee of the United Nations. I read it with great interest.

Kind regards.

Sincerely yours,

Chairman

cc: Chairman
General Manager
Secretariat

12-10-55

Envelope 3-2 - ^{India} Request for Heavy Water

UNCLASSIFIED

AEC 741/6

November 21, 1955

COPY NO. 24

ATOMIC ENERGY COMMISSION

SALE OF HEAVY WATER TO INDIA

Note by the Secretary

The General Manager has requested that the attached letter from the Chairman, Department of Atomic Energy, India, be circulated for the information of the Commission. The attachment has been referred to the Division of International Affairs.

W. B. McCOOL

Secretary

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GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

November 6, 1955

Dear Admiral Strauss,

1. I refer to the draft contract for the sale of heavy water by the U.S. Atomic Energy Commission to the Government of India, which you gave me during our last meeting in Washington, and my subsequent letters to you of the 19th and the 21st of October from New York.

2. As you will have seen from the letter to me of Mr. J.S. Gray of Atomic Energy of Canada, Limited, a copy of which I enclosed with my letter of the 21st October,*we shall require in all 42,000 pounds or 21 short tons of heavy water for our NRX project. This is not much more than the 18 long tons I mentioned in our conversation (it is 18.75 long tons, to be precise). We trust you will agree to supply the full amount, and I greatly appreciated your personal assurance in this regard. In clause 4 of the draft contract I was given, it is suggested that 5 short tons shall be made available at any date requested by us prior to June 1, 1956, and the remaining 5 tons at any such date after June 1, 1956, but prior to September 1, 1956. Accordingly, we request that 5 short tons be delivered by February 1, 1956, and another 5 short tons by June 1, 1956. As regards the remaining 11 short tons, we would appreciate having them at your earliest convenience after April 1, 1956. We suggest that 5 short tons might be delivered on April 1, 1956, and the last lot of 6

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short tons on August 1, 1956. If these delivery dates are suitable to you, I will have the contract form filled in appropriately.

3. There are several matters of detail regarding containers, etc., about which I need not trouble you. I should be glad, however, if you would designate some officer in your organization with whom the appropriate person in this Department could correspond regarding these details.

With my kindest regards,

Yours sincerely,

/s/

H. J. Bhabha

Admiral Lewis L. Strauss,
Chairman, United States' Atomic
Energy Commission,
Washington 25, D. C.,
U. S. A.

November 18, 1955

Dear Senator Anderson:

This is to advise you that the Government of India has indicated an interest in negotiating a bilateral agreement for cooperation with this Government providing for the exchange of information in both the research and power reactor field. Such an agreement was proposed by Dr. H. J. Bhabha, Chairman of the Indian Atomic Energy Commission, during his recent visit to Washington.

Dr. Bhabha, during these discussions, also indicated that the Government of India wished to purchase approximately eight tons of heavy water for use in a research reactor, in addition to the ten tons originally requested and approved by the Commission as was reported to the Joint Committee in my letter dated February 8, 1955.

We shall advise you when a decision has been reached on this request.

Sincerely yours,

Chairman

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

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Justopu 3-2 India, Request for H.W.

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AEC 741/5

October 27, 1955

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ATOMIC ENERGY COMMISSION

SALE OF HEAVY WATER TO INDIA

Note by the Secretary

The General Manager has requested that the attached letter from H. J. Bhabha, Permanent Mission of India to the United Nations, concerning the purchase of heavy water by India, be circulated for the information of the Commission. The attachment has been referred to the Division of International Affairs.

W. B. McCool
Secretary

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PERMANENT MISSION OF INDIA
TO THE UNITED NATIONS
3 EAST 64th STREET
NEW YORK 21, N. Y.

21st October 1955

Dear Admiral Strauss,

I send you herewith a copy of a letter I have just received from Mr. Gray of Atomic Energy of Canada Limited, which gives precisely the amount of heavy water we will require. It would be greatly appreciated if your Commission would agree to supply us this water.

I will write to you again from India about the precise delivery dates, and return the draft contract that was given to me in Washington after it has been processed through our Government.

With my kindest regards,

Yours sincerely,

/s/

H. J. Bhabha

Admiral Lewis L. Strauss
Chairman,
Atomic Energy Commission
19th St., & Constitution Ave., N.W.,
Washington, D. C.

enc.

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ATOMIC ENERGY OF CANADA LIMITED
Ottawa, Canada

Chalk River, Ontario

October 18th, 1955

Dr. H. J. Bhabha,
Consulate General of India,
3 East 64th Street,
New York, N. Y.

Dear Dr. Bhabha,

Confirming our telephone conversation of this morning,
the following are the requirements for heavy water for the
NRX reactor:

Minimum quantity	40,000 lbs.
Minimum purity recommended	99.76% (weight % D ₂ O)
Present purity NRX	99.8% D ₂ O
Spare stock recommended	1,000 - 2,000 lbs.
Normal yearly make-up	200 - 300 lbs.

Yours sincerely,

/s/

J. L. Gray
Vice-President (Administration
and Operations)

DATE:

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TO:

FROM:

SUMMARY: AEC 864 REPORT ON DISCUSSIONS OF INDIAN BILATERAL AGREEMENT AND OTHER TOPICS.
Memo from State Department regarding discussion with Dr. Bhabha in connection with; Bilateral Agreement with India, Heavy Water Contract, Thorium Contract and Heavy water Processing information.

FILED: RESEARCH & DEVELOPMENT 1-1 INDIAN BILATERAL AGREEMENT WITH

INDEXER: Date of paper Sept. 7, 1955

REMARKS:

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