S/AE 450290

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INFORMATION REPORT

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CENTRAL INTELLIGENCE AGENCY (b)(1) (b)(3)

COUNTRY: India (S)

REPORT NO. [redacted] RDF

DATE DISTRIBUTED: 17 APR 56 HOE

SUBJECT: Proposed Fertilizer and Heavy Water Plant for Bhakra-Nangal Project (b)(1) (b)(3)

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THIS IS UNEVALUATED INFORMATION

SOURCE [redacted] (b)(1) (b)(3) (S)

1. [redacted] attended a series of conferences with officials of the Bhakra-Nangal Project of the Indian Ministry of Supply at New Delhi, India. The Project includes the construction of a large fertilizer and heavy water plant and the US firm has been asked by the Indian Government to prepare a preliminary project report containing recommendations regarding processes to be used; firms to be engaged; guarantees of capacity; and estimates of cost. The Indian officials who attended the conferences were (not all attended every meeting held morning and afternoon of four consecutive days):

Mr B Mukerji
Manager, B-N Project

Mr K C Sharma
In Charge Fertilizer-D_2O Plant

Mr S D Singh
Mechanical Engineer

Mr C L Handa
Hydroelectric Engineer

Mr Kapila
Assistant to Mr Handa

Dr H J Bhabha
Chairman, Indian AEC

Mr Prasad
Adviser to Dr Bhabha

Unnamed Representative
of Indian AEC

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☐ Retain class'n ☐ Change / classify to
☑ With concurrence of CIA
☑ Declassify ☐ In part and excise as shown
EO 12356, Sec. 1.3 (a) ( )
FPC/HDR by [redacted] 9 1 31 1 94
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SPECIAL ASSISTANT TO THE SECRETARY
S/AE
APR 23 1956

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(b)(1) (b)(3) (S)

(b)(1) (b)(3) (S) 2. [redacted] representatives of the French firm of St Gobain were also conferring with Mr Mukerji and his associates and were being asked to prepare a preliminary project report.

3. Mr Mukerji was presented with rough estimates of capital, operating costs and production rates of nitrogen fertilizer and heavy water for four combinations of processes. [redacted] prepared the production data based upon its understanding of Indian design objectives and [redacted] hoped that [redacted] discussions with the Indian officials would serve to clarify their attitude regarding the processes, their production objectives and their cost accounting practices. Mr Mukerji expressed a strong preference for the process by which hydrogen is produced by electrolysis of water at 30 atm if he could be assured of the dependability of pressure-electrolysis and of the hydrogen-distillation process for concentrating deuterium. [redacted] cells for producing hydrogen by electrolysis of water at 30 atm process had been developed by Dr (fnu) Lonza of the Lurgi Company, Switzerland, and had been operated on a pilot scale there but had not been used in a full commercial plant. The US firm representatives told Mr Mukerji that they could not certify the dependability of these cells but planned to check German and Swiss experience and give an opinion on the preliminary project report.

(b)(1) (b)(3) (S)

4. A reservation [redacted] expressed about the use of the hydrogen-distillation process in India was their ignorance of how much experience is available for the operation of low-temperature plants. They also told the Indian officials that they would need trained help for modifications to the plant during a shake-down period. The training most useful during the period would be experience in field welding of aluminum and stainless steel and field vacuum testing of large equipment. Mr Sharma and Dr Bhabha were certain that this kind of experience is available in India and after the US representatives had seen Indian fabrication practice they would share this opinion.

5. The Indian Government's design objectives for the nitrogen-heavy water plant are:

a. utilization of 160 thousand kw of firm power

b. production of 71 thousand metric tons of fixed nitrogen per year

c. production of fertilizer and heavy water in such proportions and at such process conditions that the unit cost of production of fertilizer is a minimum, when credit is taken for heavy water valued at Rs 91 (US$40) per pound [sic]

Originally the Government had stated (c) as "production of the maximum possible amount of heavy water." When the US representatives pointed out that this sets no limit on the size and cost of the heavy-water section of the plant, the Indians agreed to accept (c) as amended [above] and to ask Dr Bhabha to set the monetary value for D_2O.

6. [redacted] presented the Indian officials with a list of materials for which Indian prices would be needed. Answers were obtained during the four-day conference.* Also, Mr Sharma commented in detail on annual production costs in India and gave the US representatives enough information to prepare a revised table of annual production costs in lakhs of rupees (10^5 rupees), based on Indian prices, labor standards, wage rates and accounting practices.**

[redacted]

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