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TECHNICAL ASSESSMENT

Analysts from the AEC, [] and the Department of State met on 27 October to examine the consequences of postponing the next inspection of the Dimona reactor site until 1 January 1966, and concluded the following:

3.4(b)(1)

A. In the period between the last inspection of Dimona in January 1964 and 1 January 1966, the Dimona reactor, operating at a power level designed to maximize plutonium production, could produce 6 to 12 kgs of plutonium from fuel elements fabricated by the Israelis themselves. This would be enough to provide material for one or two test devices.

B. All the facilities necessary to acquire plutonium, except a chemical separation plant, are or soon will be available. The 100 tons of uranium concentrate recently acquired from Argentina far exceeds the uranium requirements for the Dimona reactor, if operated at stated power and irradiation levels. If the Israelis intended to maximize reactor operations for production of plutonium suitable for weapons, the 100 tons of uranium concentrate would be sufficient for about two years.

C. The critical element for the Israelis in obtaining fissionable material for a weapon is the capability to separate the plutonium from the irradiated fuel elements from the Dimona reactor. A chemical separation plant could be built to process reactor cores from Dimona in about two years after a decision to do so, i.e., if started shortly after the last inspection in January 1964, it could be operational by early 1966. If such a schedule were followed, the Israelis would begin to acquire significant quantities of weapons grade plutonium by mid-1966. There is a possibility that the Israelis could separate small quantities of plutonium in pilot-plant operations during this period. The extent of their capabilities to separate plutonium, however, could only be determined by on-site inspection.

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By SJ, NARA, Date 8-11-03

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Group 3

Downgraded at 12 year intervals; not automatically declassified.

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Discussion

The Israelis have bought 100 tons of uranium concentrate from Argentina in the last year and are planning to negotiate for an additional 100 tons soon. These amounts are far in excess of the requirements of the Dimona reactor operated for research purposes (a single core loading of about 8 tons of metal, the equivalent of 10 tons of concentrate, would last about two years.) It is unlikely that Israel would purchase large quantities of uranium concentrate for stockpiling, since it is readily available under safeguards on the world market at a lower price (about \$13.00 per kg as opposed to the \$17.9 paid by the Israelis for the Argentine concentrate.)

A plant for reducing the concentrate to metal is now in operation at Dimona. If operated at full capacity it could produce about 50 to 60 tons of uranium metal per year, roughly the equivalent of processing 60 to 70 tons of concentrate.

A facility for fuel element fabrication is expected to be in operation by the end of 1964 and will be able to produce a complete core for the Dimona reactor in two or three months, or four to six reactor cores per year.

A chemical separation pilot plant was not yet in existence in January 1964, at the time of the last inspection, although the building had been constructed. The Israelis said at the time no decision had been made to go forward with installation of equipment. The original plan called for a processing capacity of about one kg. of uranium per day, i.e., pilot plant size. A full size plant capable of handling several reactor cores per year would take about two years to build at a cost of about \$20 million. If the Israelis started construction of such a plant in early 1964, following the last inspection, they could begin processing a backlog of irradiated fuel elements by early 1966 and have separated 6 to 12 kg. of plutonium by the later part of 1966.

The Dimona inspection teams recommended in January 1964 that the next inspection, from a technical point of view, should

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be within one year, for the following reasons: "(a) by that time the reactor is expected to be at full power, (b) fuel material production facilities, although possibly not yet complete, may be more accurately assessed, and (c) the probability that their fuel production capacity is at a level inconsistent with the requirements of currently planned programs may be more accurately evaluated."

The new information that has become available since January 1964, strongly reinforces the inspection team's recommendation for an inspection this year.

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