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FEB 5 1966

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MEMORANDUM FOR MR. McGEORGE BUNDY
THE WHITE HOUSE

Subject: Dimona Inspection and Need to Implement Initiative to Prevent Nuclear Proliferation in the Near East.

A United States inspection team visited the Dimona reactor site January 30, 1965. Although the ten hours spent at the site did not permit as detailed a visit as desirable, the team believes there was sufficient time to determine the status of activity at Dimona. Major findings (see enclosure) included:

1. The future direction of atomic energy development in Israel appears uncertain because anticipated acquisition of a nuclear power and desalting plant has increased Israeli interest in slightly enriched uranium fueled reactors from abroad and reduced interest in developing natural uranium fueled reactors in Israel.

2. While nothing suggests an early weapons development program, the Dimona site has excellent development and production capability that warrants continued surveillance at intervals not to exceed one year.

The team findings indicate that we can afford to accede to Prime Minister Eshkol's request that we postpone the next agreed six-monthly inspection until after the parliamentary elections in November this year.

We remain concerned that Israel may have succeeded in concealing a decision to develop nuclear weapons. The team findings must be weighed against the following facts:

1. Israel concealed the existence of the Dimona reactor from us for about two years.

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2. Israeli officials did not allow adequate time for thorough inspection of the Dimona site and arranged no visits to sites of projected related facilities.

3. Israeli officials ruled questions about procurement of uranium from abroad "outside the scope of the visit" and suggested taking them up through normal diplomatic channels.

4. Israel is acquiring missiles from France designed to accommodate either high-explosive or nuclear warheads.

5. Public and private statements by Israeli officials suggest military planning that includes the use of nuclear weapons.

Given these circumstances, we urge prompt approval of the request of the Acting Secretary to the President December 18, 1964, for authority to initiate negotiations with Israel to extend IAEA safeguards to all Israeli nuclear facilities.

To/ Benjamin H. Reed

Benjamin H. Reed
 Executive Secretary

Enclosure:

Preliminary Draft Report.

S/S - RO

FEB 6 1965

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NEA:NE:HERussell:rvc:2/4/65

cc: AEC
 G/PM
 C. Moor
 G/PM (unsigned)

NEA - Mr. Jernigan
 NE - Mr. Davies *emp*
 SCI - Mr. Thomas *WTR*
 G/PM - Mr. George

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Enclosure

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This document consists of 5 pages; number 3 of 10 copies, Series A.

PRELIMINARY DRAFT REPORT OF
DIMONA INSPECTION TEAM

Introduction

1. Professor Igal Talmi, designated by the Prime Minister of Israel as his representative, and Mr. Moshe Gilboa, Escort Officer during the 1962 and 1964 visits, met the team at the airport at 1830, 27 January 1965. The schedule for the visit, as proposed by the Israelis, called for visits to the Weizmann Institute and the reactor at Nahal Soreq on Thursday, 28 January, and a visit to the Negev Institute for Arid Zone Research at Beersheba on Friday morning. The formal visit would begin Friday afternoon with a trip to the phosphate mines at Oron. The visit to the Dimona Site was scheduled for Saturday. The team suggested that the trip to Oron be deferred until Sunday to permit the visit to Dimona to begin Friday afternoon. Professor Talmi promised to investigate this possibility but, on Thursday evening, reported that a visit to Dimona on Friday would require informing many more people about the purpose of the visit. He urged that the team accept the proposed schedule. The team then requested a very early start on Saturday and arrived at the site one and one-half hours earlier than the original schedule. The Israelis were cooperative and cordial throughout the visit and made every effort to expedite and to facilitate the team's activities. The team requested an additional meeting with Mr. Pratt, the Dimona Site manager, and Professor Talmi on Sunday morning to recapitulate the results of the visit and to clear up any uncertainties. As for the visit last year, not all facilities could be visited in one day at the site. It was also necessary to curtail, sometimes rather rudely, detailed discussions of research projects in order to complete the minimum requirements for the visit. The Israelis made it rather clear that they would not favor an extension of the visit into the late evening. Although the pace was fast and the visit not as detailed as could be desired, it is the consensus of the team that the visit provided a satisfactory basis for determining the status of activity at the Dimona Site.

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Highlights of the Visit

1. Major uncertainties exist regarding the future direction of atomic energy development in Israel. These were stated to be primarily the result of the U.S.-Israeli desalting project.
2. There appears to be an assumption that the desalting project will result in Israel getting a nuclear power and desalination plant at half-price or less. This has resulted in increased interest in slightly enriched uranium fueled reactors from abroad and decreased interest in support of development of natural uranium fueled reactors within Israel for the near term.
3. The national water company (Mekorot) has assumed the dominant role in the desalting project and the Israeli Atomic Energy Commission has little, if any, influence. This has led to the resignation (not accepted) of the Chairman of the Atomic Energy Commission and to obvious concern on the part of the Director of the Dimona Center.
4. Construction of the uranium recovery plant associated with the phosphate works did not proceed. Discussions regarding such a plant are still in progress but a firm decision to build the plant has not yet been made. The plant now being discussed would be located at Arad rather than Oran; with a capacity of 12 to 30 tons of uranium per year.
5. The fuel fabrication plant at Dimona (uranium metal to canned sub-assemblies) was placed in standby condition on January 1, 1965, and operation is not expected to resume for at least one year, based on fuel requirements for the reactor.
6. The metal recovery plant also is being shut down. The first stage of operation (the wet processes) were discontinued in November 1964. Processing of the present stock of materials will be completed by mid-March 1965 and the plant will be placed in standby condition at that time. The Director of the Dimona Center said that it was indefinite when or if the plant would be returned to operating condition.
7. The reactor started a three-month demonstration or acceptance run, at design power of 26 MW, on December 7, 1964. Operation at 32.5 MW was acknowledged to be possible within the original hot spot temperature limitation.
8. Integrated power on the reactor at the time of the visit was approximately 1700 MWD (about 200 MD/ton, average). Two fuel elements were removed at about 65 MD/T in order to insert two elements made in Israel. The reactor is loaded with 167 fuel elements containing 8.35 tonnes of natural uranium alloyed with 0.5% Mo.

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9. The team made an effort to account for all of the Uranium at the Dimona Site and was able to make an approximate material balance for about 25 tonnes both by examination of records and by partial physical count.

10. There still are about 40 "foreigners" at the site, including about 18 at the reactor. They will stay until several remaining construction and testing jobs are finished which may be six months or more. Principal jobs mentioned were installation of auxiliary equipment in the fuel storage pond and repair of CO₂ blowers for the reactor's experimental facilities.

11. There was little evidence of immediate plans for experimental use of the reactor even though the design power test run should be completed within about one month. This is at least partially rationalized by the fact that blowers and other equipment for the test facilities will not be ready for several months.

12. There has been no approval of a research and development program or of a budget for the fiscal year starting April 1, 1965. A program was prepared by Prof. Bergman but has not been approved. An R & D budget of five million Israeli pounds has been requested by Mr. Pratt--he has only been advised that he will get less. He is very pessimistic about future support and even talked of the possibility of having to shut down the reactor. Total cost of running the center would require approximately an additional 26 million Israeli pounds.

13. Questions regarding procurement of uranium from other countries were ruled to be "outside the scope of this visit." It was suggested that such questions be taken up through normal diplomatic channels. Mr. Pratt and Prof. Talmi denied any knowledge of such arrangements. This information was passed on to the U.S. Ambassador who apparently will await further instructions.

14. Plant security has been increased by installation of an electrical fence--reportedly the result of sabotage activities around the Jordan River project.

15. There is no evidence of further activity on Pu extraction from irradiated fuel. However, some basic work is now in progress in the extensive Pu research facilities using 56 grams of the 150 grams of Pu available to them from the French. Also, it was stated that one of the rooms in the hot laboratories with two small lead shielded boxes was to be used for small scale transuranium element extraction from reactor fuel samples.

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16. While there appears to be no near term possibility of a weapons development program at the Dimona Site, the site has excellent development and production capability that warrants continued surveillance at maximum intervals of one year.

17. Neither the total Israeli capability to produce natural uranium nor to manufacture Pu at Dimona is now being used. At present, facilities do not exist to produce more than about three tons per year of natural uranium; no capability exists to produce and recover Pu. However, the potential to enter into these companion efforts is there and could be implemented by installing additional equipment. An estimate of this potential follows:

	Present	Possible with ease	Crash effort maximum
<u>Natural uranium production</u>			
Oron plus Arad phosphate, tonnes U/yr.	0	12-30	80-160
<u>U ore concentrate purification</u>			
at Dimona, tonnes/yr.	0	10-30	30-100
<u>Nitrate to U metal</u>			
at Dimona, tonnes/yr.	0	10-30	90-100
<u>Fuel Rod Fabrication</u>			
at Dimona, tonnes/yr.	0 in 1965 4.15 in 1966	20	70-90
<u>Reactor Pu Production Capacity</u>			
a. for Pu @ 8.3 tonnes/core 75% onstream, 1200 MWD/tonne			5.5 kg/yr.
b. for Pu @ 8.3 tonnes/core 85% onstream, 32 MW, 800 MWD/tonne			10 kg/yr.
c. for Pu @ 9.0 tonnes/core 85% onstream, 45 MW, 800 MWD/+			15 kg/yr.

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	Present	Possible with ease	Crash effort maximum
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Reprocessing for Pu recovery

(no equipment installed)

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Pu Metal Production

Unknown, but adequate space and research equipment exists for considerable production. No production plans.

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Duplicity, Deception, and Self-Deception: Israel, the United States, and the Dimona Inspections, 1964-65

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