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Israel Reactor
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POST-MORTEM ON SNIE 100-8-60
IMPLICATIONS OF THE ACQUISITION BY
ISRAEL OF A NUCLEAR WEAPONS CAPABILITY

BACKGROUND

1. Intelligence was obtained during the period August-November 1960 confirming that Israel started construction of a sizable reactor complex in 1958-59. The secrecy and deception surrounding the undertaking suggests that it is intended at least in part for the production of weapon-grade plutonium.

2. The U. S. Intelligence Board directed on 13 December 1960 (Item 9, USIB-M-131) that the Joint Atomic Energy Intelligence Committee prepare a detailed post-mortem on why the intelligence community did not recognize this development earlier, and with the objective of improving our capability for achieving more prompt detection of the possible quest for a nuclear weapons capability by other potential "Nth" countries.

CONCLUSIONS

3. The Israelis probably made the decision to go forward with their secret reactor project as early as 1956, and collaboration with the French on this project had been initiated by 1957.

a. Information was available to some elements of the intelligence community as early as April 1958 that could have alerted the atomic energy intelligence community to Israeli intentions for the early

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construction of an experimental power reactor in addition to the small research reactor being provided by the US.

b. Information concerning the site in the Negev came to intelligence channels from Special Intelligence sources in mid-1959, but was discounted because the other information in the item was demonstrably untrue.

c. Information on Israeli heavy water procurement was available in the U. S. Government as early as June 1959, but not disseminated to intelligence, would have confirmed the existence of an additional reactor construction program in Israel.

d. If the atomic energy intelligence community had properly interpreted information available on Israeli reactor plans and promptly and persistently sought additional information on this program, we believe that the ultimate secrecy or deception surrounding this development would have been detected and Israeli intentions recognized at least one year earlier.

e. If the details of French/Israeli collaboration which were established as collection requirements as early as 1957 had in fact been obtained, Israeli intentions would have been detected one or perhaps two years earlier.

4. The second priority status of Israel tended to reduce the effort and urgency attributed to this problem. Further, the general feeling that Israel could not achieve this capability without outside aid from the US or its allies, and the belief that any such aid would be readily known to

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the US, led to a tendency to discount rumors of Israeli reactor construction and French collaboration in the nuclear weapons area.

5. It is considered that nuclear developments by other potential "Nth" countries may also be shrouded in secrecy and more than a routine overt collection effort will probably be required in some instances to effectively predict them.

6. There are still significant gaps in our knowledge on the disposition of the plutonium to be produced at the new Israeli reactor site. Also, we lack information on the size, type, and numbers of reactors involved, and hence their plutonium production potential.

RECOMMENDATIONS

7. A concerted effort should be made to obtain information on the characteristics of the Israeli reactors, how and where the plutonium produced will be processed and used, plans for weapon development, and the extent of foreign assistance and collaboration.

8. JAEIC should perform a thorough survey of intelligence on all potential "Nth" countries, and insure that proper guide and ad hoc requirements are established to cover effectively the collection of technical information on the "Nth" country problem. This should include proper inclusion in the IPC target listing.

9. Department of State and AEC should insure prompt and systematic reporting of political and technical information to the intelligence community on nuclear developments in all possible "Nth" countries. CIA, Clandestine Service (CIA/CS) should expeditiously disseminate all information

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that it collects on this subject. In addition, USIB member agencies should insure systematic identification and effective overt intelligence exploitation of uniquely qualified U.S. scientists visiting potential "Nth" countries.

10. The Clandestine Service should initiate a program of intelligence coverage of possible secret nuclear developments in all selected potential "Nth" countries.

11. Departments and agencies receiving information which has been placed in a specially restricted category because of sensitivity of source or necessity for special handling should endeavor to ensure that the gist of information which bears on the "Nth" country problem is made available to the cognizant sectors of the intelligence community.

12. USIB member agencies should insure that a concerted effort is being made to obtain full reporting on the political factors that would identify the motivations or intentions of potential "Nth" countries to pursue a nuclear weapons capability.

13. USIB member agencies should endeavor to improve internal and inter-agency dissemination procedures for raw information to insure prompt dissemination of atomic energy information to intelligence producers.

DISCUSSION

14. Current Priority National Intelligence Objectives (DCID 1/3, dated 24 May 1960) list under Second Category: "r. Non-Bloc nuclear energy research and development, production of fissionable materials, and

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use of such materials for weapons and other purposes;...." Intelligence collection and analysis on Israel has been conducted under this Second Category Priority in National Scientific and Technical Intelligence Objectives since 15 September 1958. During the period 10 January 1956 - 15 September 1958, Israel was listed in the Third Category Priority, and prior to 10 January 1956 was not listed.

15. Intelligence research on the Israeli atomic energy program, including NIS reporting, is performed on a part-time basis by one intelligence analyst in OSI/CIA who is responsible for corresponding coverage of over forty Bloc and Non-Bloc countries. The AEC also has one intelligence analyst who follows the Israeli nuclear program along with those of the majority of Non-Bloc countries. Other JAEIC member agencies pursue incoming raw information on this subject on a day-to-day basis and guide pertinent intelligence collection within their respective agencies, but do not perform any intelligence research in depth on Israeli atomic energy activities.

16. a. Since 1957, the Department of State Comprehensive Economic Reporting Program (CERP) Guide levied on the U.S. Embassy at Tel Aviv has included specific sections on atomic energy developments and nuclear fuel resources.

b. Since 1956, the Department of State has from time-to-time levied requirements on the Embassies both in Tel Aviv and Paris for information on Franco-Israeli collaboration in the military, economic and political fields. Personnel assigned to Tel Aviv have regularly been briefed on this requirement before departing Washington. No science attache is assigned to Tel Aviv and none of the Department

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of State personnel assigned to the Embassy have had scientific training.

c. Collection of information on scientific developments in Israel in the fields of chemistry and physics has been included for several years in the CIA Periodic Reporting List (PRL) that has been widely disseminated to all major intelligence collection agencies. Specific reference to Israeli reactor developments was first incorporated in this latter collection list in December 1960.

d. Within CIA, a requirement was levied upon the Clandestine Service, 25 July 1957 for the development of a program of intelligence exploitation of International Programs for Peaceful Uses of Atomic Energy. This was aimed primarily at detection of surreptitious action by foreign governments to acquire a nuclear weapons capability.

e. The first pertinent ad hoc intelligence collection requirement in Israeli atomic energy developments was served on the Department of State by OSI/CIA in March 1958 (see paragraph 19 below).

f. The routine briefing and debriefing of Service attaches posted to Israel and their collection guidance has included atomic energy coverage, and attaches are furnished Intelligence Collection Guidance Manual for Joint Usage on Nuclear Energy (AFM 200-76/DA PAM 30-109).

g. In response to the post-mortem on RIE 100-2-58, "Development of Nuclear Capabilities by Fourth Countries: Likelihood and Consequences," JAEIC considered the problem of collection in the "fourth country" area, and requested the ABC and Department of State to review the situation

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with regard to collection efforts of their agencies on the "fourth country" problem. The AEC and State were urged to intensify their efforts particularly toward French and cooperative European nuclear energy programs and report their progress to JAEIC. The Department of State reported that in October and December of 1958, as a direct result of the post-mortem, the Department had circulated requests for information on the technical and political aspects of the development of nuclear capabilities of fourth countries. Unfortunately, Israel was not specifically included as a country of interest since it was only mentioned briefly in the estimate and was not included in the post-mortem. (These Department of State requests would, of course, also go to the AEC representatives abroad.) AEC reported continuation of its program of oral briefings of AEC travelers and overseas representatives. Specific and ad hoc requirements were also issued by OSI/CIA once a significant nuclear research capability had been identified in a specific country, e.g., France, West Germany, Italy, Communist China, Poland and Czechoslovakia.

h. In December 1959, CIA/CS established requirements for reporting on any Israeli participation in the first scheduled French nuclear tests in the Sahara (see paragraph 24 below).

17. There has been an ample flow of information from overt sources, including Office of Operations/CIA (OO/CIA), on atomic energy developments during recent years at the Weizmann Institute and at the nearby Israeli AEC laboratory where a research reactor has been provided under a US bilateral

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agreement, but no information relating to the Beersheba site was received. The first item of information concerning the site in the Negev came to intelligence channels from Special Intelligence sources in mid-1959, but was discounted because the other information in the item was demonstrably untrue. Further intelligence information was received in early 1960, but was deemed insufficient by OSI/CIA analysts as a basis for a sound judgement and was discounted. US Embassy, Tel Aviv, forwarded on 2 August 1960 a report from a US nuclear engineer that the Israelis were constructing a major reactor with French assistance. Three months were required to obtain adequate confirmatory information via US collection agencies and UK liaison channels. This information resulted in a JABIC statement on 7 December 1960 and in the subject SMIE, 8 December 1960. The chronology of pertinent information is discussed below.

Chronology of Pertinent Information Available within US Government

18. In early 1956, Israel initiated negotiations for 10 tons of heavy water from the AEC in connection with the request for bids on the design and construction of a 10 MW natural-uranium, heavy-water-moderated reactor. The AEC agreed to furnish this heavy water with adequate safeguards. However, Israel did not follow-up on the request for either the reactor or the heavy water. Although the reactor bid request was reported in the AEC's 20th Semiannual Report of July 1956 (unclassified), information on the heavy water negotiations was not specifically transmitted to the intelligence community. Although at the time this heavy water was associated with a peaceful-uses reactor program, in retrospect it might have provided insight into the fact that Israel desired to embark on a major reactor construction program independent of peaceful uses safeguards.

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19. In response to a Department of State Circular of 3 January 1958 soliciting comments on the problem of liability in atomic reactor mishaps, the US Embassy in Tel Aviv reported on 3 March 1958 an interview with Dr. Bergmann, Chairman of the Israeli Atomic Energy Commission, which discussed the research reactor to be supplied by the United States, the eventual need for nuclear power in Israel, and Israel's production of small quantities of uranium and heavy water. Ad hoc requirements were prepared by OSI/CIA on 27 March 1958 requesting detailed information of Israel's uranium and heavy water production. These requirements were transmitted to the Embassy in Tel Aviv by the Department of State on 13 June 1958, and the Embassy replied on 10 July 1958. These requirements were evidently served almost verbatim on Dr. Bergmann by the Second Secretary of the Embassy. While Dr. Bergmann answered the questions in some detail, he was somewhat perturbed by the request. He stated that the decision to build a heavy water plant had been taken, but the capacity of this plant was still undecided. He expected to submit a report by the end of July 1958 which would enable the government to decide about the size. The answers contained no indication of reactor construction.

20. While Dr. Bergmann had stated in the interview reported by the US Embassy, Tel Aviv, on 3 March 1958 that no formal decision on nuclear power had as yet been taken by the Israeli Government, the Embassy reported on 16 April 1958 that Dr. Bergmann had said on 15 April that the decision to build a power reactor had already been taken; however, it would take at least two and a half years to construct the experimental reactor now contemplated, and five to seven years before a large, economically feasible

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reactor could be put into operation. At that time, it was assumed wrongly by intelligence that the experimental reactor referred to was the small US-supplied swimming pool research reactor, the procurement of which was then being negotiated. There have been numerous conflicting statements on the eventual use of nuclear power in Israel, and as recently as March 1960, Dr. Bergmann is reported to have stated that it would be at least five years before Israel would be able to erect a nuclear power station.

21. During the period 1952-59, there were numerous reports of rumors that France was assisting Israel in the nuclear energy field. A few of these reports indicated that the French would supply, or aid in the development of nuclear weapons. A French-Israeli agreement for cooperation in atomic energy has been known to exist since 1953, but it has never been published and its details are not known to the US. On 15 April 1958, Dr. Bergmann stated categorically that the agreement was limited to the exchange of information on uranium chemistry and the production of heavy water. U.S. intelligence presumed (wrongly) that French aid was in fact limited to these fields. The French repeated this position in November 1960 but finally officially admitted to reactor collaboration in mid-December (see paragraphs 32 and 42 below.)

22. On 25 May 1959, the U.S. Naval Attache in Tel Aviv reported a British source as stating that the resignation of General Dan Tolkowsky on 26 April 1959 as head of the Development Authority of the Israeli Defense Ministry was due to his opposition to the attempts to obtain atomic weapons by Shimon Peres, Director of the Ministry. The Attache, however, was unable

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to confirm Tolkovsky's stand, and no action was taken by the U.S. intelligence community on the basis of this report.

23. On 5 June 1959, an official of the Norwegian Foreign Ministry advised a representative of the Division of International Affairs, AEC, in strict confidence that they had completed a "secret" agreement for the sale of heavy water to Israel which "included safeguards and inspection". A Memorandum of Conversation on this incident was forwarded to the Department of State and in turn to the AEC on July 1959 by the U.S. Embassy, Oslo, but neither Agency disseminated this information to the U. S. intelligence community until 13 December 1960.

24. In early 1960, CIA/CS obtained information that specific Israeli observers would be present at the first French nuclear weapons tests, and this information was never disseminated because it could not be confirmed that any observers actually attended. It was, however, discussed informally in JAEIC on 12 January 1961.

25. In April 1960, CIA/CS obtained information that Norway had sold 20 tons of heavy water to Israel. This information has not been formally disseminated, but was discussed informally in JAEIC on 12 January 1961.

26. In August 1960 a dispatch (No. 75) from the U.S. Embassy, Tel Aviv, dated 2 August 1960, was received which reported the possible construction of an Israeli power reactor with French assistance. At the AEC member's request, the report was discussed briefly at the 25 August 1960 JAEIC meeting, and members were requested to report any available information at the next meeting (8 September 1960). No new information was reported at the subsequent meeting. Concurrently, a memorandum on the status of the Israeli nuclear

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energy program had been prepared on 2 September by OSI/CIA, but was not disseminated to JAEIC pending collection of further information. Follow-up collection requirements on the reported power reactor were prepared by OSI/CIA on 19 September 1960 and were sent to Paris and Tel Aviv by the Department of State on 19 October 1960.

27. CIA/US learned 19 August 1960 that a secretary with the US Embassy in Tel Aviv had reported to her Department of State supervisor several months earlier that she had visited Beersheba with an Israeli boyfriend who told her the French were building a reactor. She met through him a number of French families in Beersheba and was told at the time the matter was being kept a secret. This information was not formally disseminated by CIA since it was received after the above 2 August US Embassy dispatch No. 75, and it was believed that the dispatch contained essentially the same information. It was, however, discussed informally in JAEIC on 12 January 1961.

28. In view of the intensive investigation into the Negev complex from August 1960 onward, and the large body of information produced, the following paragraphs discuss only selected items which cover significant delays encountered in the dissemination of pertinent information within the intelligence community. A detailed table covering the period August-December 1960 is attached which lists the dates on which pertinent information regarding the Israeli problem was received in Washington by the intelligence community, the date of the information, a brief of the information itself, and the action resulting from the information.

29. Cables from CIA/London, which stated that the United Kingdom believed a reactor was under construction near Beersheba, were dated 27 October and 3 November and received on 2 and 3 November 1960. Ground photography of the

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possible site was received through PIC channels from the United Kingdom on 8 November. On 9 November hurried analysis of the photography led to a preliminary assessment that the site was probably a reactor complex, JAEIC members were alerted, and requirements for photographic interpretation were served. Preliminary results of the analysis were discussed by JAEIC on 21 November 1960, and the Committee agreed that no firm conclusions could be drawn until the photo-interpretation was completed and all pertinent data assembled and the matter would again be reviewed in one to two weeks.

30. On 9 November, AFCIN sent instructions (AFIC-3W 56-60) to the Air Attache in Israel to secure additional photographs of the Beersheba site and any other information available. A reply from the Assistant Air Attache, dated 21 November, indicated that he had first observed the site on 30 July 1960 while on a personal trip, and had been told by the accompanying Israeli Assistant Foreign Liaison Officer that the installation was a metallurgical research laboratory. He again passed the installation on 16 November with the Israeli Senior Foreign Liaison Officer who also told him that it was a metallurgical research laboratory. The Attache obtained long-range ground photography on 16 November. His detailed report and copies of the photographs were received by AFCIN on 1 December and were disseminated on 27 December 1960. However, a single copy of one of the photographs was received in Washington through CIA channels on 5 December 1960 and made available in JAEIC.

31. The Army Attache in Israel obtained an excellent series of ground photographs of the installation on 9 August 1960, but did not identify the facility or appreciate its significance. These photographs were among over

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200 received in Washington on 4 October by ACSI/Army. However, the Attache's failure to supply the required photographic data delayed further processing and dissemination. When it was ascertained that photographs of the reactor site had been taken by the Attache, the photographs were eventually located and made available to atomic energy intelligence elements on 8 December 1960.

32. On 22 November 1960, in reply to the requirements initiated by CIA on 19 September, the US Embassy, Paris, reported an interview in which the AEC Representative, Paris, confronted a member of the French Atomic Energy Commission with information that the US had learned of the construction of a nuclear power plant in Beersheba and asked for information on French participation. French official and industrial collaboration in such a project was flatly denied, and the French-Israeli agreement was described as relating to uranium and heavy water production. However, on 27 December 1960, a French official advised the AEC representative in Paris that earlier statements were the "party line" at that time, but that the assistance concerned a heavy water, natural uranium reactor. This information was disseminated to JAEIC on 23 January 1961.

33. Confirmation of French assistance to Israel in this reactor project was obtained in London from the UK by a CIA/CS representative on 15 November 1960. This information was received in CIA/CS on 21 November, but no dissemination was made until OSI/CIA learned of its existence when a reference was made to this information in a subsequent CIA/London cable of 8 December 1960 sent through atomic energy intelligence liaison channels. This report was finally disseminated to the intelligence community on 10 December 1960.

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34. On 16 December, CIA/OSI received information through atomic energy intelligence liaison channels that the UK-AKID had information that France sold Israel blueprints for the Marcoule G-3 Reactor in 1957. This information was not disseminated to JAEIC member agencies until 13 January 1961.

35. On 26 November, the US Embassy, Paris, reported that Prof. Gomberg, University of Michigan nuclear scientist, was returning to the US from Israel and that he had information regarding the Israeli nuclear power reactor. Prof. Gomberg was debriefed in Washington on 1 December by representatives of AEC, CIA, and State, and reported that he was convinced that the installation in the Negev was a French-Marcoule-type reactor being erected with French technical assistance, that construction had been under way for about two years, and that it was scheduled to be completed in about a year. Prof. Gomberg had inquired about the project during his final meeting with Dr. Bergmann, and learned that it was planned that Prime Minister Ben-Gurion would make a statement about three weeks hence (approximately 14 December).

36. When the US Ambassador, Tel Aviv, learned by information copies of Paris-Washington Department of State traffic that Gomberg possessed such information, he acknowledged on 30 November his awareness of the information obtained by Gomberg during the latter's recent visit to Israel.

37. On 3 December, the US Ambassador to Israel reported that Dr. Bergmann had told him that Ben-Gurion planned to make an announcement the next week which would include mention of a 20 MW heavy-water-moderated research reactor to go critical in about a year and a half. Upon receipt of this report, a follow-up debriefing of Prof. Gomberg was made. Prof. Gomberg stated that, while the Israelis had originally considered this type of research reactor, he had no information that they would build one, and doubted that the Negev installation was a heavy-water-moderated research reactor.

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38. Information received from the United Kingdom in the first week of December 1960 through atomic energy intelligence liaison channels revealed to the JAEIC members for the first time that Norway had furnished about 20 tons of heavy water to Israel in 1959 and 1960. Inquiry throughout the US Government revealed that the Department of State and AEC had information in July 1959 (paragraph 23 above) of a secret Israeli-Norwegian heavy water transaction, and CIA/CS knew the transaction involved 20 tons of heavy water in April 1960 (see paragraph 25 above). On 12 December 1960, the Department of State requested the US Embassy, Oslo, to supply any further information on the Norwegian-Israeli heavy water agreement. On 22 and 30 December, the Embassy reported the current status of the agreement and Norway's reluctance to exercise its inspection safeguards at this time.

39. The AEC received information in September 1960 on Norwegian-Israeli cooperation in hot cells usable for small-scale plutonium separation. This information was disseminated to JAEIC member on 6 December 1960.

40. On 6 December 1960, Mr. Hall, Assistant General Manager for International Affairs, AEC, advised Dr. Reichardt of the AEC, that in Vienna in September 1960, Dr. Bergmann indicated that a power reactor was under construction as part of a "classical" power reactor program. Dr. Bergmann added that the Israelis were interested in accumulating plutonium because they had great hopes for the plutonium breeder cycle and that they hoped their first medium power reactor would be finished by April or May of 1961. Mr. Hall was invited to "come and see it (the reactor) sometime." This information was formally disseminated to JAEIC member agencies on 12 January 1961.

41. On 19 December, when the President's Science Advisory Committee was briefed on the Israeli development, Dr. Eugene Wigner of Princeton,

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stated that while he was teaching in Israel (at Israeli invitation) in July 1960, he had driven past the installation and that it was referred to as a power reactor site. The intelligence community failed to obtain timely information of Dr. Wigner's travel, and no debriefing occurred until 19 December.

42. While there had been some general mention of the "Nth" country problem in the press in early December, the Israeli situation did not come into the open until 16 December when the DAILY EXPRESS (London) published an article by Chapman Pincher, its Scientific Correspondent, stating that Israel was well on the way to building her first experimental nuclear bomb. Israeli officials immediately denied any nuclear weapons capability, and the French announcement of 19 December also denied any assistance in a military nuclear program. The French announcement added that the assistance furnished by France to the Israeli program concerned a heavy-water, natural-uranium reactor and that all necessary provisions had been made to assure utilization of the installation for exclusively peaceful purposes. On 21 December, in reply to a question in the Knesset (parliamentary assembly), Ben-Gurion stated that Israel was building a 24 MW research reactor in the Negev which would not be completed for another three or four years.

Major Actions Taken During December 1960 on This New Information

43. JAEIC issued statements on the problem on 2 and 7 December, based on the evidence available on each date, and CIA informally briefed the staff of the Joint Congressional Committee on Atomic Energy on 3 December 1960. An SNIE was prepared and given preliminary coordination by USIB on 8 December, and the Joint Congressional Committee on Atomic Energy was briefed by State, AEC, and CIA on 9 December 1960.

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