

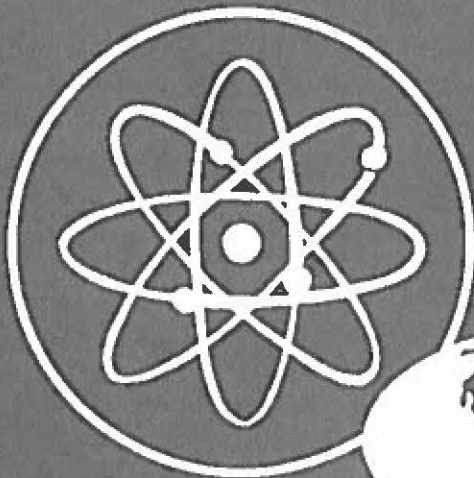
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AEC

INTELLIGENCE

REPORT



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By JDS, NARA, Date 5-6-19

ISRAELI REACTOR SITE 60-3
December 9, 1960

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AEC Report
60-3

ATOMIC ENERGY COMMISSION
INTELLIGENCE REPORT

December 9, 1960

ISRAELI REACTOR SITE NEAR BEERSHEBA

FOREWORD

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George B. O'Leary

Charles H. Reichardt
Director of Intelligence

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ISRAELI REACTOR SITE NEAR BEERSHEBA

The following report updates the item on the "Israeli Reactor Site Under Construction," which appeared in the November 17 AEC Intelligence Review, and is based on all information available as of December 7, 1960.

Recent information confirms that Israel is engaged in construction of a nuclear reactor complex in the Negev near Beersheba. A number of interpretations of the function of this complex are possible, including research, plutonium production, and/or nuclear electric power generation. Israeli statements and other sources indicate that the Israelis have been building a nuclear power reactor. However, the secrecy surrounding the project suggests that the complex is intended for the production of weapon-grade plutonium, whether or not generation of electric power is involved. Recent statements by the Chairman of the Israeli Atomic Energy Commission indicate that a 10-20 MW heavy water research reactor is being constructed. The possibility of these activities occurring simultaneously is evidenced by two distinct construction areas about 1500 feet apart. One area clearly includes a reactor containment building in an early stage of construction. In the other area, construction is much more advanced and includes extensive support facilities.

We have extensive evidence that France is supplying plans, materials, equipment, technical assistance and also training Israeli personnel. Since there is no large scale native source of uranium ore and no evidence of a uranium metal plant, we believe that the French are also supplying the reactor fuel elements. It has also been reported that the Israelis have obtained about 20 tons of heavy water and possible other assistance from Norway.

If Bergman's statements are complete and factual, the heavy water research reactor would be installed in the dome-shaped containment building. Such a reactor would utilize approximately 20 tons of heavy water and could be similar to the French EL-3 reactor with a thermal power of 15 MW. However, the 100 kva electrical power transmission lines seen leading into the site appear to be too extensive to serve only a research reactor with little plutonium production capability. Such an assumption is also incompatible with the security of the site, and the large scale of the entire project, and particularly the large size of the dome-shaped containment building.

The identification of a tall cylindrical structure in the advanced construction area is the critical item. If this structure is an uncompleted exhaust stack, then it is highly probable that the area contains a large, air-cooled French G-1 type production reactor with a possible thermal power of about 100 MW. Operation by mid-1961 appears to be reasonable. This premise would indicate that the dome-shaped building is intended for a later reactor of a different type.

However, if this tall structure were a water tank of the type used at the French EDF-1 site, then a closed cycle power and/or plutonium production reactor would be indicated in the dome-shaped containment building in the second, less advanced construction area. Such a reactor could be a 100 MW heavy water moderated type, similar to the French EL-4 or a graphite-moderated, gas-cooled reactor with a thermal power as high as 200 to 300 MW and an electrical output of approximately 60 MW.

The potential plutonium production of the Israeli reactor site under these various possibilities is summarized in the table below.

We estimate that the most likely of these possibilities is the heavy water moderated 100 MW reactor (no. 2 in Table) which would produce about 30 kg of plutonium per year. However, neither possibility no. 1 in the table nor no. 3 can be presently discounted. If the research reactor, no 4 in the table, is constructed, as Bergman has indicated, it would probably be in addition to one of the other possibilities.

POTENTIAL PU PRODUCTION OF
BEERSHEBA REACTOR SITE

Purpose	Possible Reactor Type	Thermal Power	Date of Criticality	Pu Prod. Per Yr.	Est. Date of Nuclear Test	French Counter-Part
1. Pu Prod	Graphite Moderated Air-cooled	100 MW	Mid-1961	30 Kg	Late '62	G-1 (Marcoule 1956)
2. Dual Purpose (power & Pu Production)	Heavy Water Moderated	100 MW (20 MWE)	Mid-1962- Mid-1963	30 Kg	1963-1964	EL-4 (Brittany 1965)
3. "	Graphite Moderated Gas-cooled	200- 300 MW (60 MWE)	1963	60-90 Kg	Late 1963	EDF-1 (Chinon 1960)
4. Research	Heavy-Water Moderated and Cooled	15 MW	Mid-1962	4.0 Kg	1965	EL-3 (Saclay 1955)

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ISRAEL

0 10 20 30 40

(scale in miles)

LEBANON

SYRIA

o Acre

o Haifa

o Nazareth

o Tel Aviv

o Jaffa

o Lydda

o Jerusalem

o Gaza

o Rafah

o Beerseba

REACTOR SITE

JORDAN

EGYPT

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ARABIA

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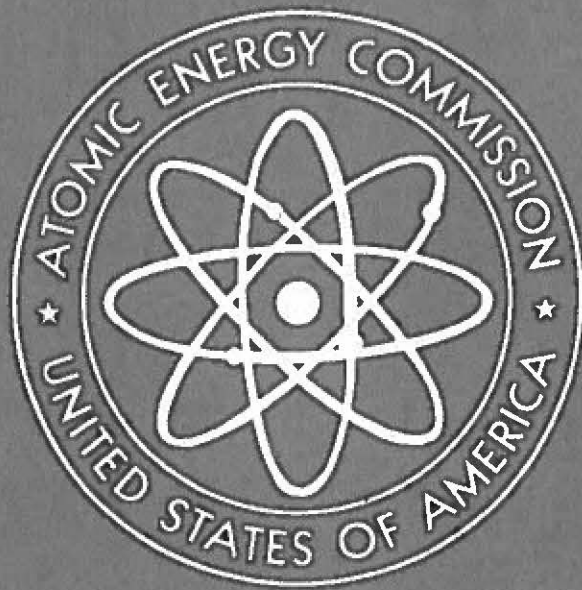
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U. S. ATOMIC ENERGY COMMISSION
 OFFICE OF THE
 CHAIRMAN

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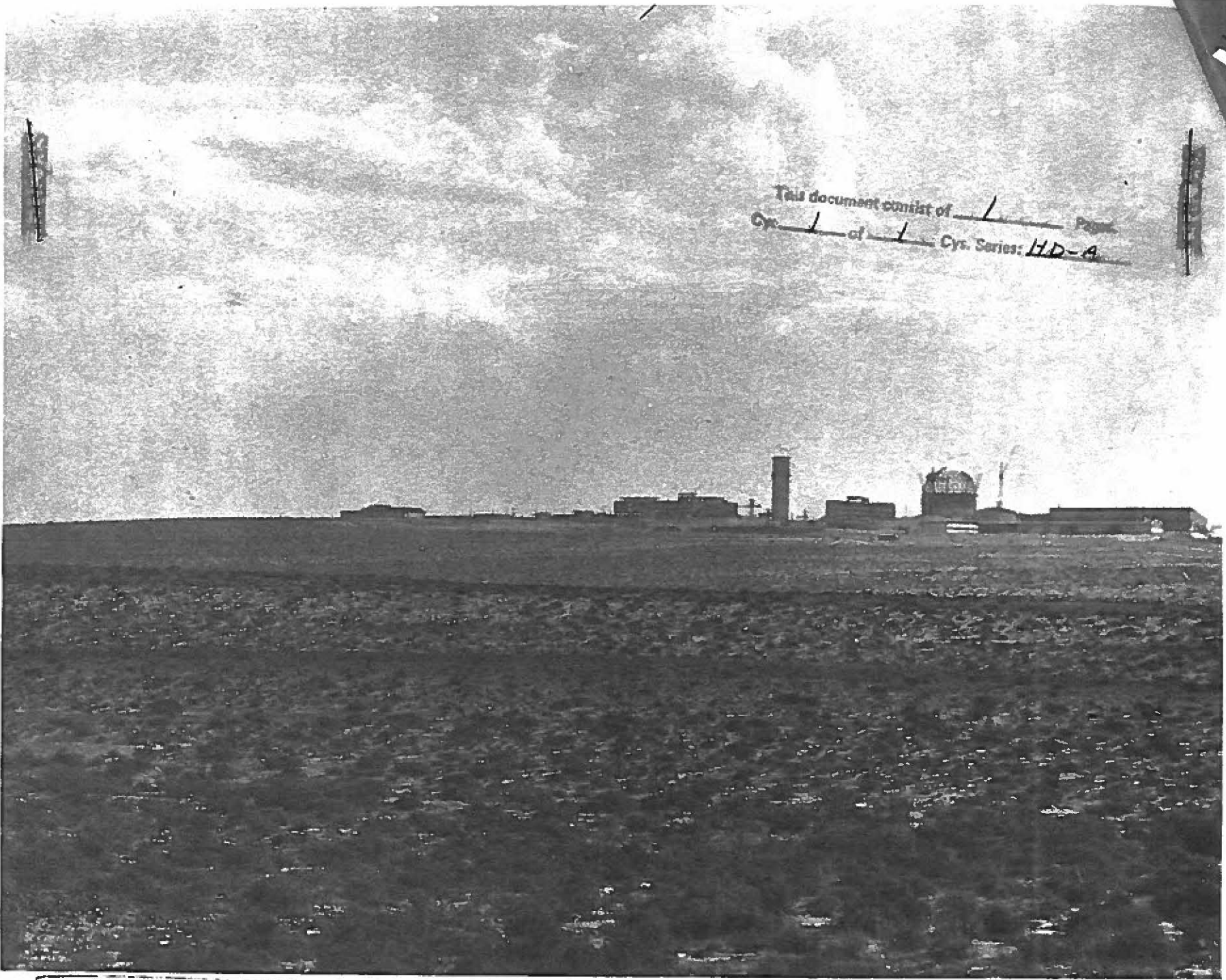
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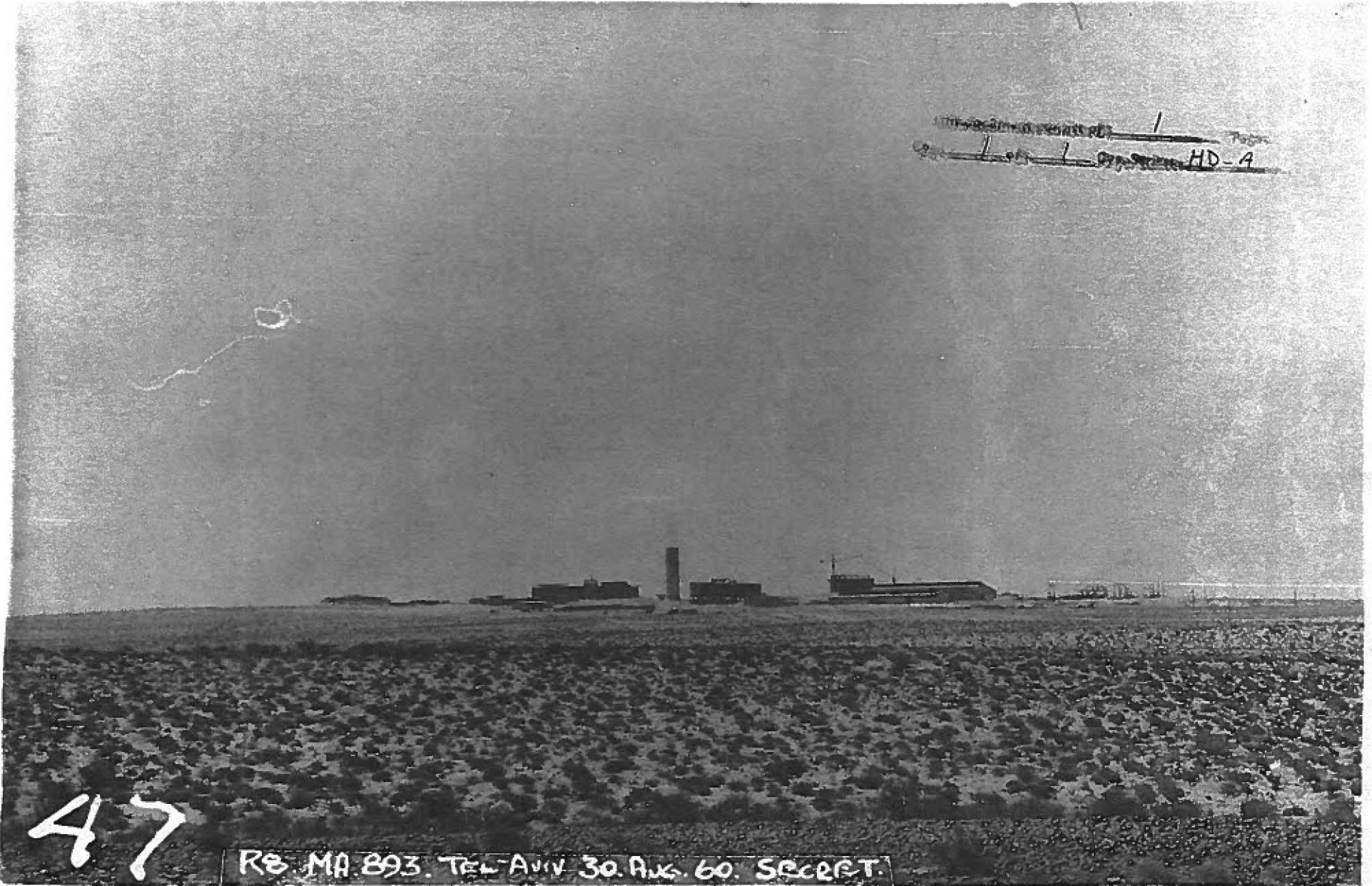
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