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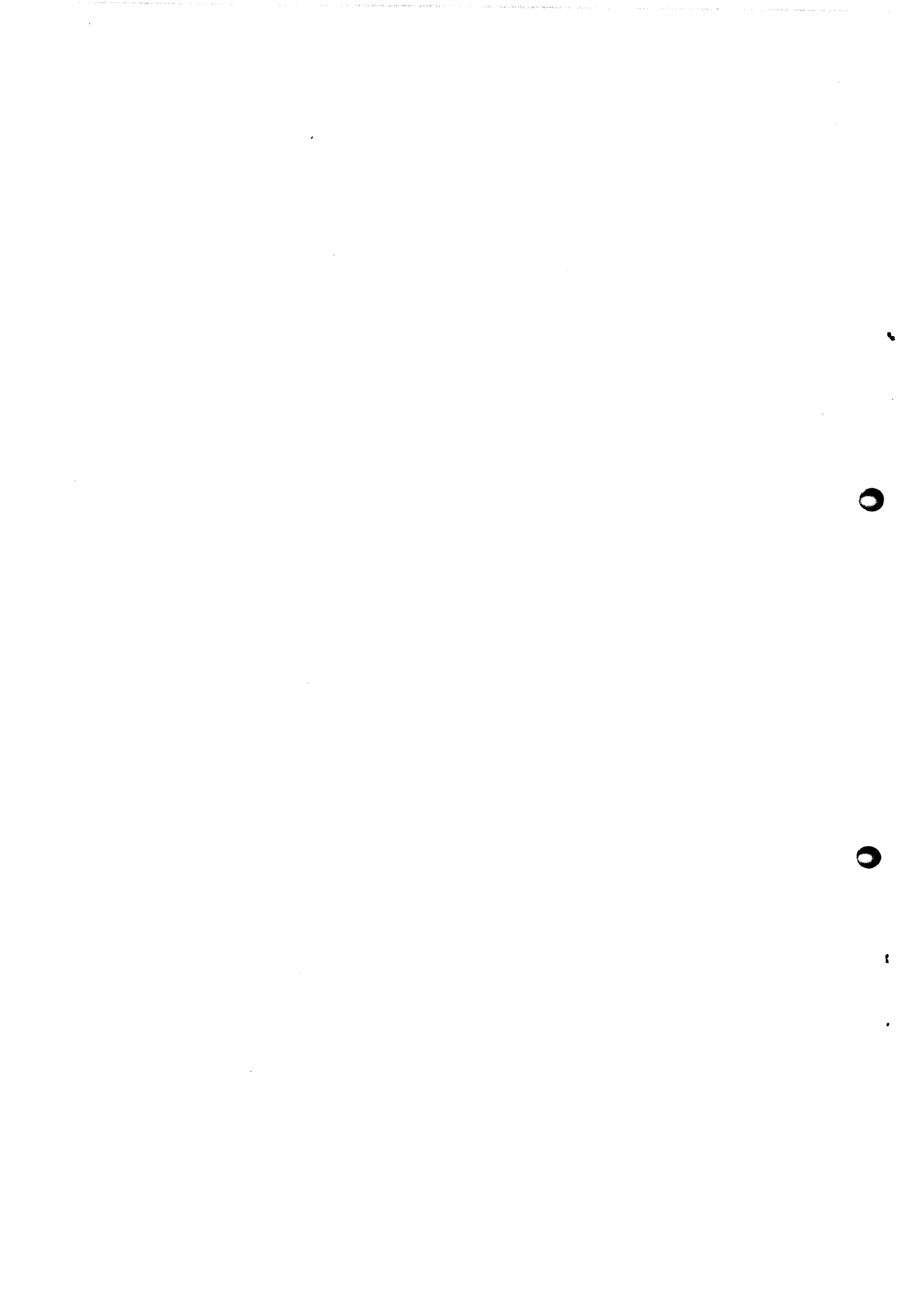
INTERNATIONAL URANIUM RESOURCES EVALUATION PROJECT

I U R E P

NATIONAL FAVORABILITY STUDIES

LUXEMBOURG

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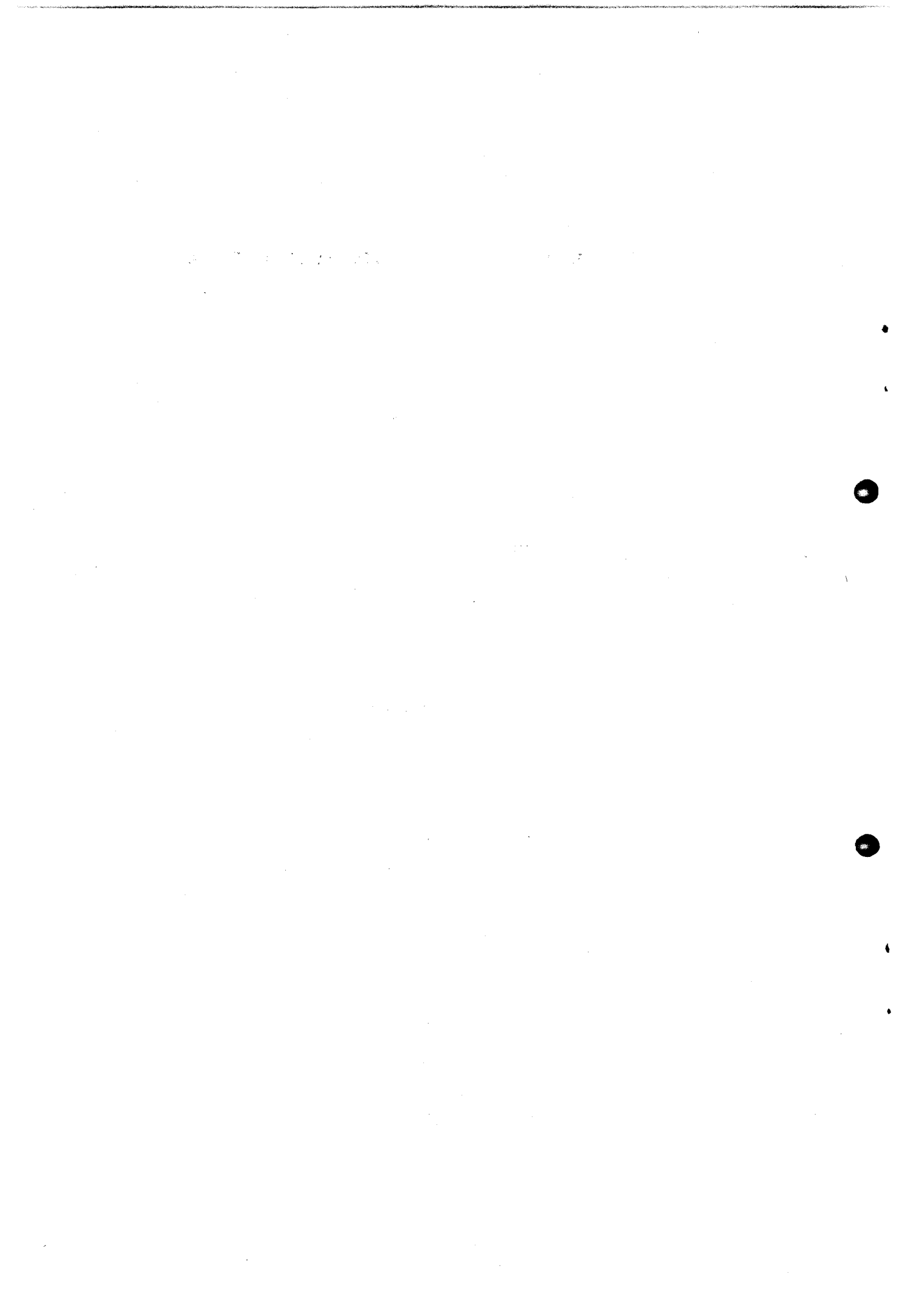
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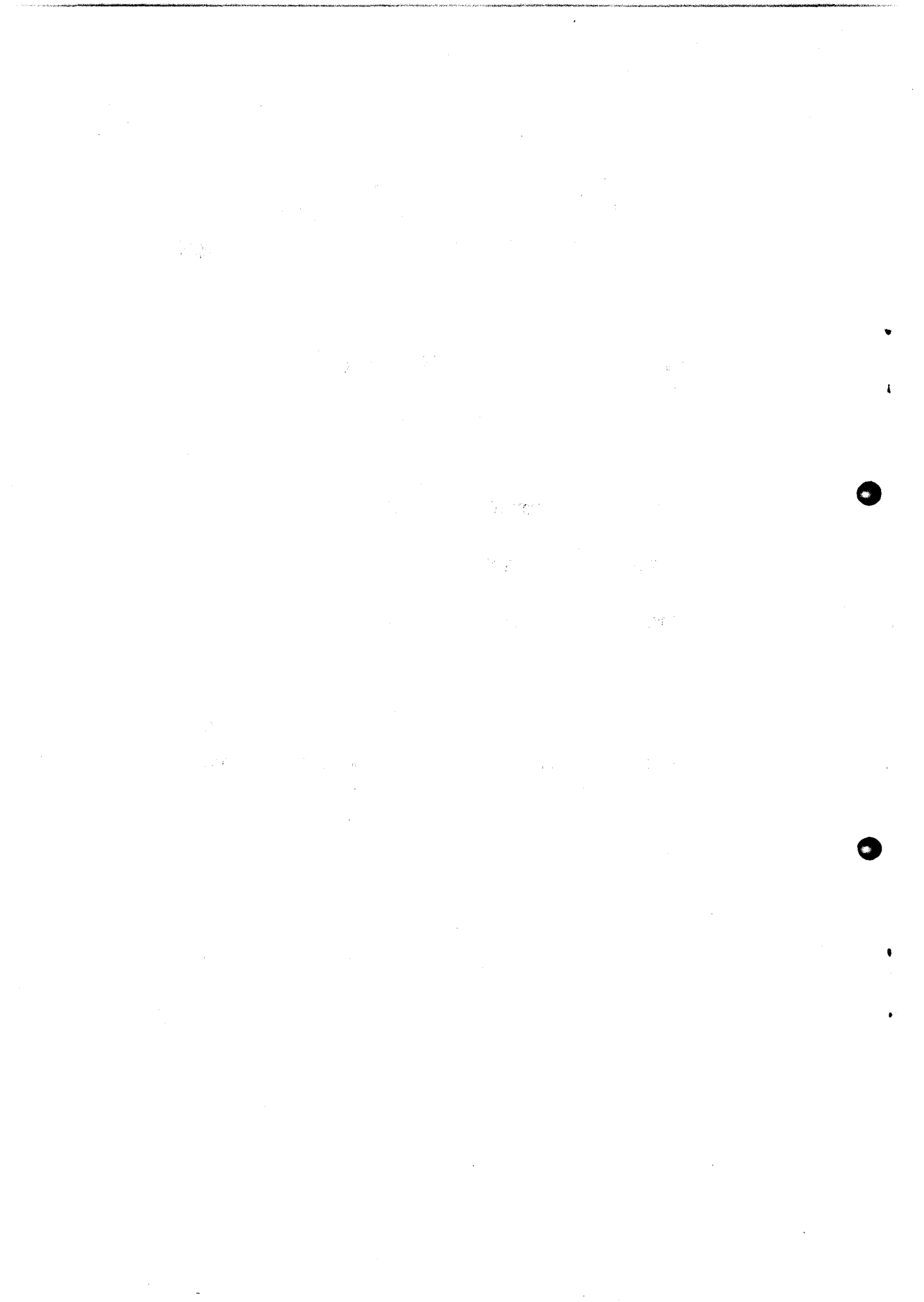
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LUXEMBOURG



## C O N T E N T S

	PAGE
A. INTRODUCTION AND GENERAL GEOGRAPHY	1.
B. GEOLOGY IN RELATION TO POTENTIALLY FAVOURABLE URANIUM BEARING AREAS	2.
C. PAST EXPLORATION	2.
D. URANIUM OCCURRENCES AND RESOURCES	3.
E. PRESENT STATUS OF EXPLORATION	3.
F. POTENTIAL FOR NEW DISCOVERIES	3.
REFERENCES	4.
FIGURE No. 1 MAP OF GRAND DUCHY OF LUXEMBOURG	



## LUXEMBOURG

### I INTRODUCTION AND GENERAL GEOGRAPHY

#### (a) Geographical and Historical Note

The Grand Duchy of Luxembourg is a tiny, roughly triangular, sovereign state situated in Western Europe and bordered by Belgium, the Federal Republic of Germany and France. Its total surface area is 998 sq. miles (2,586 sq. kilometres). Its situation in Europe has made it a natural crossroads, with its language, economic interests and ways of life reflecting its close association with its neighbours. It has, however, remained a separate, if not always autonomous, political unit since the tenth century. It is one of the nine member states of the European Economic Community.

The country is made up of an elevated northern tableland and a southern lower plateau. The northern section comprises part of the Ardennes mountains which continue in south-east Belgium and form a plateau generally ranging between 1,000 and 2,000 feet. Iron ore mines are located near the French border. The southern section has an elevation of below 1,000 feet and comprises mainly heavily wooded good agricultural land.

#### (b) Climate

In the south the mean temperatures range from 3 - 20°C (January - July), while in the north the temperatures are slightly more extreme. Rainfall ranges from about 40 inches in the north to 30 inches in the south.

#### (c) Access

Situated as it is in the heart of Western Europe, access to Luxembourg is very good. Major international highways and railways pass through the country and there is adequate internal road coverage. It has significant harbour facilities on the Moselle river and a canal connection with the Rhine. Luxembourg is served by Findel Airport.

## II. GEOLOGY OF LUXEMBOURG IN RELATION TO POTENTIALLY FAVOURABLE URANIUM BEARING AREAS.

Luxembourg divides geologically into a Northern third where the Devonian sandstones and schistes of the Hercynian massif are exposed and the Southern two-thirds where the Hercynian massif is buried under Mesozoic cover.

### Northern Section

The Devonian marine sediments were laid down within the Rheno-Hercynian zone and form typical geosynclinal deposits. They typically outcrop as greywaches, rhyolites, schistes and grey quartzites. In these Devonian sediments no evidence has been found of acid intrusions.

### Southern Section

Following erosion during the Permian, Mesozoic sedimentation commenced with the Lower Trias - the Buntsandstein. This marked the start of a marine transgression that continued basically throughout the Mesozoic. However, the Buntsandstein is marked by lagoonal facies forming red, yellow and grey sandstones with some dolomites. Conglomeratic beds at the base contain pebbles derived from the Rotliegendes. By the Muschelkalk the facies found in S. Luxembourg show evidence of deeper marine sedimentation and comprise mainly carbonates. However, the Keuper sequence indicates a return to lagoonal and shallow sea sediments.

From then on through the Lias and into the Dogger all the sedimentation is deposited in deep marine conditions. In the Upper Lias Bituminous Shales were deposited.

## III. Past Exploration

In 1956 the Geological Survey of Luxembourg under Dr M. Lucius carried out a very preliminary survey of the potential of Luxembourg completely writing off the uranium potential of the country. Since then uranium exploration in Luxembourg seems to have been very limited.



#### IV. Uranium Occurrences and Resources

There has been virtually no work done; no uranium occurrences of significance are recorded.

#### V. Present Status of Prospecting

No specific exploration for uranium in Luxembourg is apparent at the present. There are no specific regulations relating to uranium exploration, which is covered by the rules relating to mineral exploration in general.

#### VI. Potential for New Discoveries

On the limited information available, we believe there are two immediately apparent uranium exploration targets in Luxembourg:

- 1) Within the Buntsandstein are a number of attractive host rocks. If, as in the Federal Republic of Germany, there are acid intrusions at depth then the possibilities are even more interesting. This appears the most promising target.
- 2) Possibly within the Keuper, but this seems much less likely, as there is no apparent source of uranium mineralisation.

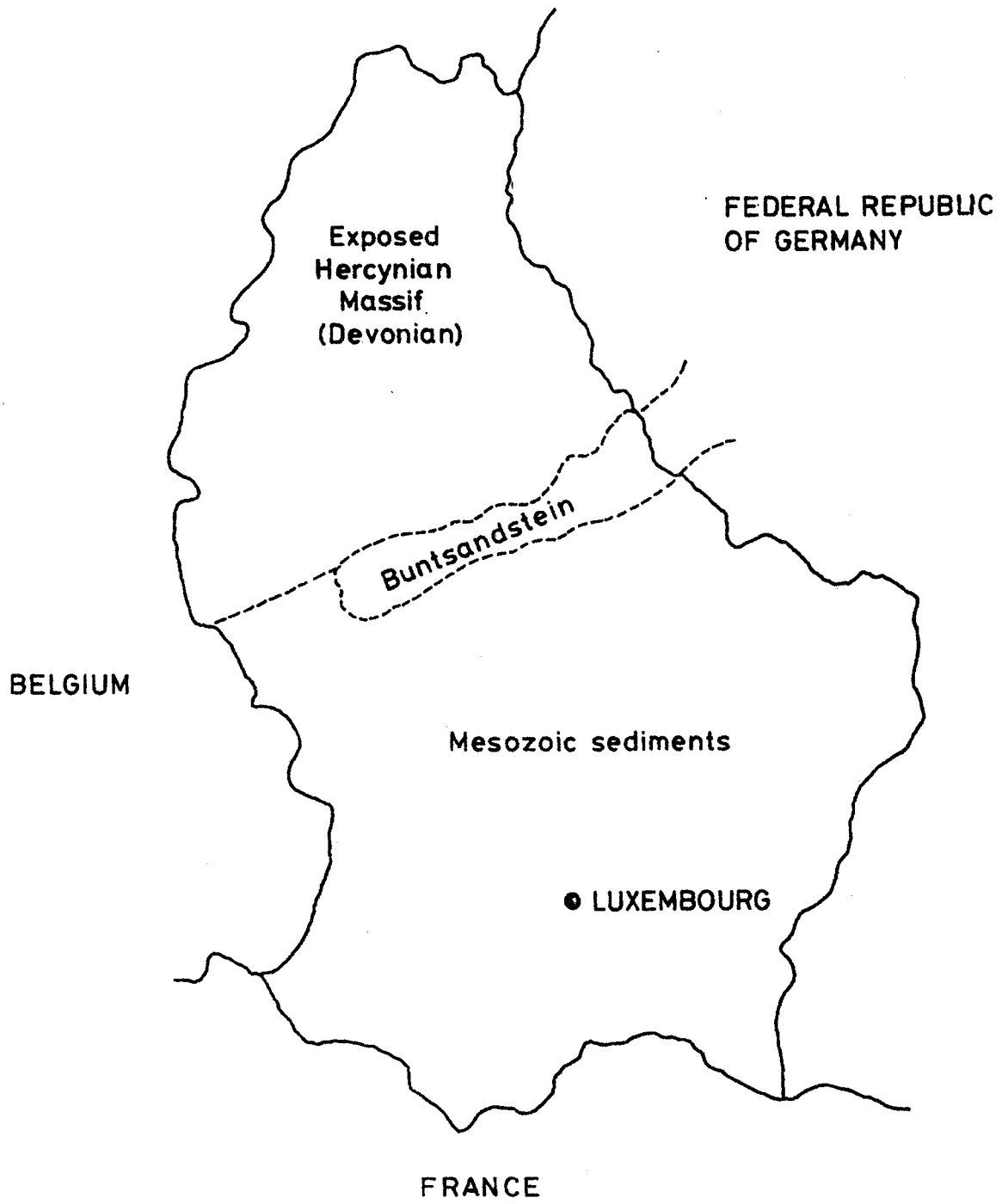
However, as this is all hypothetical at this stage, it appears that Luxembourg should be placed in Group I of the IUREP classification.

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**GRAND DUCHY OF LUXEMBOURG**  
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