Directorate of
Intelligence

Uranium Enrichment: Threat of Nuclear Proliferation Increasing [redacted]

An Intelligence Assessment

[redacted]

Secret

April 1982

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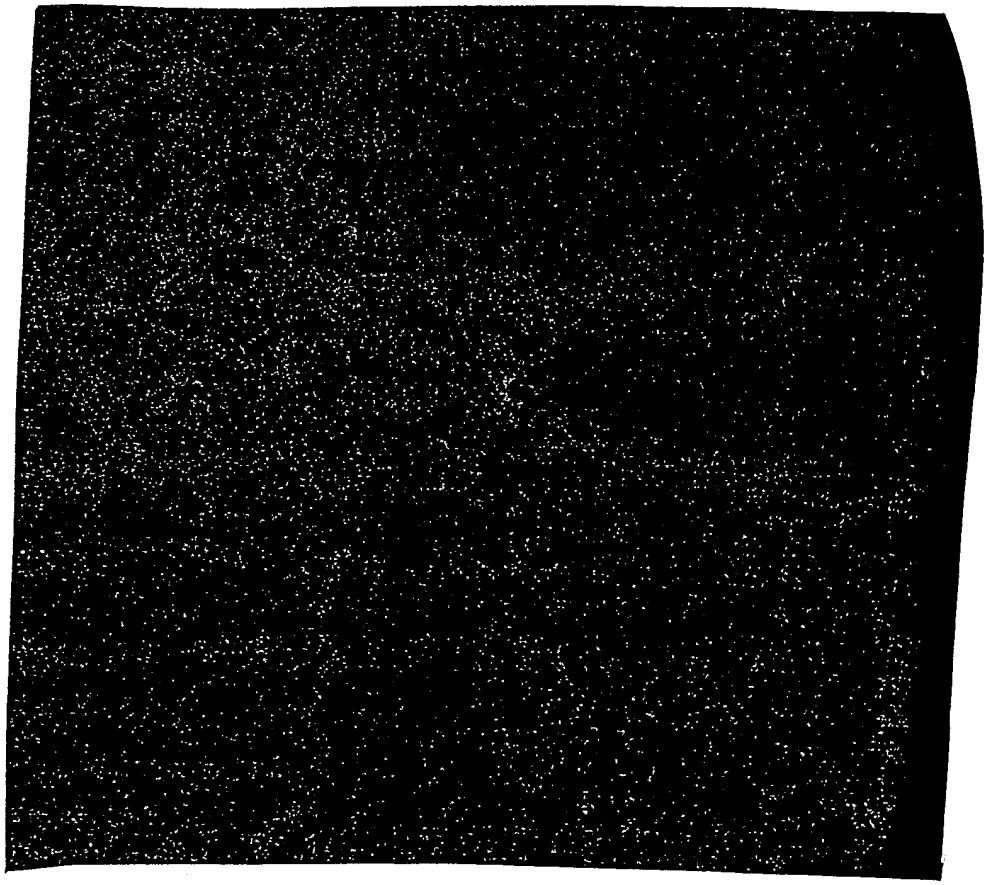
Pages: iii + iv

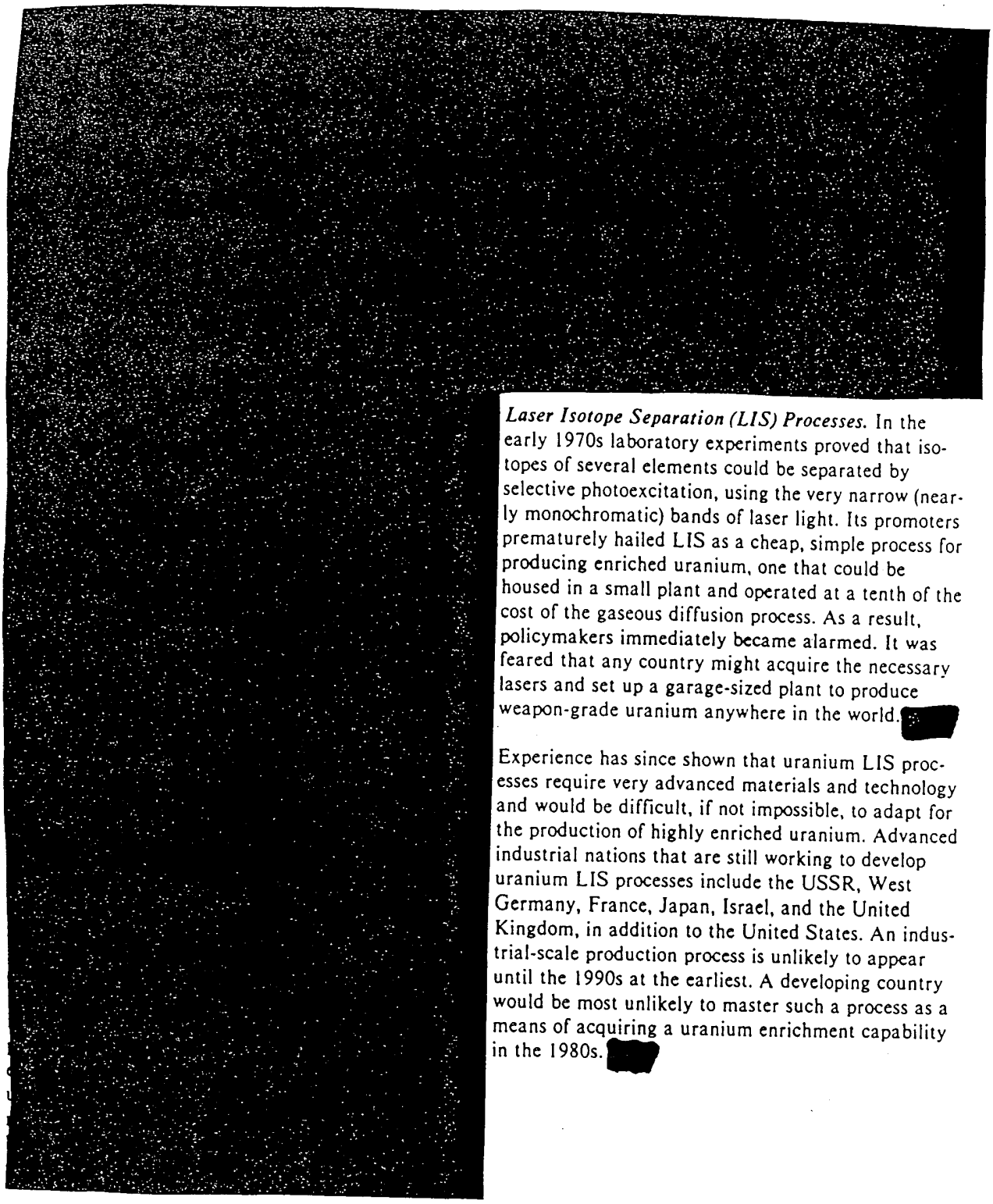
Exemptions: Not Relevant



- Laser isotope separation is in an early developmental stage in the most technically advanced countries. The technology is extremely demanding and unlikely to be mastered by developing countries in the 1980s.

Pages: viii – 8

Exemptions: Not Relevant



Laser Isotope Separation (LIS) Processes. In the early 1970s laboratory experiments proved that isotopes of several elements could be separated by selective photoexcitation, using the very narrow (nearly monochromatic) bands of laser light. Its promoters prematurely hailed LIS as a cheap, simple process for producing enriched uranium, one that could be housed in a small plant and operated at a tenth of the cost of the gaseous diffusion process. As a result, policymakers immediately became alarmed. It was feared that any country might acquire the necessary lasers and set up a garage-sized plant to produce weapon-grade uranium anywhere in the world.

Experience has since shown that uranium LIS processes require very advanced materials and technology and would be difficult, if not impossible, to adapt for the production of highly enriched uranium. Advanced industrial nations that are still working to develop uranium LIS processes include the USSR, West Germany, France, Japan, Israel, and the United Kingdom, in addition to the United States. An industrial-scale production process is unlikely to appear until the 1990s at the earliest. A developing country would be most unlikely to master such a process as a means of acquiring a uranium enrichment capability in the 1980s.

Pages: 10 + 11

Exemptions: Not Released