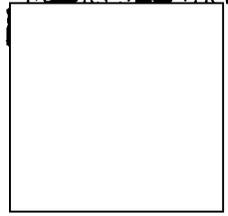




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Japan: Nuclear Program



A Research Paper

Approved for Release
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Uranium Enrichment Technologies

Atomic vapor laser isotope separation (AVLIS). [redacted] the AVLIS process may not be ready for pilot-scale demonstration in 1992. Since early 1991, the Laser J Consortium (the nine utilities, Japan Nuclear Fuel Services, Ltd., and other organizations) has operated only a small test rig at the Tokai Research Facility. [redacted] project scientists understand the process poorly because they are attempting to reverse-engineer their understanding of US AVLIS technology. The process has high prestige in Japan because the United States has decided to use AVLIS in the next US commercial uranium enrichment plant.

Riken molecular laser isotope separation (RIMLIS). This project is sponsored by the Power and Nuclear Fuel Corporation and the Institute of Physical and Chemical Science (RIKEN). Proof of concept was demonstrated in 1988 but a demonstration facility has yet to be built [redacted]. Supporters claim the process has a technical advantage over AVLIS because it uses uranium hexafluoride, a material that is easier to handle than uranium vapor, as the target for laser irradiation. [redacted]

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Appendix B

Glossary of Terms Used in This Report

Atomic vapor laser isotope separation (AVLIS)

This is a uranium enrichment process that selectively excites or imparts with extra energy U^{235} atoms in a cloud of uranium metal vapor. The highly charged, more energetic U^{235} atoms are then collected on metal plates

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