

15

DECLASSIFIED UNDER AUTHORITY OF THE
INTERAGENCY SECURITY CLASSIFICATION APPEALS PANEL,
E.O. 13526, SECTION 5.3(b)(3)

ISCAP APPEAL NO. 2003-0036, document no. 8
DECLASSIFICATION DATE: September 29, 2014

MEMORANDUM FOR: John Despres, NIO for Nuclear Proliferation

SUBJECT: NSC Request for Paper on Laser Isotope
Separation (LIS) in Taiwan and Elsewhere

1. The attached paper presents an update of OSI's
assessment of worldwide capabilities in LIS as requested
in your memorandum NFAC 3396-77, dated 13 December 1977.
The section on Taiwan includes some additional information
not included in the 9 December 77 NID item.

2. The paper was prepared by [redacted] OSI/PSTD
and [redacted] OSI/NED.

Withheld under statutory authority of the
Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

KARL H. WEBER
Director
Scientific Intelligence

~~FEDERAL DECLASSIFICATION REVIEW~~
~~□ Retain Classification □ Change to~~
~~□ Declassify in part and cite as shown~~
~~EO 12958, 25X1-1 (6) Gpl(a)~~
~~□ Declassify □ Alter~~
~~□ With confidence (not obtained)~~
Reviewed by *[Signature]* Date *[Signature]*
JUL 11 2002

~~CONFIDENTIAL~~

Update to July 1977 OSI Publication, "Worldwide Scientific
Capabilities in Laser Isotope Separation"

The attached OSI publication, "Worldwide Scientific Capabilities in Laser Isotope Separation (LIS)," summarizes OSI analysis on this topic up to mid-1977. Although in the main our perceptions of the worldwide situation have not changed in the six months since publication, several events of interest have occurred during that time.

25X1, E.O.13526

Experiments in uranium enrichment by lasers are difficult requiring advanced capability in spectroscopy, laser technology, materials technology, and uranium chemistry. Two approaches are under investigation in the US. In the first, tunable dye lasers operating with visible light excite atoms of one isotope of uranium. The excited atoms are then ionized by another laser and separated by electric or magnetic fields. This work has been mostly unclassified and widely published. Although commercial enrichment by this method requires much additional development, a small facility capability of enriching material for a few weapons could be developed from present US technology in a few years.

Withheld under statutory authority of the
Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

~~SECRET~~

~~SECRET~~ [redacted]

Withheld under statutory authority of the
Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

In the second approach, lasers operating with infrared light excite molecules of uranium hexafluoride. An ultra-violet laser is then used to dissociate the molecule. Development of these types of lasers have proven to be extremely difficult and continues to delay development of this process.

25X1, E.O.13526

Withheld under statutory authority of the
Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

~~SECRET~~ [redacted]

25X1, E.O.13526

Withheld under statutory authority of the
Central Intelligence Agency Act of 1949 (50
U.S.C., section 403g)

~~SECRET~~