

## STATEMENT OF CONSIDERATIONS

ADVANCE WAIVER OF THE GOVERNMENT'S U.S. PATENT LICENSING RIGHTS TO IDENTIFIED INVENTIONS MADE IN THE COURSE OF DOE'S ATOMIC VAPOR LASER ISOTOPE SEPARATION RESEARCH AND DEVELOPMENT PROGRAM AT LLNL AND A LIMITED WAIVER OF RIGHTS IN RELATED COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS AMONG UNITED TECHNOLOGIES CORPORATION AND LLNL UNDER DOE OPERATING CONTRACT NO. W-7405-ENG-48 WITH THE REGENTS OF THE UNIVERSITY OF CALIFORNIA. W(A): 93-042

### Background

Lawrence Livermore National Laboratory (LLNL) is owned by the U.S. Government and operated by the Regents of the University of California (Regents) under contract with the Department of Energy (DOE). LLNL has since the 1970's conducted a program of research and development (R&D) under the ENG-48 contract on the Atomic Vapor Laser Isotope Separation (AVLIS) process to be used for the enrichment of uranium and Special Nuclear Materials as that term is defined in the Atomic Energy Act of 1954 (AEA), as amended (42 USC 2014(aa)).

Pursuant to 35 USC 202 , the ENG-48 contract grants to the Regents the right to elect to retain title to any invention which is not a weapons related subject invention or an exceptional circumstances subject invention (Article XII, Clause 1 - Patent Rights, Paragraphs (b)(1) and (b)(2)). Among those inventions excluded from the Regents' right to elect title are those that relate to uranium enrichment, including isotope separation. Inventions relating to the AVLIS process fall within the term uranium enrichment and are thus excluded.

Recognizing the need for U.S. industrial competitiveness, Congress enacted the National Competitiveness Technology Transfer Act of 1989 (NCTTA)(Public Law 101-189, 15 USC 3710a). The purposes of the NCTTA are: (1) to promote technology transfer between Federal Laboratories and U.S. industry and (2) to enhance collaboration between universities, U.S. industry and the Federal laboratories in order to foster the development of technologies in areas of significant economic potential. The NCTTA makes technology transfer a mission of DOE and DOE laboratories. The NCTTA also authorizes DOE laboratories, such as LLNL, to enter into Cooperative Research and Development Agreements (CRADAs) with one or more non-Federal parties for R&D to assist the transfer of Government-funded technologies to the commercial marketplace, thereby enhancing U.S. competitiveness.

Additionally, Congress has enacted comprehensive energy legislation, the Energy Policy Act of 1992 (EPACT) which modified the AEA, creating the United States Enrichment Corporation (USEC) to operate and manage a uranium enrichment enterprise. Section 1602 of the AEA states that the USEC "shall have the exclusive

commercial right to deploy and use any AVLIS patents, processes, and technical information owned or controlled by the Government, upon the completion of a royalty agreement with the Department."

In furtherance of its technology transfer mission and in concert with the NCTTA, LLNL plans to enter into the following CRADA with United Technologies Corporation, hereinafter referred to as "UTC":

CRADA #T-194-91-1-C, Precision Laser Machining and Intelligent Processing Systems, (in the "field of technology" of laser processing of components for aircraft engines, air conditioning units, and elevator systems).

The above CRADA will hereinafter be referred to as the "identified UTC CRADA".

As part of the identified UTC CRADA and in order for UTC to be able to commercialize the transferred technology, it will be necessary for UTC to have a license in LLNL subject inventions (listed in Attachment 1) relating to the AVLIS process that have been reported to DOE by the Regents/LLNL under the ENG-48 contract (hereinafter referred to as the "identified subject inventions"). It will also be necessary for UTC to have license rights in inventions relating to the AVLIS process which may be made during the course of the LLNL work under the identified UTC CRADA.

The purpose of this waiver to the Regents is to grant the Regents greater rights in the identified subject inventions and sufficient licensing rights in inventions that may be made by LLNL while performing work under the identified UTC CRADA so that the Regents may sublicense such inventions to UTC in the field of technology of the CRADA for commercial uses in such fields. In order to comply with the provisions of Section 1602 of the AEA, however, title to all inventions related to the AVLIS process made under the ENG-48 contract and under the identified UTC CRADA shall remain with the Government so that it can grant the USEC the commercial right to deploy and use any Government-owned AVLIS patents in the event USEC requests such right and the Department enters into a royalty agreement related to such patents.

#### Scope and Conditions of Waiver

The scope of this waiver is directed to the Government's U.S. licensing rights in the identified subject inventions and is limited to the right in the Regents to grant non-exclusive sublicenses to UTC in the field of technology of the identified UTC CRADA. Specifically excluded from the waived rights are the use of the inventions for the enrichment of uranium or Special Nuclear Materials.

The scope of this advance waiver is also directed to an advance waiver of certain of the Government's rights to inventions which may be made by employees of LLNL in the performance of work under the identified UTC CRADA where those inventions are based upon and will be useful in the AVLIS process. For those inventions, this advance waiver grants to the Regents only the right to nonexclusively sublicense UTC in the field of technology of the identified UTC CRADA. As a condition of this waiver, the Regents/LLNL will obtain for the benefit of the Government and the USEC, royalty-free use of any AVLIS related improvements made by UTC or its licensees.

Excluded from the scope of this waiver are title to all inventions made by employees of LLNL under such CRADA as well as the right of the Regents/LLNL to license any such CRADA inventions in the field of enrichment of uranium or Special Nuclear Materials. Both title to all inventions made by employees of LLNL, either as part of the AVLIS R&D program or under the identified UTC CRADA where the invention is based upon and is useful in the AVLIS process, and the right to license such inventions in the field of enrichment of uranium or Special Nuclear Materials remain with the Government.

The scope of this waiver is also directed to an advance waiver of certain of the Government's rights to inventions which may be made by employees or subcontractors of UTC in the course of or under the identified UTC CRADA where those inventions are based upon and will be useful in the AVLIS process. This waiver grants to UTC the U.S. and foreign commercial licensing rights in inventions made by employees or subcontractors of UTC in the course of or under the identified UTC CRADA where those inventions are based upon and useful in the AVLIS process.

Excluded from the scope of this waiver are title to all inventions made by employees or subcontractors of UTC under such CRADA as well as the right of UTC to license any such CRADA inventions in the field of enrichment of uranium or Special Nuclear Materials. Both title to all inventions made by UTC or its subcontractors under the identified UTC CRADA which are based upon and useful in the AVLIS process and the right to license such inventions in the field of enrichment of uranium or Special Nuclear Materials remain with the Government.

Also excluded from the scope of this waiver are the Government's rights to inventions related to the AVLIS process which are made jointly by employees of LLNL/subcontractors and employees of UTC/subcontractors under the identified UTC CRADA. DOE will entertain a request for a waiver of these rights on a case-by-case basis as inventions are made and waivers requested.

Also excluded from the scope of this waiver to the Regents/LLNL and UTC is the right to any AVLIS subject invention or AVLIS

based CRADA invention which is determined by DOE for national security, non-proliferation or export control reasons to be restricted.

With regard to the waiver of licensing rights to UTC, certain conditions shall be included in the identified UTC CRADA providing the following:

1. Prior to licensing of any invention relating to the AVLIS process to which it obtains licensing rights either from LLNL or in accordance with this waiver, UTC will obtain DOE's approval for such licensing. DOE's determination to grant such approval will be based on the nature of the subject matter licensed, i.e., whether the subject matter is related substantially to the AVLIS process or whether the subject matter is related substantially to an UTC industrial process.
2. UTC will grant, for the benefit of the Government and the USEC, royalty-free use of any improvements applicable to uranium or Special Nuclear Material separation.
3. UTC will conduct all licensing activities regarding this technology to ensure maximum benefit to U.S. competitiveness. Related to this UTC shall not grant exclusive field of use licenses without obtaining DOE and USEC approval before negotiating such a license.
4. DOE and the USEC will retain a royalty-free license for all AVLIS technology for any future uranium enrichment AVLIS deployment contractor.
5. UTC will address all non-proliferation, export control, unclassified controlled nuclear information (UCNI) and national security concerns for each proposed license.

This waiver of the Government's U.S. sublicensing rights in subject inventions to the Regents/LLNL is subject to termination by the Government unless the Regents/LLNL contractually obligates itself to compensate USEC, to the satisfaction of USEC, for the use of AVLIS technology within 90 days from the effective date of this waiver.

Because of both the significance of the AVLIS technology and the extent of the Government's investment in development of the AVLIS technology, this waiver to the Regents is subject to the Regents compliance with all technology transfer and intellectual property obligations of ENG-48 contract for all AVLIS technology licensing and commercial development activities.

This waiver is also subject to the Regents/LLNL's agreement to attempt to sublicense the waived rights within five years from

the time this Waiver is effective. This commitment to early commercialization by the Regents/LLNL will best promote the commercial utilization of identified subject inventions in the field of end use and application set forth in the identified UTC CRADA and make the benefits of the research effort conducted under the ENG-48 contract widely available to the public in the shortest practicable time, consistent with the objectives and considerations of DOE's waiver regulations.

This waiver of the Government's rights to the Regents/LLNL is also subject to the Government's retention of march-in rights in accordance with paragraph (j) of Article XII, Clause 1 of the ENG-48 contract. Although paragraph (j) refers to "title", for the purposes of this waiver march-in rights will also apply to rights to commercially license; therefore, when paragraph (j) is applied to the identified subject inventions covered by this waiver the words "rights to sublicense" are to be substituted for the word "title".

Also, DOE has the right at the end of the five (5) year commercialization period set forth in this waiver or at the end of each two (2) year interval thereafter to request the Regents, UTC or licensee(s) thereof to grant a nonexclusive, partially exclusive or exclusive license in any commercial field of use to a responsible applicant(s) upon terms that are reasonable under the circumstances, provided that such grant does not cause a termination of an existing licensee's right to use the invention. If the Regents, UTC or licensee(s) refuses such request, and if DOE determines that the Regents, UTC or licensee(s) has not made a satisfactory demonstration that the Regents, UTC or licensee(s) is actively pursuing commercialization of the invention, DOE may grant such license itself.

Before licensing under this waiver, DOE shall furnish the Regents, UTC or licensee(s), as applicable, a written notice of DOE's intentions to grant the stated license and the Regents, UTC or licensee(s), as applicable, shall be allowed thirty (30) days (or such longer period as may be authorized by the DOE Contracting Officer for good cause shown in writing) after such notice to show cause why the license should not be granted. The Regents, UTC or licensee(s), as applicable, shall have the right to appeal the decision by DOE to grant the stated license to the Invention Licensing Appeal Board as set forth in paragraphs (b)-(g) of 10 CFR 781.65, "Appeals".

This waiver of the Government's rights to the Regents/LLNL and UTC is also subject to DOE's right to require periodic reports on the utilization or efforts that are being made to obtain utilization of the waived rights to insure that the technology is being offered and licensed for commercial application. In addition, because of the national security sensitivity of the AVLIS technology and process, DOE may require other reports

concerning any matter relating to the sublicensing of the AVLIS technology.

### Analysis

With the overall goal of incorporating into the mainstream of United States commerce in the most expeditious manner the technology resulting from the AVLIS R&D program for use in fields other than the enrichment of uranium or Special Nuclear Materials, it is believed to be in the best interests of the Government and the general public to grant this advance Patent Waiver of sublicensing rights to both identified AVLIS R&D program inventions and AVLIS related CRADA inventions as set forth herein.

It is a goal of DOE's technology transfer program to promote the use of DOE funded research and technology in the U.S. commercial arena when such commercial use is not excluded for national security or other reasons. DOE has for several years recognized the potential commercial value of the AVLIS technology for use in fields other than the enrichment of uranium or Special Nuclear Materials.

This waiver of sublicensing rights to identified subject inventions in the field of technology will encourage the investment of identified capital by the private sector to support additional development of AVLIS inventions for commercial use.

The grant of this waiver will permit the Regents/LLNL to share its background AVLIS technology accumulated over many years of the AVLIS R&D program with at least one industrial partner, UTC, who proposes to modify or adapt the identified AVLIS inventions for use in a commercial environment.

The grant of this waiver should not have any adverse impact on national security. While the commercialization of the identified AVLIS technology in the field of technology will be subject to several types of national security limitations, the Regents are familiar with and have worked within such limitations since the beginning of the AVLIS R&D program at LLNL. In addition, the Regents/LLNL have specifically committed to address all non-proliferation, export control, unclassified controlled nuclear information (UCNI) and national security concerns for each proposed license of the identified subject inventions which are the subject of this waiver in accordance with the terms of ENG-48 contract.

The grant of this waiver should not result in adverse effects on competition or market concentration because the AVLIS technology has not yet been put to any commercial use.

## Advance Waiver Implementation

This waiver will be implemented by

1. The Regents/LLNL reporting each CRADA invention to DOE within the time specified in the ENG-48 contract and identifying by DOE B&R code the funding sponsor(s) in the invention disclosure;
2. The Regents/LLNL electing in writing whether or not to retain the right to commercially license such invention at the time of disclosure to DOE or within two years of disclosure, as required by the ENG-48 contract (Article XII, Clause 1 - Patent Rights, Paragraph (c)(3));
3. The Regents/LLNL representing to DOE, after reasonable internal inquiry, that such invention is not excluded from this Waiver;
4. The Regents/LLNL representing to DOE that, to the best of its knowledge and belief, such invention does not fall within the list of treaties or international agreements of the U.S. Government which are listed in Appendix C of Modification No. M205 of the ENG-48 contract; and
5. The Regents/LLNL representing to DOE that it will attempt to commercialize such invention(s) through its licensee, UTC, within five years from the time this waiver is effective.

After receipt and review of each election of licensing rights and relevant facts, Patent Counsel, Department of Energy Field Office, San Francisco (Patent Counsel) will certify whether this waiver is applicable to the invention. The Regents'/LLNL's election of licensing rights to an invention shall not become effective until approved by Patent Counsel who shall use best efforts to reach a determination within ninety (90) days after receipt by Patent Counsel of the Regents'/LLNL's notification of election.

Implementation of this waiver with respect to CRADA participant, UTC, will be by DOE's approval of the identified UTC CRADA.

## Conclusion/Recommendation

It is believed that the grant to the Regents/LLNL of this Waiver of the Government's rights to license the identified subject inventions and to the Regents/LLNL and UTC of the right to sublicense AVLIS related CRADA inventions in the CRADA's field of technology will further DOE's mission of technology transfer, will enhance U.S. competitiveness and will have no adverse impact on national security. The Government retains title to all AVLIS inventions and can exercise the Government's march-in rights and require licensing of invention(s) should the Regents/LLNL or UTC

not make reasonable efforts to achieve commercialization.

Accordingly, in view of the statutory objectives to be obtained and the factors to be considered under DOE's statutory waiver policy, the objectives of the NCTTA and Executive Order 12591, all of which have been considered, it is submitted that this waiver as set forth above will best serve the interests of the United States and the general public. It is therefore recommended that the waiver be granted subject to the Regents/LLNL's and UTC's compliance with all applicable conditions of this waiver.


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James M. Hanley  
Patent Counsel  
San Francisco Field Office  
Date: \_\_\_\_\_

Attachment: 1 - LLNL Subject Inventions

Based on the foregoing Statement of Considerations, it is determined that the interest of the United States and the general public will best be served by waiver of rights to license in the field of technology of the identified UTC CRADA, as set forth herein and, therefore, the waiver is granted subject to compliance with all intellectual property and technology transfer obligations of the ENG-48 contract. This waiver shall not affect any waiver previously granted.


CONCURRENCE:

  
Daniel Dreyfus  
Acting Director  
for Nuclear Energy

APPROVAL

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Victor H. Reis  
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Richard E. Constant  
Assistant General Counsel  
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James M. Hankey  
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San Francisco Field Office  
Date: 12-20-93


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