> Training Agenda

1. Why Is Export Control Awareness Critical to UCLA Operations and Researchers?
2. What Are Export Controls? How Do They Work? How Are They Enforced?
3. How Do Controls Impact PIs, Researchers and Operational Personnel?
4. How Does UCLA Remain Compliant and Operate within a “Business as Normal” Context?
5. Nuclear-related Export Control Regulations
6. OFAC Regulations: Purpose, Scope, and Enforcement
7. Contact Information
1. Why Is Export Control Awareness Critical to UCLA Operations and Researchers?

**Operational**
- Sponsored Research
- Tech Transfer
- IT
- Human Resources
- Property Management
- Procurement
- Finance
- Legal
- Environmental Health & Safety
- Shipping/Receiving

**Research**
- Research (Sponsored or faculty-initiated)
  - FRE
    - FRE-covered projects
    - Controlled instruments
    - Proprietary Data
- International Collaborations
- Conferences

**Business**
- Work for Others/Service Contracts
- User Agreements
- Outside Activity
- Spinoffs
1. WHY IS EXPORT CONTROL AWARENESS CRITICAL TO UCLA OPERATIONS AND RESEARCHERS?

Export Control enforcement activity by Federal agencies among research institutions is now at a significantly higher level than it was several years ago.

- Penalties (civil and criminal) and sanctions can be enforced at both the institutional and individual (PI) levels.
  - All Research Divisions and User Facilities are potentially vulnerable.
  - Presence of foreign national researchers on site as well as international collaborations compound risk.
  - Highly decentralized organizational structure underscores control requirements.
  - H1 Visa Certifications are required regarding access to export controlled data in research laboratories.

- However: compliance can be accomplished without impeding fundamental research efforts or fabrication/service contracts with industry partners.
  - Requires faculty’s and administration’s awareness of requirements and transparent procedures to address issues across all affected departments and staff functions.

- UCLA has been enhancing its export compliance program
  - UC Export Control Committee
  - Strongest mitigating factors in the event of an enforcement action are oversight, training and documented processes.
2. What Are Export Controls? How Do They Work? How Are They Enforced?

What Types of Items Can be Controlled?

- Commodities, materials, software, technical data, (further discussion below on specific types of items) - bottom line: broadest possible range of items are potentially controlled.
  - “Items” can even include “technology,” in the form of concepts, discussions, and otherwise shared ideas.

How is the Term “Export” Defined for Purposes of These Regulations?

- Outbound transfer of controlled items from the U.S. or knowingly facilitating the export in a domestic transfer or re-export.
  - Physical shipments of such items abroad by any means, including cargo transport, courier, electronic data transmission, spoken communication, hand carried articles.

- Access to Items in the U.S. through “deemed export” or release of information/disclosure:
  - Use of and/or visual or computer access to controlled items, technology or data, occurring in the U.S by foreign nationals, defined as persons who are neither U.S. citizens, permanent residents (“green card” holders) or political asylum recipients: i.e. temporary immigrants – for example H, J, F, O, B visa beneficiaries.
  - Export is “deemed” to occur through the access, taking into account that the foreign national will return home at the termination of visa period.
  - Intention to obtain permanent residence or being in process to obtain does not change foreign national status for purposes of export control regulations.
  - Definition of “access” is nuanced depending on the regulatory jurisdiction, as described more fully below.
2. WHAT ARE EXPORT CONTROLS? HOW DO THEY WORK? HOW ARE THEY ENFORCED?

How Are Export Controls Regulated?

ITAR- State Department controls (22 CFR 120-130): Defense Directorate for Trade Controls (DDTC)

Defense Article

- Hardware, software and technical data specifically designed, developed, configured, adapted or modified for a military application, and
  - Does not have predominant civilian applications, and
  - Does not have a performance equivalent (defined by form, fit or function) to those of an article or service used for civil applications; or
  - Is specifically designed, developed, configured, adapted or modified for a military application, and has significant military or intelligence applicability such that control under this subchapter is necessary.

Defense Service

- Providing technical assistance (including training) to foreign persons (whether in the U.S. or abroad) in the design, development, engineering, manufacture, production, assembly, testing, repair, maintenance, modification, operation, demilitarization, destruction, processing or use of defense articles;
- Providing to foreign persons any technical data controlled under this subchapter (see below) whether in the U.S. or abroad;
- Military training of foreign units and forces, regular and irregular, including formal or informal instruction of foreign persons in the U.S. or abroad or by correspondence courses, technical, educational, or information publications and media of all kinds, training aid, orientation, training exercise, and military advice.

Technical Data

- Information required for the design, development, production, manufacture, assembly, operation, repair, testing, maintenance or modification of defense articles; Invention covered by a secrecy order; and software directly related to a defense article.
2. WHAT ARE EXPORT CONTROLS? HOW DO THEY WORK? HOW ARE THEY ENFORCED?

How Are Export Controls Regulated? (Continued)

ITAR- State Department controls (22 CFR 120-130): Defense Directorate for Trade Controls (DDTC)

- Based on U.S. Munitions List (USML – 22 CFR 121) pertaining to definitions of defense article, service, or technical data defined above (including certain items “specially designed or modified for military application”). Categories include:

  I. Firearms
  II. Guns and Armament
  III. Ammunition/Ordnance
  IV. Launch Vehicles, etc.
  V. Explosives, Energetic Materials, Propellants, Incendiary Agents and their constituents
  VI. Vessels of War and Special Naval Equipment
  VII. Tanks and Military Vehicles
  VIII. Aircraft and Associated Equipment
  IX. Military Training Equipment
  X. Protective Personnel Equipment

  XI. Military Electronics
  XII. Fire Control, Range Finder, Optical and Guidance Control
  XIII. Auxiliary Military Equipment
  XIV. Toxicological Agents/Equipment, Radiological Equipment
  XV. Spacecraft Systems and Associated Equipment
  XVI. Nuclear Weapons, Design and Testing Related equipment
  XVII. Classified Articles, Technical Data and Defense Services Not Otherwise Enumerated
  XVIII. Directed Energy Weapons
  XIX. Submersible Vessels, Oceanographic and Associated Equipment
How Are Export Controls Regulated? (Continued)

Sample from US Munitions List (ITAR): Category XII—Fire Control, Range Finder, Optical and Guidance and Control Equipment

*(a) Fire control systems; gun and missile tracking and guidance systems; gun range, position, height finders, spotting instruments and laying equipment; aiming devices (electronic, optic, and acoustic); bomb sights, bombing computers, military television sighting and viewing units, and periscopes for the articles of this section.

*(b) Lasers specifically designed, modified or configured for military application including those used in military communication devices, target designators and range finders, target detection systems, and directed energy weapons.

*(c) Infrared focal plane array detectors specifically designed, modified, or configured for military use; image intensification and other night sighting equipment or systems specifically designed, modified or configured for military use; second generation and above military image intensification tubes (defined below) specifically designed, developed, modified, or configured for military use, and infrared, visible and ultraviolet devices specifically designed, developed, modified, or configured for military application. Military second and third generation image intensification tubes and military infrared focal plane arrays identified in this subparagraph are licensed by the Department of Commerce (ECCN 6A002A and 6A003A) when part of a commercial system (i.e., those systems originally designed for commercial use). This does not include any military system comprised of non-military specification components. Replacement tubes or focal plane arrays identified in this paragraph being exported for commercial systems are subject to the controls of the ITAR.

*NOTE: Special definition. For purposes of this subparagraph, second and third generation image intensification tubes are defined as having: A peak response within the 0.4 to 1.05 micron wavelength range and incorporating a microchannel plate for electron image amplification having a hole pitch (center-to-center spacing) of less than 25 microns and having either: (a) An S-20, S-25 or multialkali photocathode; or (b) A GaAs, GaInAs, or other compound semiconductor photocathode.

*(d) Inertial platforms and sensors for weapons or weapon systems; guidance, control and stabilization systems except for those systems covered in Category VIII; astro-compasses and star trackers and military accelerometers and gyros. For aircraft inertial reference systems and related components refer to Category VIII.

(e) Components, parts, accessories, attachments and associated equipment specifically designed or modified for the articles in paragraphs (a) through (d) of this category, except for such items as are in normal commercial use.

(f) Technical data (as defined in §120.10) and defense services (as defined in §120.9) directly related to the defense articles described in paragraphs (a) through (e) of this category. (See §125.4 for exemptions.) Technical data directly related to manufacture and production of any defense articles described elsewhere in this category that are designated as Significant Military Equipment (SME) shall itself be designated as SME.
2. WHAT ARE EXPORT CONTROLS? HOW DO THEY WORK? HOW ARE THEY ENFORCED?

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department “Dual use” controls (15 CFR 700-799):

- Commodity/hardware, software, technical data designed and used for civilian applications but which inherently could have a non-civilian use - - generally defense or nuclear proliferation capabilities.
- Technical data/technology: blueprints, plans, diagrams, models, formulae, tables, engineering designs, and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape read-only memories.
- Exports of certain commodities (whether hardware, software, technology or technical data) identified on the Commerce Control List (CCL) with an Export Control Commodity Number (ECCN) require prior written authorization — an “export license” — or must meet an allowable exception.
  - Licenses take at least 30 plus days to obtain and are often issued with mandatory end use/user conditions.
- Licensing depends on three factors:
  - Type of item;
  - Reason(s) for control e.g., anti-nuclear proliferation (NP), missile technology (MT), national security (NS), chemical biological control (CB), or several other types of control could be placed on it; and
  - Whether country exported to is controlled for an item with that level of control, based on CCL Country Chart.
> 2. WHAT ARE EXPORT CONTROLS? HOW DO THEY WORK? HOW ARE THEY ENFORCED?

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department “Dual use” controls (15 CFR 700-799):

- Commerce Control List (CCL) 15 CFR 774 Categories 0-9:
  0) Nuclear Materials, Facilities, Equipment
  1) Materials, Chemicals, Microorganisms, Toxins
  2) Materials Processing (includes laboratory instruments used in materials processing)
  3) Electronics (includes integrated circuit technology and development)
  4) Computers
  5) Telecommunications and Information Security (includes materials for telecommunications and encryption technology)
  6) Lasers and Sensors (includes many detection devices and related technology)
  7) Navigation and Avionics
  8) Marine
  9) Propulsion Systems, Space Vehicles and Related Equipment

- Within each category 0-9 above, items are arranged according to the same five groups, A-E below:

  A. Equipment, Assemblies and Components
  B. Test, Inspection and Production Equipment
  C. Materials
  D. Software
  E. Technology

**Note:** Just because an item is purchased in the US and is commercially available, does not render it uncontrolled for purposes of these regulations, were it exported.
> 2. WHAT ARE EXPORT CONTROLS? HOW DO THEY WORK? HOW ARE THEY ENFORCED?

How Are Export Controls Regulated? (Continued)

EAR-Commerce Department “Dual use” controls (15 CFR 700-799):

- Example of ECCN

**2B230** All types of “pressure transducers” capable of measuring absolute pressures and having all of the characteristics described in this ECCN (see List of Items Controlled).

**License Requirements**

*Reason for Control:* NP, AT

*Control(s) Country Chart*  
(See Supp. No. 1 to part 738).

NP applies to entire entry NP Column 1  
AT applies to entire entry AT Column 1

**List Based License Exceptions** (See Part 740 for a description of all license exceptions)

LVS: N/A; GBS: N/A; CIV: N/A

**List of Items Controlled**

*Related Controls:* See ECCNs 2E001 (“development”), 2E002 (“production”), and 2E201 (“use”) for technology for items controlled under this entry.

*Related Definitions:* (1) For purposes of this entry, “pressure transducers” are devices that convert pressure measurements into a signal.  
(2) For purposes of this entry, “accuracy” includes non-linearity, hysteresis and repeatability at ambient temperature.

*Items:*

a. Pressure sensing elements made of or protected by aluminum, aluminum alloy, aluminum oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers;

b. Seals, if any, essential for sealing the pressure sensing element, and in direct contact with the process medium, made of or protected by aluminum, aluminum alloy, aluminum oxide (alumina or sapphire), nickel, nickel alloy with more than 60% nickel by weight, or fully fluorinated hydrocarbon polymers; *and*

c. Either of the following characteristics:

   c.1. A full scale of less 13 kPa and an “accuracy” of better than ± 1% of full scale; *or*

   c.2. A full scale of 13 kPa or greater and an “accuracy” of better than ± 130 Pa when measuring at 13 kPa.

- Check Country Chart to determine whether your intended destination is controlled for export of your particular item.
## 2. What are export controls? How do they work? How are they enforced?

**Commerce Country Chart**

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<thead>
<tr>
<th>Countries</th>
<th>Chemical &amp; Biological Weapons</th>
<th>Nuclear Nonproliferation</th>
<th>National Security</th>
<th>Missile Tech</th>
<th>Regional Stability</th>
<th>Firearms Convention</th>
<th>Crime Control</th>
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*Export Administration Regulations*  | *Bureau of Industry and Security*  | *January 29, 2015*
How Are Export Controls Regulated? (Continued)

Export Control Reform

Export Control Reform has resulted in (and will continue to evolve) additional CCL categories governing highly sensitive items previously under ITAR jurisdiction.

- Implements a more definitive order of classification starting with ITAR and then if not listed in ITAR, down through the ECCN;
- ITAR Categories revised (or to be revised) currently include: VIII, XI, XV, XIX, and XXI. (Eventually all Categories will be revised)
  - Now lists specific items which fall under ITAR control and revises catch-all provisions to align them to these specific items (versus general characterizations)
- New CCL ECCNs (600 series originating in ITAR XV) added to Category 9: for example, 9A610 (aircraft); 9A619 (engines); Category 3: 3Y611m etc.
  - See also 500 series: for example, 9Y515, etc.
  - Includes new classification order for “specially designed” parts and component and releases certain items to EAR99 status.
- Provides a licensing transition plan from ITAR to EAR governance.
- Adds EAR license exception STA subject to certain conditions (primarily of use to aviation and defense industries).
- Adds new definitions of “de minimis” content for re-exportation of items falling under new 500 and 600 series ECCNs.
- Applies a stricter standard of “use” technology for purposes of deemed export transfers: this could have an impact on open laboratory research environments.
2. WHAT ARE EXPORT CONTROLS? HOW DO THEY WORK? HOW ARE THEY ENFORCED?

How Are Export Controls Regulated? (Continued)

Key difference as to outbound exports (ITAR vs. EAR)

- Under ITAR: outbound export licenses and defense service authorizations require an Empowered Official (EO).
- With respect to EAR dual use controlled items, licensing is on an item by item, country by country basis depending on the applicable control to that item X that country.
- With respect to ITAR defense articles, all countries presumed licensable and, there are numerous countries which are per se prohibited, the so-called 126.1 countries: DDTC will not issue a license under any circumstance.
  - Examples: China, Viet Nam, Zimbabwe, Belarus, and the T4s (Iran, Cuba, Syria, Sudan).

EAR/ITAR End User Controls/Prohibitions: Denied Party/Restricted Entity Lists
Separate from above-referenced controls, government prohibits exports to or export collaboration with certain designated individuals and entities identified as export violators both in and outside the U.S.

- Compliance requirement to screen certain parties (for example foreign institutions, industrial sponsors) against government-published lists prior to export (Denied Partied List, Restricted Entities List, Debarred Parties List, Specially Designated Nationals List).
- Impact on UC’s collaborations: international collaborations (off-shore) institutions to whom UC is providing research equipment or sharing data and research results should be screened against denied/restricted parties lists.
How Are Export Controls Enforced?

- Federal agencies have investigative authority (DOE – see sections below referencing DOE-specific rules; State – DDTC; Commerce – OEE; Border Protection) and often incorporate the FBI.
- Civil and criminal enforcement authority over EAR and ITAR violations, resulting in loss of export privileges, severe monetary fines (millions of dollars), prosecution (criminal) — against the institution and/or individual PI or administrator to whom violation is found attributable.
  - Agencies exercise broad enforcement discretion.
  - Civil enforcement action: 5 year look-back rule.
  - Nationwide, numerous institutions have been investigated and/or are participating in voluntary audits of their export control programs.
    - Audits are both expensive and time-consuming, and often require ongoing status reporting to federal agencies.
- Numerous institutions have been fined with civil penalties for licensing and access violations:
  - Most common reason for compliance failure is lack of consistent awareness among faculty/research and operational personnel about licensing requirements for both outbound transfers and controlled access.
- Criminal Prosecutions
  - US – Chinese business partnership incorporating university PIs to pursue unauthorized export of semiconductor technology to China.
  - Thomas Butler, Chief of Infection Disease Division, Texas Tech Dept. of Internal Medicine: Select Agent violations/export to Tanzania.
  - J. Reece Roth, Professor Emeritus, University of Tennessee, Knoxville/technology transfer to foreign graduate students (China and Iran) contrary to explicit contractual provisions.
    - UT itself not indicted based on mitigating record.
3. How Do Controls Impact PIs, Researchers, and Operational Personnel?

Key Point
- All outbound exports must be classified for license determination.
- As to laboratory access: the situation depends on whether UC is conducting fundamental research and, if so, whether this research either:
  - Uses any research tools classified under ITAR or proprietary tools, or
  - Data restricted under an NDA and export controlled under either the EAR or ITAR.

Fundamental Research Exclusion (FRE) – EAR/Public Domain – ITAR
- Basic and applied research in science and engineering conducted at a U.S. research institution, the results of which ordinarily are published and shared broadly within the scientific community.
  - “Applied” here is defined as activity short of proprietary commercialization.

Public Domain Definition (ITAR)
- Generally accessible to the public through:
  - Publication in periodicals, books, print, electronic, or other media available for general distribution (including websites that provide free uncontrolled access) or to a community of persons interested in the subject matter, such as those in a scientific or engineering discipline, either free or at a price that does not exceed the cost of reproduction and distribution;
  - Readily available at libraries open to the public or at university libraries;
  - Patents and published patent applications available at any patent office;
  - Release at an open conference, meeting, seminar, trade show, or other open gathering held in the U.S. (under ITAR) or anywhere (under EAR). Note, a conference or gathering is "open" if all technically qualified members of the public are eligible to attend and attendees are permitted to take notes or otherwise make a personal record of the proceedings and presentations.
  - ITAR: general descriptions/marketing material relating to function/purpose of defense article.
3. HOW DO CONTROLS IMPACT PIS, RESEARCHERS, AND OPERATIONAL PERSONNEL?

Benefit to Using These Exemptions
- Even if results of the research might otherwise be export controlled under the EAR and ITAR and, therefore, subject to deemed export restrictions as to who could participate in the research, the FRE/Public Domain exclusions allow access by foreign nationals to research results.
  - Positions the research on the same footing as self-invention or unrestricted, UC-funded research.

Caveat
- Absolutely no restrictions can be accepted from a corporate or government sponsor (prime of flow-down) that:
  - Directly or indirectly prohibits dissemination or publication of research results, or
  - Mandates foreign national restrictions as to who can access research (if there will be foreign national participation).

Certain Temporary Restrictions Do Not Compromise the FRE
- Limited pre-publication review by research sponsors is acceptable within a reasonable timeframe but only to:
  - Prevent inadvertent divulgence of proprietary information or government classified information (as having been mutually defined) and provided by the sponsor, or
  - Ensure that pre-defined proprietary content will not compromise the sponsor’s patent rights.

UC's Position on Accepting Restricted Funding
- In compliance with UC’s nondiscrimination policy, UC only conducts fundamental research without publication or citizenship restrictions.
- However, this must be distinguished from non-research activities, such as service activities, which may be proprietary and/or export controlled.
3. HOW DO CONTROLS IMPACT PIS, RESEARCHERS, AND OPERATIONAL PERSONNEL?

What About Research Instruments Necessary to Conduct the Research?
- If the research instrument or operational data being used falls under the EAR dual use regulations, then the FRE allows unrestricted access by foreign nationals to such items for research purposes: no deemed export results, requiring prior license authority.
- However, if the research instrument or operational data falls under ITAR jurisdiction, the FRE or public domain exclusion does not apply to the ITAR research tool or operational data: access remains restricted to foreign nationals until such time as the university obtains license or authorization to allow access or disclose the data.
  - Options: use or defense service license
  - Technology Control Plan (TCP) to restrict access
- Key thing to remember: The ITAR access restriction applies, notwithstanding the fact the no publication or citizenship restrictions were accepted as part of the Agreement, i.e. the research results are still eligible for publication.

Educational Information Exclusion - EAR and ITAR
- “Educational information” released by instruction in catalogue courses or professional conferences where all technically qualified members of the public are eligible to attend and attendees are permitted to take notes of proceedings.
- However, same ITAR principle applies to research tools and operational data where incorporated into course of study.

Conference Exclusion
- Research results may be presented at professional conferences abroad, addressing data published or to be published.
  - Does not cover a “defense service” - disclosure of ITAR data otherwise restricted or knowingly training a foreign military entity or representative on EAR applications for a defense purpose.

Bona Fide Employee Exemption
- Under ITAR: where foreign national is a full time university employee, is not a foreign national of the 126.1 prohibited countries, and resides in the US (for example, an H1 visa holder), the employee may have access to ITAR restricted data (not otherwise restricted by funding Agreement) for background purposes.
  - However, employee is subject to same non-transfer, technology control restrictions that a US person would be.
- Use of this Exemption requires review by the Export Control Officer.
4. How Does UCLA Remain Compliant and Operate within a “Business as Normal” Context?

Remain Knowledgeable of Export Requirements
- Make sure that all personnel affected by these regulations are sufficiently trained to identify export issues that arise during the course of normal research activities.

Avoid Unintended Restrictive Clauses in Sponsored Agreements (including post Agreement scope modifications)
- These may occur in contracts, grants or cooperative agreements:
  - Federal sponsor (primary or flow through via industry or other research institution);
  - Industrial sponsor (as initiated by industrial sponsor or flow through from federal sponsor);
  - Research institution (flow through from industry or federal agency).

Seek Help in Obtaining Licenses for Outbound Transfers and ITAR Access Prior to Export Activity
- Work with UC’s Export Control function to scope license requirements.
  - Shipment of Equipment Abroad – Since the FRE only applies to technology and technical data, a license may be necessary to export equipment depending on ITAR or EAR requirements.
  - Carrying or transmitting export controlled technical data or development software - for example, loading cryptography development software or proprietary export controlled information on a laptop or sending it abroad to a destination for which the data is controlled.
    - Distinguishable from exporting FRE data results (must be uncontrolled results only) which does not require a license.
  - See Section 5 about specific OFAC licensing requirements.
  - Access by foreign nationals to ITAR research tools or instruments used in outside of fundamental research scope.
  - Expanding allowable access (beyond US PI) under an NDA which covers export controlled data or instruments.

- UC’s staff support plays an important role in identifying potentially controlled activities: Procurement, HR, IT, Tech Transfer, etc.
Managing Non-Disclosure Agreements (NDA):
An NDA containing a confidentiality clause and/or an export control clause (should the data being provided be controlled) does not per se compromise FRE or public domain status, provided that:

- Purpose of the NDA is to safeguard proprietary background information and does not restrict research results.
- Where the purpose of the NDA is to safeguard data that is both proprietary and export controlled, PI and sponsor need to discuss amount of information and the extent to which the project can be performed with either no transfer of data to the PI, or transfer to only one or two PI’s, but not the balance of the research team — i.e., consistent with the data being used strictly for background purposes.
- Note: As a practical matter it is better not to accept export controlled data where it can be avoided. Accepting ITAR data, even for background purposes, will require the PI or researcher to assume the responsibility of safeguarding the technology from inappropriate IT and physical access.

What Can I Take with Me When I Travel?
Use License Exception TMP (Tools of Trade).

- Applies to usual and reasonable kinds/quantities of tools (commodities/software) for use by exporter.
- Must remain under effective control exporter or exporter’s employee (physical possession, locked in safe, guarded).
  - Would generally not apply to laboratory equipment that cannot be protected.
- Must accompany exporter when traveling or be shipped within one month before departure or any time after departure, and be returned no later than one year post export.
- Does not apply to:
  - OFAC terrorist supporting embargoed countries such as Cuba and Sudan (See OFAC rules below).
  - ITAR instruments.

Fabrication and Service Contracts

- Fabrication and Service activity for an industry partner or federal sponsor outside fundamental research does not qualify for the FRE.
- Hence access to certain laboratory instruments, tech data and results may be restricted from foreign nationals who might otherwise participate in fundamental research activities.
  - Particular attention should be paid to whether laboratory instruments and fabrication results are export controlled under EAR and/or ITAR.
4. HOW DOES UCLA REMAIN COMPLIANT AND OPERATE WITHIN A “BUSINESS AS NORMAL” CONTEXT?

Special Considerations Applicable to Software and Encryption

Make self-created software "publicly available" so as to be excluded from the EAR.

- Must have arisen during or resulted from fundamental research as defined by the EAR.
- Source code and machine readable code must be publicly available.
- Software and related technical data are published when available for general distribution/community subscription either for free or at a registration price that does not exceed the cost of reproduction and distribution.
- Contract terms for release of the developed software.
  - There should be no conditions placed on the research.
  - Should be the intent of the research team to publish its findings in scientific literature or elsewhere.
  - If the contract requires that a private corporation review the findings of the research team with the intent of controlling what results are to be released in open literature, then the research is considered proprietary. The research is not considered fundamental.

Special Encryption Rules

- Encryption software is consistently called out in the EAR to alert that stricter rules apply; government takes a conservative approach to cryptographic controls, including removing some items from the Fundamental Research Exclusion ("FRE").
  - Where the FRE does not apply, a “deemed export” situation arises with regard to T4 foreign nationals.
- Encryption software is controlled for its functional capacity – not for the informational content it supports.
- Category 5, Part 2 captures cryptography and where it has a higher level of control, supersedes other CCL categories that may have otherwise applied to underlying software.
- Items not covered by the FRE/Public Domain exclusions.
  - Software and related technology controlled under ECCN 5D002 for “EI” (Encryption Items) reasons.
  - Mass market encryption software with symmetric key length exceeding 64-bits, controlled under ECCN 5D002.
5. Nuclear-related Export Control Regulations

What Are the Regulations Governing Nuclear Items, Software, and Technology (and related activities)?

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Nuclear Steam Supply System (NSSS)  
“Balance of Plant”
Department of Commerce (EAR) 15 CFR 700-799

Department of Commerce purview includes:

- “Balance of plant” items and technology.
- Uranium depleted in the isotope-235 and incorporated in commodities solely to take advantage of high density or pyrophoric characteristics
- Bulk zirconium, rotor and bellows equipment, maraging steel, nuclear reactor related equipment, including process control systems and simulators.

Relevant Commerce Control List Entries:

**Category 0-Nuclear Facilities, Materials & Equipment**

**Examples:**
- ECCN 0D999.b-Software for radiation transport calculations/modeling. Subject to EAR.
- ECCN 0A002-Power generating or propulsion equipment “specially designed” for use with space, marine or mobile “nuclear reactors”.
  Subject to ITAR.
- ECCN 0D001-Software specially designed or modified for the development, production, or use of commodities described in 0A002.
  Subject to ITAR.

*Heading Note:* Certain “software” for the “development,” “production,” or “use” of nuclear related commodities is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).

**Category 1-Special Materials & Related Equipment, etc.**

**Examples:**
- ECCN 1A227-High-density (lead glass or other) radiation shielding windows […] and “specially designed” frames therefor. Subject to EAR.
- ECCN 1E201-Technology for the use of items controlled by 1A227 (and others). Subject to EAR.
  Note: Equipment “specially designed” or prepared for nuclear reactors and reprocessing facilities is subject to the export licensing authority of the Nuclear Regulatory Commission.
- ECCN 1A290-Depleted uranium (any uranium containing less than 0.711% of the isotope U-235) in shipments of more than 1,000 kilograms in the form of shielding contained in X-ray units, radiographic exposure or teletherapy devices, radioactive thermoelectric generators, or packaging for the transportation of radioactive materials.

**Category 2-Materials Processing**

**Examples:**
- ECCN 2A290-Generators and other equipment “specially designed”, prepared, or intended for use with nuclear plants. Subject to EAR.
- ECCN 2A291-Equipment, except items controlled by 2A290 , related to nuclear material handling and processing and to nuclear reactors, and “parts,” “components” and “accessories” therefor. Subject to EAR.
  “2E” ECCNs controlling related technology.
5. NUCLEAR-RELATED EXPORT CONTROL REGULATIONS

Department of State (ITAR) 22 CFR parts 120 through 130

Department of State purview includes nuclear weaponry including naval nuclear propulsion equipment/technology.

- Uranium depleted in the isotope-235 and incorporated in defense articles.
- Power generating or propulsion equipment specially designed for use with space, marine or mobile nuclear reactors.
- Radomes designed to withstand a combined thermal shock greater than 100 cal/sq cm accompanied by a peak over pressure of greater than 50 kPa, usable in protecting missiles against nuclear effects (e.g., Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects), and usable for missiles.
- Software specially designed or modified for the development, production, or use of power generating or propulsion equipment specially designed for use with space, marine or mobile nuclear reactors.
5. NUCLEAR-RELATED EXPORT CONTROL REGULATIONS

Nuclear Regulatory Commission (NRC) 10 CFR Part 110

NRC purview includes Nuclear Steam Supply System *equipment*.

110.8-Equipment and Facilities (Includes detailed appendices with lists of items)

- Nuclear reactors and especially designed or prepared equipment and components for nuclear reactors. (See Appendix A to this part.)
- Plants for the separation of isotopes of uranium (source material or special nuclear material) including gas centrifuge plants, gaseous diffusion plants, aerodynamic enrichment plants, chemical exchange or ion exchange enrichment plants, laser based enrichment plants, plasma separation enrichment plants, electromagnetic enrichment plants, and especially designed or prepared equipment, other than analytical instruments, for the separation of isotopes of uranium.
- Plants for the separation of the isotopes of lithium and especially designed or prepared assemblies and components for these plants.
- Plants for the reprocessing of irradiated nuclear reactor fuel elements and especially designed or prepared assemblies and components for these plants.
- Plants for the fabrication of nuclear reactor fuel elements and especially designed or prepared assemblies and components for these plants.
- Plants for the conversion of uranium and plutonium and especially designed or prepared assemblies and components for these plants.
- Plants for the production, separation, or purification of heavy water, deuterium, and deuterium compounds and especially designed or prepared assemblies and components for these plants.
- Plants for the production of special nuclear material using accelerator-driven subcritical assembly systems capable of continuous operation above 5 MWe thermal.

110.9-Nuclear Materials

- Special Nuclear Material.
- Source Material.
- Byproduct Material.
- Deuterium.
- Nuclear grade graphite for nuclear end use.
DOE-National Nuclear Security Administration (NNSA) 10 CFR Part 810

DOE purview includes Nuclear Steam Supply System-related technology, software, services/activities.

- Applies to all persons subject to the jurisdiction of the United States who engage directly or indirectly in the production of special nuclear material outside the United States.
- Applies to activities conducted either in the United States or abroad by such persons or by licensees, contractors or subsidiaries under their direction, supervision, responsibility or control.
- Applies, but is not limited to, activities involving nuclear reactors and other nuclear fuel cycle facilities for the following: fluoride or nitrate conversion; isotope separation (enrichment); the chemical, physical or metallurgical processing, fabricating, or alloying of special nuclear material; production of heavy water, zirconium (hafnium-free or low-hafnium), nuclear-grade graphite, or reactor-grade beryllium; production of reactor-grade uranium dioxide from yellowcake; and certain uranium milling activities.
- Does not apply to exports licensed by the Nuclear Regulatory Commission.

Controlled activities include:

- Engaging directly or indirectly in the production of special nuclear material with certain countries.
- Providing sensitive nuclear technology for an activity in any foreign country.
- Engaging in or providing assistance or training in any of the following activities with respect to any foreign country.
  - Designing production reactors, accelerator-driven subcritical assembly systems, or facilities for the separation of isotopes of source or SNM (enrichment), chemical processing of irradiated SNM (reprocessing), fabrication of nuclear fuel containing plutonium, or the production of heavy water;
  - Constructing, fabricating, operating, or maintaining such reactors, accelerator-driven subcritical assembly systems, or facilities (3);
  - Designing, constructing, fabricating, operating or maintaining components especially designed, modified or adapted for use in such reactors, accelerator-driven subcritical assembly systems, or facilities;
  - Designing, constructing, fabricating, operating or maintaining major critical components for use in such reactors, accelerator-driven subcritical assembly systems, or production-scale facilities; or
  - Designing, constructing, fabricating, operating, or maintaining research reactors, test reactors or subcritical assemblies capable of continuous operation above five megawatts thermal.
- Training in the activities listed immediately above.
5. NUCLEAR-RELATED EXPORT CONTROL REGULATIONS

NNSA Controlled Software:

- All use of NNSA controlled code must be licensed by RSICC regardless of nationality.
  - Nationals from 810.8 countries who intend to use NNSA controlled code will be subject to deemed export requirements and require specific authorization.
- Includes software controlled and licensed through RSICC, such as MCNP-DSP, MCNP-POLIMI, MCNP5/MCNPX, MCNPDATA, MCNPXS, etc.
  - May also include controlled compilation data provided as part of software license.
- Current Agreement Language: “In addition to the stated requirement of Part 810, it is the Department of Energy’s Office of Nonproliferation and International Security (NA-24) policy to review and as appropriate authorize and approve requests (for all RSICC codes) from "Foreign Persons" from countries listed in Part 810.8, or to those destinations.”
  - Part 810.8 has been revised. Countries requiring this level of review and approval currently include: Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Azerbaijan, Bahrain, Belarus, Benin, Botswana, Burkina Faso, Burma (Myanmar), Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, China, People’s Republic of Comoros, Congo (Zaire), Cuba, Djibouti, Equatorial Guinea, Eritrea, Gabon, Georgia, Guinea, Guinea-Bissau, Haiti, India, Iran, Iraq, Israel, Kenya, Kuwait, Kyrgyzstan, Laos, Liberia, Libya, Macedonia, Mali, Marshall Islands, Mauritania, Micronesia, Moldova, Mongolia, Mozambique, Niger, Oman, Pakistan, Palau, Qatar, Russia, Rwanda, Sao Tome and Principe, Saudi Arabia, Seychelles, Sierra Leone, Somalia, Sudan, Syria, Tajikistan, Tanzania, Togo, Turkmenistan, Uganda, Uzbekistan, Vanuatu, Yemen, Yugoslavia.

Compliance requirements at UCLA:

- **All RSICC licensing requests should be copied to Claudia Modlin.**
- **All licensees are subject to UCLA’s TCP for the safeguard of this controlled software.**
  - TCP also covers IT support personnel who might not require a license to install software on a server, but must remain aware of control parameters.
    - Example: IDRE limits MCNP code installation support to 3 designated US persons on IT team.
- Failure to comply represents a violation under 810.15 and can result in civil fines and/or criminal culpability (as referenced in Section 222 of the Atomic Energy Act).

Recent update to Part 810 introduces new exemptions:

- Exports authorized by the Department of State (DOS) or Department of Commerce (DOC), or the Nuclear Regulatory Commission (NRC);
- Transfer of “publicly available information,” “publicly available technology,” and the results of “fundamental research”;
- Assistance for certain mining and milling activities, and certain fusion reactors because these activities do not involve the production or use of special nuclear material;
- Production or extraction of radiopharmaceutical isotopes when the process does not involve special nuclear material; and
- Transfers to lawful permanent residents of the United States or recipients of political asylum.
United States Department of Energy
Radiation Safety Information Computational Center (RSICC)
Software Export Control Agreement

UT-Battelle, LLC (UT-Battelle) manages and operates the Oak Ridge National Laboratory under its Prime Contract No. DEAC05-00OR22725 with the United States Department of Energy ("DOE"), an agency of the United States Government.

UT-Battelle intends to grant to the licensee identified below ("Licensee") a license to the RSICC Software also identified below (the "Software") under a separate Single User Software License.

As consideration for the license to the Software, Licensee hereby acknowledges and agrees to comply with all United States Export Control laws, regulations, and policies with respect to the Software and accompanying documents. Distribution of the Software or accompanying documents to any company or citizen of Cuba, Iran, North Korea, Sudan, and Syria is prohibited. Diversion contrary to U.S. law is prohibited.

Licensee represents and warrants that the "Intended Use" of the Software will not be directly or indirectly related to any one or more of the following areas:

- Military, Space Craft, Satellites, Missiles, and associated hardware, software or technical data unless authorized and approved by U.S. Government Sponsorship without Foreign Involvement
- Weapons of Mass Destruction or their precursors (Nuclear, Chemical & Biological)
- Activities subject to U.S. Department of Commerce prohibitions, including but not limited to those activities described in General Prohibitions (15 CFR Part 736) or Control Policy: End-User/End-Use based (15 CFR Part 744).

Licensee warrants that he/she is not identified or listed, and is not a citizen of a country identified or listed, in either the U.S. Government Consolidated Screening List (http://export.gov/creg_main_023148.asp) or any of the following:


The Software falls under one or more of the following Export Control jurisdictions:

- United States Department of Energy (DOE) 10 CFR 810 - (RELAP, MCNP, and MCNP derivative codes) – For reference to DOE Regulations, please refer to: http://www.access.gpo.gov/nara/cfr/waisidx_08/10cf810_08.html. - In addition to the stated requirements of Part 810, it is the Department of Energy’s Office of Nonproliferation and International Security (NA-24) policy to review and as appropriate authorize and approve requests (for all RSICC codes) from “Foreign Persons” from countries listed in Part 810.8, or to those destinations.
- United States Department of Commerce Title 15, Commerce and Foreign Trade, Chapter VII B Bureau of Export Administration, Parts 730 through 774. For reference to the Commerce Regulations, please refer to: http://www.access.gpo.gov/bis/ear/ear_data.html.

Licensee represents and warrants that the certifications made by Licensee in the RSICC Registration Form and the Software/Data Order Form are true, accurate and complete.

References:
The references identified herein are not under the control of UT-Battelle and are subject to change. The links provided are directed to web sites that may provide relevant export control information and are provided only as a convenience to the Licensee.

Software Package: ___________________________ Software ID: ___________________________

Name: (type or print) ___________________________ Signature: (sign) ___________________________

Date: ___________________________

Return Completed and Signed Agreement to:
UT-Battelle, LLC / RSICC
Oak Ridge National Laboratory
P.O. Box 2008
1 Bethel Valley Road
Oak Ridge, TN 37831-6003
Phone: 865-574-6176 Fax: 865-241-4046
Email: pdc@ornl.gov

(09/25/2012)
6. OFAC Regulations: Purpose, Scope, and Enforcement

What Are the OFAC Regulations? What Are They Intended to Accomplish?

- Office of Foreign Assets Control (OFAC) falls under the Department of the Treasury.
- Regulations are found in Title 31 CFR, Parts 500-599.
  - Broadly regulate and restrict transactions with embargoed countries plus certain nongovernmental organizations to implement strategic foreign policy.
  - Restrict transfer and exchange of items and services.
  - Restrict commercial, industrial, and financial relationships benefitting countries
  - Restrict travel (Cuba) subject to certain exceptions.
  - Prohibit transactions with certain end users – OFAC’s Specially Designated Nationals List (present in the U.S. or abroad).

- Approximately twenty-five embargoed countries plus certain non-governmental organizations: most comprehensive controls apply to the following:
  - Cuba, Iran, Syria, N. Korea and Sudan
  - Regulations are country-specific
  - OFAC regulations operate independently of other export control regulations (dual-use/EAR, military defense/ITAR)
    - An activity that might not be controlled under EAR or ITAR may be controlled under OFAC
  - OFAC Sanctions Programs: Terrorism
    - Regulations include Executive Order and several sanctions (31 CFR 594-597)
    - Sanctions apply to certain listed entities
> 6. OFAC REGULATIONS: PURPOSE, SCOPE, AND ENFORCEMENT

How Are OFAC Regulations Enforced?

- All regulated activity requires prior authorization in the form of an OFAC license issued by the Department of Treasury.
- While OFAC publishes some country-specific guidance on regulatory interpretation, such guidance is not comprehensive; in general, questions in doubt are handled through requests for Advisory Opinions or License Applications.
  - Data provided in advisory opinions is treated as proprietary and confidential upon request.
- Treasury deploys its own investigative enforcement team, and operates jointly with the FBI and the Commerce Department’s Office of Export Enforcement (OEE).
- Sanctions include civil and criminal monetary penalties which can be assessed against the individual violator and/or the institution. Cases can be referred to the Department of Justice for criminal investigation.
  - Monetary penalties can range up to the greater of $250,000 or twice the value of the transaction, per violation.
- The most common violations in the academic and research community involve the following:
  - Cuba-based research and independent travel.
  - Outbound and collaborative Iranian transactions (see below for further detail).
  - Access to restricted research tools in the U.S. by OFAC-restricted foreign nationals.
  - Failure to screen OFAC-restricted end-users.
How Specific Research Activities Trigger Requirements: Common Scenarios

- **Travel to an OFAC-restricted country.**
  - Note: Only Cuba requires licenses for personal and certain professional travel; for all other countries, no license is required for personal travel.
- **Providing a restricted “service.”** This concept is common to the regulations across the five most heavily sanctioned nations, as excerpted below from the Iran sanctions:
  “§560.204 Except as otherwise authorized pursuant to this part, including §560.511, and notwithstanding any contract entered into or any license or permit granted prior to May 7, 1995, the exportation, re-exportation, sale, or supply, directly or indirectly, from the United States, or by a United States person, wherever located, of any goods, technology, or services to Iran or the Government of Iran is prohibited, including the exportation, re-exportation, sale, or supply of any goods, technology, or services to a person in a third country undertaken with knowledge or reason to know that:
  (a) Such goods, technology, or services are intended specifically for supply, transshipment, or re-exportation, directly or indirectly, to Iran or the Government of Iran; or
  (b) Such goods, technology, or services are intended specifically for use in the production of, for commingling with, or for incorporation into goods, technology, or services to be directly or indirectly supplied, transshipped, or reexported exclusively or predominantly to Iran or the Government of Iran.”
- **Common scenarios involving restricted services include the following:**
  - Exporting research data which is not publicly available.
    - “Export” is defined as a transfer: electronic, conversational or hard copy media
    - “Publicly available” means published on a website or through scholarly publication, etc.
    - Iranian download of a Website publication containing research results is allowable; however, providing technical assistance upon request from an Iranian individual or institution in Iran triggers license requirement.
  - Importing samples or materials for analysis/provision of data results.
    - Even where the samples or materials are strictly for research purposes and results are intended for publication, importation without a license is prohibited.
    - Note: Importing any item from Iran requires license authorization; other countries have item-specific requirements.
  - Data exchange with OFAC foreign national researchers and scholars based in OFAC countries.
    - Note export prohibition above: issuing data or research results that is unrelated to publication may constitute a restricted export.
    - Serving on collaborative research committees or boards: No issue, unless “service” is being provided: common sense standard – discussions should be limited to what has been published or general discussions pertaining to collaboration.
- **Be aware of new Ukraine-related Russia sanctions affecting energy sector and expanding SDN List/Sectoral Sanctions**
7. Contact Information

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