

Using the Technology Alert List (Update)

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C O R R E C T E D C O P Y (REMOVING ADDEES FROM TEXT)

E.O. 12958: N/A TAGS: CVIS, ETTC, KNNP, MTCRE, PARM, PTER,
TSPL, MSEP SUBJECT: USING THE TECHNOLOGY ALERT LIST: UPDATE

POSTS PASS TO US CUSTOMS REP

REF: A) 9 FAM 40.31 EXHIBIT 1, B) 96 STATE 144647, C) 98
STATE 15852, D) 99 STATE 158241, E) 00 STATE 220555, F) 00
STATE 220919, G) 01 STATE 196355, H) 01 STATE 196859, I)
STATE 15702

SUMMARY -----

1. This cable updates the Technology Alert List (TAL) which was transmitted in November 2000, with particular attention to certain revisions as a result of the September 11 terrorist attacks. The cable also provides additional guidance for its use in cases that may fall under the purview of INA section 212 (a)(3)(a), which renders inadmissible aliens who there is reason to believe are seeking to enter the U.S. to violate U.S. laws prohibiting the export of goods, technology or sensitive information from the U.S. While applicants from any country (including our traditional allies and trading partners), coming to engage in an activity related to one of the "Critical Fields" on the list may be

ineligible under this section (if the proposed activity is subject to U.S. technology transfer laws), Consular Officers (CONOFFs) should pay particular attention to cases involving nationals of countries on the Department's List of State Sponsors of Terrorism or nationals affiliated with entities identified in Supplement 4 to Part 744 of the Export Administration Regulations, published by the Department of Commerce. The entities list can be found at the www.bis.doc.gov website address.

2. Department notes that information in the public domain (e.g., widely available to the public), and information presented in an academic course generally is not controlled for U.S. technology transfer control purposes. Department advises posts that further refinements to the TAL and revised guidance regarding visa applications that require referral to Washington, consistent with the requirements of Section 3 (Abuse of International Student Status) of the Homeland Security Presidential Directive-2 (Combating Terrorism Through Immigration Policies), issued October 29, 2001, will be forthcoming. Guidance is expected in the next quarter.

----- GUIDANCE -----

3. Department requests all posts take the time to carefully review this cable. Detach Tabs A and B and make copies for distribution in your consular section. The Critical Fields List (CFL) (Tab A) and the List of State Sponsors of Terrorism (Tab B) make very handy "cheat sheets" and can be posted at the interview windows where the staff can become familiar with the contents. This information will do more good at the window than stored in a file or the FAM. The consular sections are among those in the forefront in preventing the loss of U.S. technology to terrorists and State Sponsors of Terrorism.

4. U.S. laws and regulations prohibit the export of certain goods and technologies from the U.S. Section 212 (a)(3)(a) of the INA renders inadmissible aliens who there is reason to believe seek to enter the U.S. to violate or evade these laws. This means that with sufficient information, the CONOFF has the power to prevent sensitive technology or material, e.g., controlled nuclear or biotechnical information, from falling into the wrong hands. The Technology Alert List (TAL) was designed to assist in this effort.

----- BACKGROUND -----

5. Not since the Cold War has the transfer of sensitive technology to hostile individuals or regimes been more in the news. The increasing sophistication of off-the-shelf technology, dual-use technologies (technologies which have both civilian and military applications), allegations of lack of sufficient information about and controls on foreign students in the U.S., recent tensions in the Middle East, and

the September 11 terrorist attacks have combined to renew concern among the law enforcement and intelligence communities that controlled U.S.-origin goods and information are vulnerable to theft.

6. The TAL was originally designed to help maintain technological superiority over the Warsaw Pact and was targeted at individuals from the Soviet Union and other Communist countries. In 1996, the TAL was revised to broaden its focus and reflect more accurately current laws restricting or prohibiting the export of goods and technologies. These laws are designed to further four important security objectives:

-- Stem the proliferation of weapons of mass destruction and missile delivery systems;

-- Restrain the development of destabilizing conventional military capabilities in certain regions of the world;

-- Prevent the transfer of arms and sensitive dual-use items to terrorist states; and

-- Maintain U.S. advantages in certain militarily critical technologies.

----- HOW TO USE THE TECHNOLOGY ALERT LIST -----

7. The revised TAL consists of two parts: a "Critical Fields List" (CFL) of major fields of technology transfer concern, including those subject to export controls for nonproliferation reasons (Tab A); and the Department's List of designated State Sponsors of Terrorism (Tab B). While restrictions on the export of controlled goods and technologies apply to nationals of all countries, applicants from countries on the List of State Sponsors of Terrorism seeking to engage in activities involving one of the critical fields warrant special scrutiny. Officers are not expected to be versed in all the fields on the List. Rather, CONOFFs should shoot for familiarization and listen for key words or phrases from the list in applicants' answers to interview questions.

8. When applying the TAL, CONOFFs should first:

-- Determine whether the applicant proposes to engage in advanced (doctoral, postdoctoral or research scholar) research or studies or business activity (ies) involving any of the scientific/technical fields listed in Tab A. -- If the applicant's planned activities raise questions of possible ineligibility under INA 212 (a)(3)(a), especially in light of the four broad policy objectives enumerated in para. 6, submit a Security Advisory Opinion (SAO) in the form of visas Donkey Mantis or Eagle Mantis. Detailed guidance on the

Mantis program is contained in Ref D. Please note: an SAO is MANDATORY in all cases of applicants bearing passports of, or employed by, states designated as State Sponsors of Terrorism (see Tab B for List) who seek to engage in activities involving one of the critical fields.

-- When an SAO is submitted in a TAL case, CONOFFs should gather and report as much information as possible about the applicant's background, proposed activities, and travel plans. The effectiveness of the name check (and the turnaround time) is directly related to the completeness of the information in the SAO. For example: what are the applicant's research or business interests? What is his current position and where does he work? What is the

address and phone number of the company(ies) he intends to visit? Who is his point of contact? What are the specifics of his advanced (doctoral, postdoctoral or research scholar) research or studies or business in the U.S.? Who is funding the travel or education? Will he be returning to work in a country that sponsors terrorism or to an entity that is under sanctions? How, and where, does the applicant plan to use the goods or knowledge acquired?

-- CONOFFs should encourage TAL applicants to provide supporting documentation from their home organizations. For example, complete resumes and complete lists of publications of the applicant and, if accompanying the applicant, the spouse; project descriptions; annual reports; and letters of recommendation from a U.S. source or from abroad can be useful in helping to flesh out an applicant's real motives for travel. Such documents should be described by CONOFF in the SAO and held until the case has been closed. The Department encourages CONOFF to provide as much information and details as possible in the SAO.

----- WHEN IN DOUBT, ASK -----

9. With the exception of applicants who are nationals or employees of states sponsoring terrorism, tech transfer SAOs are not mandatory for all scientific and technical visitors seeking to engage in one of the critical fields in Tab A. However, CONOFFs should use caution in adjudicating all such cases. Only when CONOFFs believe (3)(a) clearly does not apply should the case be processed to conclusion without seeking the department's opinion.

10. Help may only be as far away as the DAO at post. The DATT and his/her staff are often very knowledgeable about sensitive military and dual-use technology. FCO staff also will be knowledgeable regarding dual-use export controls. They can assist in deciphering an applicant's response or, the Critical Fields List, and can also provide follow-up questions. Remember: when in doubt send, in an SAO to CA/VO/L/C. At those posts that have created an export control

Working Group (WG), consular officers will find that the WG's chair or executive secretary can be a useful contact for tapping the expertise of the group's interagency membership.

11. Commercial Sales of United States Munitions List (USML) items are licensed by DOS PM/DTC, which also does end-use checks through the Blue Lantern program. Each post has a Blue Lantern contact designated by the post. This person can also be a valuable resource to the visa officer, because he or she is often in direct, frequent contact with PM/DTC. The U.S. Customs attachE or senior Customs representative responsible for or at post is also a valuable asset in these matters. Any activities suspected to be in violation of U.S. munitions export laws should be promptly reported to the State Department (PM/DTC for commercial sales), the local or regional Customs attache, and, for dual-use export control laws, to the Bureau of Industry and Security in the Department of Commerce, in accordance with local reporting procedures.

---- TRUSTING YOUR INSTINCTS -----

12. Please bear in mind that while the TAL is a valuable tool for recognizing possible illegal technology transfer, it is not the only mechanism for identifying such cases. There may be times when the CONOFF suspects, for whatever reason, that an applicant may be (3)(a) despite the absence of the applicant's profession or area of study on the TAL. Such cases can and should be submitted in an SAO for the Department's advisory opinion.

13. Additional information about some of the technologies on the Technology Alert List is available on the TecWorld website, the Department's unclassified Intranet science and technology reference site managed by the Bureau of Intelligence and Research. You can access TecWorld on OpenNet at <http://tecworld.inr.state.gov>.

----- TAB A - CRITICAL FIELDS LIST -----

A. CONVENTIONAL MUNITIONS: Technologies associated with:

- Warheads and other large caliber projectiles
- Reactive armor and warhead defeat systems
- Fusing and arming systems.
- Electronic countermeasures and systems
- New or novel explosives and formulations
- Automated explosive detection methods and equipment

B. NUCLEAR TECHNOLOGY: Technologies associated with production and use of nuclear material for both peaceful and military applications. Included are technologies for:

- Enrichment of fissile material

- Reprocessing irradiated nuclear fuel to recover produced plutonium
- Production of heavy water for moderator material
- Plutonium and tritium handling

Also, certain associated technologies related to nuclear physics and/or nuclear engineering. Includes materials, equipment or technology associated with:

- Power reactors, breeder and production reactors
- Fissile or special nuclear materials
- Uranium enrichment, including gaseous diffusion, centrifuge, aerodynamic, chemical, Electromagnetic Isotopic Separation (EMIS), Laser Isotope Separation (LIS)
- Spent fuel reprocessing, plutonium, mixed oxide nuclear research Inertial Confinement Fusion (ICF)
- Magnetic confinement fusion
- Laser fusion, high power lasers, plasma,
- Nuclear fuel fabrication including Mixed Oxide (uranium-plutonium) fuels (MOX)
- Heavy water production
- Tritium production and use
- Hardening technology

C. ROCKET SYSTEMS (including ballistic missile systems, space launch vehicles and sounding rockets) and Unmanned Air Vehicles (UAV) (including cruise missiles, target drones, and reconnaissance drones): Technologies associated with rocket systems and UAV systems. The technology needed to develop a satellite launch vehicle is virtually identical to that needed to build a ballistic missile.

D. ROCKET SYSTEM AND UNMANNED AIR VEHICLE (UAV) SUBSYSTEMS:

Propulsion technologies include solid rocket motor stages, and liquid propellant engines. Other critical subsystems

include re-entry vehicles, guidance sets, thrust vector controls and warhead safing, arming and fusing. Many of these technologies are dual-use. Technologies include:

- Liquid and solid rocket propulsion systems
- Missile propulsion and systems integration
- Individual rocket stages or staging/separation mechanism
- Aerospace thermal (such as superalloys) and high-performance structures
- Propulsion systems test facilities

E. NAVIGATION, AVIONICS AND FLIGHT CONTROL USEABLE IN ROCKET SYSTEMS AND UNMANNED AIR VEHICLES (UAV): These capabilities directly determine the delivery accuracy and lethality of both unguided and guided weapons. The long-term costs to design, build and apply these technologies have been a limiting proliferation factor. Technologies include those

associated with:

- Internal navigation systems
- Tracking and terminal homing devices
- Accelerometers and gyroscopes
- Rocket and UAV and flight control systems.
- Global Positioning System (GPS)

F. CHEMICAL, BIOTECHNOLOGY AND BIOMEDICAL ENGINEERING: The technology used to produce chemical and biological weapons is inherently dual-use. The same technologies that could be applied to develop and produce chemical and biological weapons are used widely by civilian research laboratories and industry; these technologies are relatively common in many countries. Advanced biotechnology has the potential to support biological weapons research. In the biological area, look for interest in technologies associated with:

- Aerobiology (study of microorganisms found in the air or in aerosol form)
- Biochemistry
- Pharmacology
- Immunology
- Virology
- Bacteriology
- Mycology
- Microbiology
- Growth and culturing of microorganisms
- Pathology (study of diseases)
- Toxicology
- Study of toxins
- Virulence factors
- Genetic engineering, recombinant DNA technology
- Identification of nucleic acid sequences associated with pathogenicity
- Freeze-drying (lyophilization)
- Fermentation technology
- Cross-filtration equipment
- High "DOP-rated filters" (e.g., HEPA filters, ULPA filters)
- Microencapsulation
- Aerosol sprayers and technology, aerosol and aerosolization technology
- Spray or drum drying technology
- Milling equipment or technology intended for the production of micron-sized particles
- Technology for eliminating electrostatic charges of small particles
- Flight training -- Crop-dusting, aerosol dissemination
- Unmanned aerial vehicle (UAV) technology
- Fuses, detonators, and other munitions technology
- Submunitions technology
- Computer modeling of dissemination or contagion
- Chemical absorption (nuclear-biological-chemical (NBC))

protection)

In the chemical area, look for:

- Organo-phosphate chemistry
- Neurochemistry
- Chemical engineering
- Chemical separation technology
- Pesticide production technology
- Pharmaceutical production technology
- Chemical separation technology
- Toxicology
- Pharmacology
- Neurology
- Immunology
- Detection of toxic chemical aerosols
- Chemical absorption (Nuclear-Biological-Chemical (NBC) protection)
- Production of glass-lined steel reactors/vessels, pipes, flanges, and other equipment
- Aerosol sprayers and technology -- Flight training

- Crop-dusting, aerosol dissemination
- Unmanned Aerial Vehicle (UAV) technology
- Fuses, detonators, and other munitions technology
- Submunitions technology
- Computer modeling of dissemination

G. REMOTE SENSING, IMAGING AND RECONNAISSANCE: Satellite and aircraft remote sensing technologies are inherently dual-use; increasingly sophisticated technologies can be used for civilian imagery projects or for military and intelligence reconnaissance activities. Drones and remotely piloted vehicles also augment satellite capabilities. Key-word associated technologies are:

- Remote sensing satellites
- High resolution multi-spectral, electro-optical and radar data/imagery
- Imagery instruments, cameras, optics, and synthetic aperture radar systems
- Ground receiving stations and data/image processing systems
- Photogrammetry
- Imagery data and information products
- Piloted aircraft
- Unmanned Air Vehicles (UAV)
- Remotely-piloted vehicles; and drones

H. ADVANCED COMPUTER/MICROELECTRONIC TECHNOLOGY: Advanced computers and software play a useful (but not necessarily critical) role in the development and deployment of missiles and missile systems, and in the development and production of nuclear weapons. Advanced computer capabilities are also used in over-the-horizon targeting, airborne early warning

targeting, Electronic Countermeasures (ECM) processors. These technologies are associated with:

- Supercomputing, hybrid computing
- Speech processing/recognition systems
- Neural networks
- Data fusion
- Quantum wells, resonant tunneling
- Superconductivity
- Advance optoelectronics
- Acoustic wave devices
- Superconducting electron devices
- Flash discharge type x-ray systems
- Frequency synthesizers
- Microcomputer compensated crystal oscillators

I. MATERIALS TECHNOLOGY: The metallic, ceramic and composite materials are primarily related to structural functions in aircraft, spacecraft, missiles, undersea vehicles, and propulsion devices. Polymers provide seals and sealants for containment of identified fluids and lubricants for various vehicles and devices. High density graphite is used in missile nosetips, jet vanes and nozzle throats. Selected specialty materials (i.e., stealth and the performance of these materials) provide critical capabilities that exploit electromagnetic absorption, magnetic, or superconductivity characteristics. These technologies are associated with:

- Advanced metals and alloys
- Non-composite ceramic materials
- Ceramic, cermet, organic and carbon materials
- Polymeric materials
- Synthetics fluids
- Hot isostatic
- Densifications
- Intermetallic
- Organometals
- Liquid and solid lubricant
- Magnetic metals and superconductive conductors

J. INFORMATION SECURITY: Technologies associated with cryptography and cryptographic systems to ensure secrecy for communications, video, data and related software.

K. LASER AND DIRECTED ENERGY SYSTEMS TECHNOLOGY: Lasers have critical military applications, including incorporation in guided ordinance such as laser guided bombs and ranging devices. Directed energy technologies are used to generate electromagnetic radiation or particle beams and to project that energy on a specific target. Kinetic energy technologies are those used to impart a high velocity to a mass and direct it to a target. Directed energy and kinetic energy technologies have potential utility in countering missiles and other applications. Look for technologies associated

with:

- Atomic Vapor Laser Isotope Separation (AVLIS)
- Molecular Laser Isotope Separation (MLIS)
- High Energy Lasers (HEL) (i.e., laser welders)
- Low Energy Lasers (LEL)
- Semiconductor lasers
- Free electron lasers
- Directed Energy (DE) systems
- Kinetic Energy (KE) systems
- Particle beam, beam rider, electromagnetic guns, Optoelectronics/electro-optics (Europe)
- Optical tracking (i.e., target designators)
- High energy density
- High-speed pulse generation, pulsed power
- Hypersonic and/or hypervelocity
- Magnetohydrodynamics

L. SENSORS AND SENSOR TECHNOLOGY: Sensors provide real-time information and data, and could provide a significant military advantage in a conflict. Marine acoustics is critical in anti-submarine warfare; gravity meters are essential for missile launch calibration. Look for technologies associated with:

- Marine acoustics
- Optical sensors
- Night vision devices, image intensification devices
- Gravity meters
- High speed photographic equipment
- Magnetometers

M. MARINE TECHNOLOGY: Marine technologies are often associated with submarines and other deep submersible vessels; propulsion systems designed for undersea use and navigation and quieting systems are associated with reducing detectability and enhancing operations survivability. Look for technologies connected with:

- Submarines and submersibles
- Undersea robots
- Marine propulsion systems
- Signature recognition
- Acoustic and non-acoustic detection
- Acoustic, wake, radar and magnetic signature reduction
- Magnetohydrodynamics
- Stirling engines and other air independent propulsion systems

N. ROBOTICS: Technologies associated with:

- Artificial intelligence
- Automation
- Computer-controlled machine tools

-- Pattern recognition technologies.

O. URBAN PLANNING: Expertise in construction or design of systems or technologies necessary to sustain modern urban societies. (PLEASE NOTE: Urban Planning may not fall under the purview of INA section 212 (a)(3)(a), U.S. technology transfer laws, or any other U.S. law or regulation. However, Urban Planning is a special interest item and posts are requested to refer such visa application requests to CA/VO/L/C for further review.) Look for technologies/skills associated with:

- Architecture
- Civil engineering
- Community development
- Environmental planning
- Geography
- Housing
- Landscape architecture
- Land use and comprehensive planning
- Urban design

-TAB B: DEPARTMENT'S LIST OF STATE SPONSORS OF TERRORISM:-

CUBA IRAN IRAQ LIBYA NORTH KOREA SUDAN SYRIA

14. Minimize considered. POWELL

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