Unit 13

TITLE: INTELLECTUAL PROPERTY: PATENTS AND LICENSES

PURPOSE: This unit provides a working understanding of the concept of intellectual property and its various forms.

OBJECTIVES: Upon completion of this unit, participants will:

- Be familiar with the concept of intellectual property, the types of protection available for intellectual property, and conditions under which each type of protection is used
- Understand what is patentable
- Understand why patenting is important to Federal laboratories
- Understand the reasons timely disclosure is important
- Be aware of the purpose of statutory invention registrations
- Be familiar with the government patent process
    - Understand the review process a patent application undergoes
    - Know what interference procedings are and why laboratory personnel must keep good records of their research
- Understand that laboratory personnel can publish and patent if the timing is coordinated
- Be familiar with relevant points about foreign patents.

MATERIALS:

Transparency 13-1: Intellectual Property: Patents and Licenses

Transparency 13-2: Intellectual Property

Transparency 13-3: Patent

Transparency 13-4: Copyright

Transparency 13-5: Trademark

Transparency 13-6: Trade Secret

Transparency 13-7: Patentable Subject Matter

Transparency 13-8: Facilitating the Transfer Process

Transparency 13-9: Statutory Invention Registration

Transparency 13-10: Patenting and Publishing

Transparency 13-11: License

Transparency 13-12: Selecting A Royalty

Handout 13-1: Invention Disclosure Form

Handout 13-2: Technical Notebooks

REQUIRED READING:

U.S. Department of Commerce, Patent and Trademark Office, General Information Concerning PATENTS, A Brief Introduction to Patent Matters, revised October 1, 1986 (U.S. Government Printing Office, Order Number 003-004-00626-9).

OPTIONAL READING:

1. Issue Paper VI--Intellectual Property and the Private Sector

2. Bernard Rivkin, Patenting and Marketing Your Invention, Van Nostrand Reinhold Company, New York, 1986.

NOTES TO INSTRUCTOR:

1. This unit is very long. If you feel this is too much material to cover at one time, you may want to present it in two sessions. The second session might begin with the section on the "Government Patent Process." Transparencies 13-10, 13-11, and 13-12 and Handout 13-2 would be used in the second session.

2. The U.S. Department of Commerce pamphlet (required reading) provides basic information on patenting and the patent process.

3. The Rivkin book provides basic information on patents, patenting, licensing patents, copyrights, trademarks, and trade secrets. It also provides copies of over 25 forms and applications related to patents and other forms of intellectual property, confidential disclosure, etc. A glossary is also included.

ESTIMATED TIME:

60 minutes for presentation
1½ to 2 hours with discussion

Unit 13

INTELLECTUAL PROPERTY: PATENTS AND LICENSES

Transparency 13-1: Intellectual Property: Patents and Licenses

NOTE: PRESENT PURPOSE AND OBJECTIVES OF THIS UNIT.

INTELLECTUAL PROPERTY

Transparency 13-2: Intellectual Property

The term "intellectual property" sounds somewhat elitist. It is not intended to suggest that there is smart property as opposed to dumb property. Rather, it is simply a handy label that applies to the creative products of one's mind.

The rights of an individual to this creative property can be categorized under common law and specific statues.

Under common law, the individual has a right to use, make, and sell his invention. However, this right is neither absolute nor exclusive. It is not absolute because it cannot be exercised if the invention is claimed in a patent that has not expired. It is not exclusive because anyone who independently conceives the invention cannot be barred from practicing the invention for their own use. The inventor's rights under common law serve only to insure against those who would obtain the invention from him improperly.

In addition to these common law rights, an individual may obtain other rights under specific statutes. Article 1, Section 8 of the United States Constitution provides that Congress shall have the power to promote the progress of science and useful arts by securing for limited times to authors and inventors exclusive rights to their respective writings and discoveries. From this Constitutional authorization, Congress has enacted Title 17 of the United States Code, covering the grant of copyrights, and Title 35 of the United States Code, covering the grant of patents. Under these statutes, an individual may secure the right to exclude others from using, making,

or selling his intellectual property within the United States, its territories, and possessions. The period during which the exclusionary right may be exercised depends on the nature of the intellectual property.

Inasmuch as the exclusionary rights granted under these statues may contribute to the relative commercial value of the emodiments of the products of one's mind, they are often perceived to have a value of there own, and thus have been generally included under the term "intellectual property."

ARE THE PARTICIPANTS CLEAR ABOUT THE BASIC SCOPE AND PURPOSE OF THE SUBJECT THAT IS TO BE DISCUSSED?

The terms "patent," "copyright," "trademark," and "trade secret" refer to types of intellectual property in which the government grants certain rights to the owner of such property. Thus, in order to understand the terms, one must understand something of the class of property to which they refer.

The concept of property is readily understood when we talk of real property. We can determine the boundaries of real property by physically planting stakes at the four corners of the property. Real property may be public or private. A public park is public real estate, meaning that all members of the public have equal access to and use of that property. The owner of private property, on the other hand, has a right granted by government to restrict access to his private real estate; that is, he can prevent people from trespassing, and this right to control access is enforced by the states. An owner of private property can selectively allow others to use the property or grant easements to others to cross his property.

Intellectual property is property of the mind. Patents, copyrights, trademarks, and trade secrets each constitute property because the government grants certain exclusive rights to owners of this property to control its use. Intellectual property rights are similar in form to real property rights. An owner of intellectual property can exploit its use by selectively allowing others to use it

by either selling all of the rights or by licensing a portion of the rights to others. A license is nothing other than an agreement by the owner of the rights not to sue the user or licensee of those rights.

Exclusivity, which is inherent in the concept of intellectual property, is critical to the transfer and utilization of new technology, particularly from the government to industry. Information on new technology that's either given away or injected into the public domain without any rights of exclusivity is somewhat like a public park and is equally available to all. Although that sounds good, giving away technology is not the answer to technology transfer and utilization, since it is unlikely that industry will invest financial resources and information without some degree of exclusivity, at least for a period of time.

DO THE PARTICIPANTS HAVE ANY QUESTIONS ABOUT THE NATURE OF INTELLECTUAL PROPERTY?

Now we will briefly describe each of the different forms of intellectual property, beginning with patents.

Patents

Transparency 13-3: Patent

A patent is a grant by the Federal government to an inventor of the right to exclude others from making, using, and selling his invention. The term of a utility patent (covering utilitarian articles) or plant patent (covering vegetable matter) is 17 years from the date of issue subject to the payment of maintenance fees. Design patents (which protect the appearance of an article rather than its structure or utilitarian features) have a life of 14 years.

The patent grant is given in exchange for the inventor's full public disclosure explaining how to make and use the invention. The patent document itself is a publication of the United States government. It provides a written description of the invention, including drawings illustrating the invention, where possible. At the

end of the description there is at least one claim defining the invention's unique features. Claims are the part of a patent that provide a precise definition of an invention's unique features. This establishes the boundaries of the invention, much the same way as stakes are used to define the boundaries of real property.

Not all inventions are patentable. In order to be patentable, an invention must be novel; that is, the invention must not have been previously made, known, or described by another in the identical form. The invention must also meet a test of nonobviousness; that is, the differences between the invention and the prior art are such that the invention as a whole would not have been obvious to a person of ordinary skill in the art at the time the invention was made.

Although a patent grants an inventor the right to exclude others from making, using, and selling the invention, the inventor does not necessarily get an exclusive right to practice his own invention. For example, you can be granted a patent that is dominated by an earlier patent with broader claims that encompass your improvement. In this case, you are excluded from making, using, or selling anything except your improvement. Your improvement by itself may be of little or no worth and may need to be used with the original invention to be of any value. To accomplish this, cross-licensing between the owner of the dominant patent and the owner of the improvement may occur. Cross-licensing allows each inventor to use the other's invention without fear of being sued.

DO THE PARTICIPANTS UNDERSTAND THE BASIC FEATURES OF PATENTS?

NOTE: THE INSTRUCTOR MAY NEED TO GIVE EXAMPLES OF SUCH THINGS AS NONOBVIOUSNESS TO CLARIFY THE CONCEPTS.

We will get back to patents in a minute, since they are the most important type of intellectual property when considering technology transfer from government to industry. However, it is useful to have an understanding of the other types of intellectual property as well.

Copyrights

Transparency 13-4: Copyright

A copyright is an exclusive right granted by government to the owner of an original work of authorship to reproduce, distribute, perform and/or display the copyrighted work. A copyright covers the expression of an idea and not the idea itself. Works of authorship that can be covered by copyright include literary works; musical works, including accompanying words; dramatic works; pantomimes and choreographic works; pictorial, graphic, and sculptural works; motion pictures; and other audiovisual works and sound recordings.

The term of copyright is the lifetime of the author plus 50 years. Section 105 of Title 17 provides that copyright protection is not available for any work of the United States government, although the government can be a holder of a copyright by assignment or other type of transfer.

Copyright law does not, in general, lend any sort of proprietary protection that would facilitate the transfer of technology from government-operated laboratories to the private sector. It cannot provide a competitive advantage since government works are in the public domain and can be copied at will by anyone. However, copyrights may be used by contractor-operated laboratories if: (1) the contract with the government allows the contractor to copyright; or (2) the contractor petitions its governing agency for rights to copyright a particular work and such rights are granted.

Trademarks

Transparency 13-5: Trademark

A trademark is a name or logo that is affixed to goods placed in commerce and indicates the source and quality of the goods. Trademarks carry the goodwill of the owner and impart value to goods because they make a statement as to the quality and origin of the goods.

Trademarks can be licensed. Exclusive rights to the first user of a trademark are enforced by either Federal or state governments, depending on the circumstances. By specifying certain requirements in the license, the licensor controls the quality of goods sold under the mark.

In the private sector, trademarks are often licensed together with patents and trade secrets. Because trademarks theoretically have an unlimited lifetime, a technology package comprising patents and trade secrets that is licensed together with a trademark should have more value for a longer period of time than if the trademark is omitted.

Since the government is not in the business of marketing goods, the government rarely obtains trademarks. As a consequence, trademarks are not a useful proprietary right in the transfer of technology from government to industry.

NOTE: THE INSTRUCTOR MAY NEED TO BE IN A POSITION TO PROVIDE AN EXAMPLE OF A LICENSED TRADEMARK.

Trade Secrets

Transparency 13-6: Trade Secret

Trade secrets are governed by the law of the respective states. There is no Federal law either defining or enforcing property rights in trade secrets. The definition of trade secrets varies from state to state. The Uniform Trade Secrets Act, as enacted by a number of states, provides a definition that gives a good sense of the elements of a trade secret. The Act provides that a trade secret is the information (including a formula, pattern, compilation, program, device, method, technique, or process) that: (1) derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable, under the circumstances, to maintain its secrecy.

A trade secret may comprise either commercial or technical information. It is valuable because it imparts a competitive advantage to the holder of the trade secret.

If information is known to a number of competitors in the same trade such that the information cannot impart a competitive advantage to anyone, then the information is not a trade secret.

Trade secrets are different from patents in that they never expire. They may be the chosen form of intellectual property protection if a company does not want information on the product or process to become available to the public, even if protectable by a patent, since patents are published when they are issued. However, if the formula, information, or process protected by a trade secret is independently discovered and patented by another firm, this second firm has a right to collect royalties from the firm with only the trade secret protection, or the second firm may force the first firm to stop infringing its patent.

The recipe for Coca-Cola is a trade secret; if it had been patented, the recipe would have been public knowledge as soon as the patent was issued, and after 17 years anyone would have been free to use it.

An important element of a trade secret is, of course, the maintenance of secrecy. With the exception of state secrets relating to national security, the U.S. government operates on principles of openness and full disclosure, and therefore trade secrets are not as a rule maintained on government R&D and are not useful in facilitating the transfer of technology from government to industry.

DO THE PARTICIPANTS HAVE ANY OTHER EXAMPLES OF TRADE SECRETS?

WHAT DO THE PARTICIPANTS THINK IS THE VALUE (OR POTENTIAL VALUE IF CHANGES WERE MADE) OF COPYRIGHTS, TRADEMARKS, AND TRADE SECRETS TO TRANSFER ACTIVITIES?

PATENTABLE SUBJECT MATTER

Patents are the form of intellectual property protection that will be used by most of the laboratories. Thus, the rest of this discussion will be devoted to a closer look at patents and licensing.

Transparency 13-7: Patentable Subject Matter

The patent code defines patentable subject matter as any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof. As explained by the U.S. Department of Commerce's publication General Information Concerning Patents:

> By the word "process" is meant a process or method, and new processes, primarily industrial or technical processes, may be patented. The term "machine" used in the statute needs no explanation. The term "manufacture" refers to articles which are made, and includes all manufactured articles. The term "composition of matter" relates to chemical composition and may include mixtures of ingredients as well as new chemical compounds.

A process under the patent code includes any new use of a known process. A patent cannot be obtained, for example, on an old composition of matter simply because a new use has been discovered for that composition of matter. But, a patent may be obtained on a process claiming the new use of an old composition, assuming that the process meets the novelty and nonobviousness test of the patent code.

The statutory statement of patentable subject matter is pretty broad and covers just about any imaginable technological field. Two technological areas that have received much attention lately on the question of patentable subject matter are computer programs and living organisms. As a general rule, computer programs that comprise merely a mathematical algorithm are unpatentable. The rule is that mathematical formulas, like laws of nature, are part of the public domain and cannot be taken out of the public domain by a patent.

However, applications of laws of nature and applications of mathematical formulas are patentable. Thus, patent protection can be

obtained for a computer program if the program is claimed in conjunction with the steps of a physical process, or in conjunction with hardware. There is obviously a lot of gray area in this realm.

As for living organisms, the Supreme Court decided in the landmark case of Diamond v. Chakrabarty in 1980 that the generic alteration of a live organism to create a new strain was sufficient manipulation by man to characterize the strain as being new and novel and patentable subject matter under the United States patent law. The Court declared that there was nothing particularly unique about living organisms that prevented them from being patentable subject matter.

ASK THE PARTICIPANTS WHY THE PATENT CODE ALLOWS A NEW USE FOR AN OLD PROCESS, BUT NOT A NEW USE FOR AN OLD COMPOSITION OF MATTER. ANSWER: A NEW USE FOR AN OLD PROCESS IS ESSENTIALLY A NEW PROCESS.

NOTE: THE INSTRUCTOR MAY NEED TO BE IN A POSITION TO PROVIDE EXAMPLES OF PATENTABLE SUBJECT MATTER, PERHAPS FROM LABORATORY EXPERIENCE. EXAMPLES SHOULD ALSO BE SOLICITED FROM PARTICIPANTS.

NOTE: THE ISSUES RELATED TO COMPUTER PROGRAMS AND LIVING ORGANISMS SHOULD BE FURTHER DISCUSSED IF THESE AREAS ARE OF INTEREST TO THE PARTICIPANTS.

BUSINESS PATENT STRATEGIES

The exclusionary rights for intellectual property afforded under the law are used by business as a tool for leveraging or enhancing commerce. They are appropriate and very useful in some cases, but in other circumstances may not be sufficient or necessarily facilitate the most effective or profitable marketing of the product or process.

For companies, the decision to patent an invention is a business decision. There are some realities of public disclosure inherent in the grant of a patent that make the patent valuable or not valuable, depending on the company and the nature of its business objectives. A company may decide against patenting an invention that may be easily reverse engineered or that, if patentable, would be covered by only limited or narrow claims. Typically, the narrower the claims allowed in a patent, the easier it is for a competitor to design around the

invention and develop a competing product or process that does not infringe an existing patent. If the invention can be easily reverse engineered, does not infringe other patents, and is readily marketable, a company may choose to enter the marketplace without a patent position in an attempt to realize profits before others can develop similar and competing products. The company's strategy may be to exploit its existing market position to introduce new products and through brand recognition hope to capture sufficient market share to remain viable even when competition occurs.

A product may be such that the marketing company will make use of trade secrets to make disclosures necessary to bring the product to market. Here again, the goal is to realize profits before and hold market share after competitors emerge. The "how," "what," and "why" of an invention kept secret has no statutory limit, and competition can conceivably be kept at bay throughout the life cycle of the product.

Where an invention is such that it can be applied in many configurations and for many end uses and where a corresponding patent with broad claims can be secured, the decision to patent is often a good one. It is difficult and costly to design around a broad-based invention. The possibility of infringing a patent covering such an invention is increased. The result is that with the patent in place competition may not be an immediate concern. Moreover, the possibility of licensing out those applications of the invention not of interest to the owner creates opportunities for additional sources of revenue.

NOTE: CLAIMS ARE THE PART OF A PATENT THAT PROVIDE A PRECISE DEFINITION OF A TECHNOLOGY'S UNIQUE FEATURES, THUS DEFINING THE LIMITS OF THE PATENT.

There will, however, be some situations where a company may want to have one or more patents covering an invention whether or not the invention represents opportunities in multiple applications. Even if the patents are each narrow in the claims allowed, it may be the combination of patents, centrally controlled, that effectively excludes competition for extended periods and thus allows the company to capture a substantial portion of the market for the invention's embodiment. An

example would be the use of a material as a base material in a new application. Patents may be granted on the materials used in the application, the formulation of the base material with other materials to achieve the application, and the process for achieving the preferred formulation. Even if one of the patents is rendered invalid, the probability that all will be invalidated is remote. It will take time and money for the company's competitors either to design around the patents or to define infringement suits.

As a side note, large companies that can afford it sometimes seek patents, broad-based or not, to camouflage their areas of commercial interest. Firms working in several technologically parallel areas will patent inventions they do not plan to commercialize in order to divert attention from their real objective.

From a technology management standpoint, it is important to keep a "business" perspective in mind when assessing the potential value of a patent. You must be concerned with not only what use your laboratory will make of the invention, but also its use by a potential buyer or licensee.

Again, the importance of a patent depends on the client and what the client plans to do with the technology. The Coca-Cola case is a good example. If the company had patented the formula, the formula would have been disclosed to the public when the patent was granted. A very similar formula might have been developed, thus providing a close substitute and possibly eroding the company's market. Since the formula was the company's basis for the franchise, their franchise might never have become what it is today. In addition, the patent would have expired after 17 years, allowing anyone to use the formula after that date, thereby diminishing the relative value of a bottling franchise prior to the patent expiration and reducing the value to zero afterwards.

The electronics industry provides other examples. This industry is changing so quickly that products marketed today may be obsolete in a matter of weeks or months. The costs of patenting and the time necessary to secure a patent grant may be wasted. The market for the

product the patent covers may have disappeared before a patent is issued.

MANAGING LABORATORY INVENTIONS

If technology transfer is to include not just dissemination of information, but also utilization by the private sector of technology developed by Federal laboratories, then technology management, including decisions regarding the patenting of inventions, must be considered crucial to the technology transfer process. Patents are essentially the only form of proprietary protection that the government can obtain on its R&D. Industries simply will not (or only rarely) consider investing financial resources in developing and commercializing technology for which they can't obtain some form of exclusivity.

Facilitating Transfer

The possibility of patent protection must be considered very early in the technology transfer process, because there are statutory bars that prevent the issuance of a patent if there is premature disclosure.

Transparency 13-8: Facilitating the Transfer Process

The first step in technology management is to secure disclosure of the new invention by the scientist or engineer. The disclosure process must be formalized so that the document disclosing the results of research is reviewed by government patent counsel for a potentially patentable subject matter before publication takes place and so the ORTA can begin to investigate its commercial potential.

Scientists and engineers should submit invention disclosure statements for review by government patent counsel in advance of the preparation of publishable documents. The inventor should be encouraged to indicate whether the subject matter of the disclosure is believed to have potential commercial application.

NOTE: HANDOUT 13-1, THE INVENTION DISCLOSURE FORM, CAN BE INTRODUCED AT THIS POINT.

If there is a consensus among decision makers that the subject matter does indeed have commercial application, then the possibility of a patent application should definitely be considered.

The next step in the process is for the patent counsel to do a preliminary patentability search in the Patent and Trademark Office. The preparation and filing of a patent application will depend upon the results of the preliminary patentability search report, which will provide some indication as to whether broad or narrow claims can be obtained. The broader the claims are, the more licensable the resulting patent will be.

Statutory Invention Registrations

Transparency 13-9: Statutory Invention Registration

If the subject matter of the disclosure does not have significant commercial application, yet adds significantly to the body of knowledge in a technological field, then the possibility of a statutory invention registration may be considered. This essentially involves the filing of a patent application that meets all of the formal requirements of the patent law accompanied by a request that the application be published without examination on the merits of the application. The statutory invention registration provisions comprise a relatively inexpensive mechanism for disseminating technical information on patentable subject matter on which no patent is actually desired.

The statutory invention registration provisions were added to the patent laws in 1984, so their effectiveness is still being evaluated. Statistics from some agencies on results in 1986 include:

1. The Department of Army filed 318 applications; 97 of them were statutory invention registrations, or were converted to the same
2. The Navy filed 189 applications, 50 of which were statutory invention registrations
3. DOE had 316 applications, 22 of which were statutory invention registrations
4. The Air Force had 237 applications, with 15 statutory invention registrations.

NOTE: IF A LABORATORY OR AGENCY DECIDES TO FILE FOR A STATUTORY INVENTION REGISTRATION, BUT THE INVENTOR BELIEVES A PATENT IS NECESSARY TO ADEQUATELY PROTECT THE TECHNOLOGY, THE INVENTOR MAY ASK THE GOVERNING AGENCY FOR THE RIGHT TO PATENT THE INVENTION. IF THE INVENTOR WORKS IN A CONTRACTOR-OPERATED LABORATORY, THE CONTRACTOR MUST ASK THE AGENCY TO ALLOW THE INVENTOR TO RETAIN TITLE AND PATENT THE TECHNOLOGY. THE INVENTOR WOULD PROBABLY BE EXPECTED TO PAY THE DIFFERENCE BETWEEN THE COST OF FILING FOR A STATUTORY INVENTION REGISTRATION AND A PATENT. IN THIS CASE, A PATENT WOULD BE ISSUED TO THE INVENTOR, RATHER THAN THE LABORATORY, BUT THE GOVERNMENT WOULD RETAIN THE RIGHT TO USE THE TECHNOLOGY OR HAVE IT USED FOR ITS OWN PURPOSES WITHOUT PAYING ROYALTIES.

NOTE: REMOVE TRANSPARENCY.

THE GOVERNMENT PATENT PROCESS

Patent applications are filed with the U.S. Patent and Trademark Office, which requires that a fee be paid with each application filed. The original inventor must apply for the patent. If there is more than one inventor, all inventors must file for the patent as joint inventors.

The Patent and Trademark Office maintains a staff of examiners to review each patent application that is submitted. These examiners have backgrounds in fields such as chemistry, physics, and all types of engineering, and many also have a law degree. The examiners are divided into groups, with each group covering certain technological fields.

The examiner must determine if the invention submitted is new, useful, and nonobvious to a person with ordinary skill in the art. The examiner searches U.S. and foreign patents and other literature to determine if the invention is new. Even if the examiner does not find an invention identical to the one for which the patent application was filed, the patent may be denied if, in the judgment of the examiner, the invention would be obvious to a person with ordinary skill in the area of technology related to the invention.

The examiner's decision, in the form of a written "action," is sent to the attorney or agent for the applicant. This document tells

which claims have been rejected and why. Copies of the information or references on which the rejection is based will also be included. Most applications have at least some of the claims refused, at least the first time.

If the applicant still believes the claims are valid, reconsideration must be requested in writing. The request must be made within the timeframe specified, which is usually three months, but may be as little as 30 days or up to six months. If a request is not received in the specified time period, it is assumed that the application is abandoned.

In the request, the applicant must point out why the claims are valid, making sure to respond specifically to each of the reasons the claims were rejected. When this written response is received, the application will be reconsidered. The applicant will then be notified if the rejected claims are now accepted. This action may be final. For claims that are then allowed, the applicant may have to comply with any requirements or objections to form made by the examiner.

When an action rejecting claims is made final, the examiner must again state the reasons for such rejection. The applicant may then abandon the claims that are rejected or appeal the rejection of those claims. Appeals are filed with the Board of Patent Appeals and Interferences in the Patent and Trademark Office. Three members of the Board hear and decide each case. Decisions can be further appealed to the Court of Appeals for the Federal Circuit, or an adverse action may be filed against the Commissioner of Patents and Trademarks in the District Courts of the District of Columbia.

When the patent claims are found to be justified, the applicant (or the attorney or agent) will be sent a notice of allowance. A fee for issuing the patent must be paid within three months of the notice. When payment is received, the patent is issued. The record of the patent then becomes open to the public. If payment is not received, the application will be considered abandoned.

If, at a later date, the patent is found to be defective in some way, the person holding the patent may apply for a reissue patent. Only limited changes can be made if a reissue patent is to be issued,

and no new material can be added. Reissue patents are granted only for the remainder of the term of the unexpired patent.

Interferences

If more than one patent application is filed for substantially the same invention, or a patent application is filed for an invention that was granted a patent during the year prior to the filing of the new patent application, a proceeding called an "interference" is begun to determine who can obtain or keep the patent. Approximately one percent of all patent applications become involved in interference proceedings. When interference proceedings are instituted, each inventor must present evidence showing when the invention was made. If no evidence is submitted, the date the patent application was filed is considered the date the invention was made.

NOTE: HANDOUT 13-2 DESCRIBES USES FOR TECHNICAL NOTEBOOKS AND GUIDELINES FOR KEEPING THEM. IT IS IMPORTANT FOR SCIENTISTS AND ENGINEERS TO KEEP GOOD TECHNICAL NOTEBOOKS, SINCE INTERFERENCE PROCEEDINGS REQUIRE THAT WORK ON A PRODUCT OR PROCESS BE WELL DOCUMENTED.

Assignment of Patents

Although the inventor must apply for the patent, the patent can be transferred or sold ("assigned") to other groups or people. In a case where the inventor works for a Federal laboratory or university, inventors are generally required to assign the patent to the laboratory or university where employed if laboratory or university resources were used. The assignee then becomes the owner of the patent, having the same rights the inventor had. Assignments can be made for all or part interest in a patent (e.g., for half or one-quarter interest), or for use in only a particular part of the United States.

DO THE PARTICIPANTS UNDERSTAND THE IMPORTANCE OF GOOD RECORD KEEPING?

DO THE PARTICIPANTS UNDERSTAND WHY IT TAKES SO LONG FOR A PATENT TO BE ISSUED?

PATENTING AND PUBLISHING

Transparency 13-10: Patenting and Publishing

If timed properly, both publishing and patenting can occur. But timing is very important. U.S. patent law provides that an inventor has up to a one-year grace period after public disclosure of an invention to file a patent application. A public disclosure has occurred if enough details to determine the practical working of the invention are furnished without a secrecy agreement. If you only intend to file U.S. patent applications as opposed to foreign applications, then the one-year grace period in most instances provides ample time to prepare and file a patent application without losing any rights.

Disclosure prior to the date the patent application is filed prevents the inventor from applying for a patent in many other countries, so either a U.S. patent application or foreign applications in countries not covered under a reciprocal treaty should be submitted prior to any publication.

ASK THE PARTICIPANTS WHY THE TIMING OF PUBLICATIONS IS IMPORTANT TO THE LABORATORIES.

NOTE: A NUMBER OF LABORATORIES HAVE LOST PATENTS BECAUSE PROBLEMS OF DISCLOSURE ARE NOT WELL UNDERSTOOD. EVEN PUBLISHED ABSTRACTS MAY BE A BAR TO PATENTING IF TOO MUCH DISCLOSURE IS MADE. CONFERENCE ATTENDEES MUST BE CAREFUL TO BE SOMEWHAT CRYPTIC.

FOREIGN PATENTS

U.S. patents are not valid in foreign countries. Patent applications must be filed in each country in which the inventor desires protection, and each country's patent regulations must be followed. Patent applications in foreign countries are generally published when they are filed. Since the right to patent in many countries is lost if publication occurs before an application is filed, the timing of applications in some countries is crucial.

Although the right to patent in most foreign countries is lost if publication of the invention occurs before the filing of the patent application, the provisions of some international treaties provide a degree of flexibility. Under a treaty known as the Paris Convention for the Protection of Industrial Property, applicants who first file patent applications in one of the 93 member countries have 12 months to file for patents in the other member countries. (The United States and most developed nations are member countries.) The date of the first application will be used as the filing date in each member country where an application is filed. During the 12-month period, the applicant may publish the invention without fear of losing patent rights in the member countries.

The United States also adheres to other treaties that simplify patenting procedures in participating foreign countries. The Patent Cooperation Treaty (signed by 33 countries) and the European Patent Convention (signed by 11 countries) should be investigated by inventors and technology managers seeking foreign patents.

The Patent Cooperation Treaty offers the priority rights and other advantages of the Paris Convention. It also provides uniform requirements for applications that are acceptable in the member countries. Under the Patent Cooperation Treaty, an application for patents from designated participating countries can be filed within 12 months of the U.S. application claiming the filing date of the U.S. application as priority. This gives the application in the foreign country priority over any other application filed on that invention after the original U.S. filing date.

The international application is made using the English language, which postpones the cost of translation until the national phases are entered. The use of foreign patent agents is likewise postponed.

The standard application format and the procedures used to effect international searches not only save money, but also provide the applicant additional time to assess the potential of the invention and the value of obtaining foreign patents. By the 13th month from the priority date, the Receiving Office is required to prepare and transmit a copy of the international application to the International Searching

Authority. For U.S. residents and nationals, the U.S. Patent and Trademark Office serves as both the Receiving Office and the International Searching Authority.

An international search is typically conducted and a report issued no later than the 16th month after the priority date. The applicant has two months from the date of transmittal of the search report to amend the claims by filing an amendment directly with the International Bureau or the World Intellectual Property Organization in Geneva, Switzerland, which has assumed the duties of administering the Patent Cooperation Treaty. At the expiration of the 18th month from the priority date, the International Bureau will publish an abstract of the application in pamphlet form for formal notice and objection and also transmit copies of the international application to the Designated Office in each of the countries in which patents are sought. Within 20 months from the priority date, the applicant must send the appropriate national filing fees to the Designated Office(s) in order to initiate the national phase of the application process. Thus, under the Patent Cooperation Treaty an applicant may take up to eight additional months, or a total of 20 months, from the original date of the U.S. application to file foreign applications and incur the associated costs.

Filing applications for patents in European countries can be similarly simplified by acting under the European Patent Convention. It should be noted, however, that under the Patent Cooperation Treaty, a U.S. applicant can file an international application designating particular European countries and requesting for those countries a European Patent through the European Patent Convention. The Patent Cooperation Treaty delays the payment of any European Patent Convention and other national fees until at least the 20th month.

Before making a decision to file for foreign patent coverage, serious consideration needs to be given to the commercial value of obtaining the patents. This is particularly important in light of some specific requirements of the various countries. Most foreign countries require the payment of maintenance fees that may be due annually and on an escalating scale. Most require that embodiments of the patented invention be manufactured in that country within a certain period for

the patent to remain current. If manufacturing does not occur within the designated period, the patent may be voided or subjected to a grant of compulsory licenses to any person or firm that may apply for a license.

Additionally, it should be noted that U.S. law requires that if a foreign patent application is to be filed for inventions made in the United States before or within six months after the U.S. application is filed, the inventor must obtain a license from the Commissioner of Patents and Trademarks allowing the foreign application. If the patent application has been filed in the United States, a letter to the Commissioner of Patents and Trademarks requesting a license to file abroad is sufficient. If an invention has been ordered to be kept secret, permission to file abroad must be obtained as long as the order of secrecy is in effect.

LICENSES

Transparency 13-11: License

As mentioned earlier, a license is simply an agreement by the owner of the rights not to sue the user or licensee of those rights. Licenses may be exclusive or nonexclusive. An exclusive license allows one party the right to make, use, and sell the technology without fear of being sued. A nonexclusive license also allows a party to make, use, or sell the technology, but the patent owner retains the right to use the invention and to grant licenses to any number of other parties.

There are many business reasons for licensing technology from the government, most of which relate to savings of time and money on the part of the licensee. A large company may be looking to fill an existing need in an otherwise developed technology, or a small company may be looking to get into a new market in the technology covered by a patent. In both cases, the licensee is able to save time and money by not having to develop an alternative technology to achieve the same task.

In many cases, the government has already invested substantial funds in the research and development effort that led up to the subject

matter covered by the patent, so that the licensee is able to use the leverage of the government's investment in the technology, preparing products based on the technology for market with a minimum investment of its own time and R&D money.

In the normal situation where it is necessary for the licensee to invest substantial funds in further developing and commercializing the product or process of the licensed patent, a licensee will typically desire an exclusive license from the government. In essence, an exclusive license is an agreement that the government will not grant further licenses under the same patent.

NOTE: DETAILS ON REQUIREMENTS ASSOCIATED WITH EXCLUSIVE LICENSES ARE FOUND IN THE SECTION ON "EXCLUSIVE LICENSES" IN HANDOUT 2-3, "SPECIFIC AUTHORITIES: LICENSING," AND IN HANDOUTS 2-5 AND 2-6 FOR GOVERNMENT-OPERATED AND NONPROFIT CONTRACTOR-OPERATED LABORATORIES, RESPECTIVELY.

In other circumstances, the exclusivity may not be as paramount as the need to use the licensed technology right away. Exclusive licenses granted by the government must be advertised, and there is the possibility of a protest. In such cases, a nonexclusive license, which permits the government to license multiple parties under the same patent, may be acceptable to the licensee.

The value of patents and patent licenses should not be underestimated. A patent license is a valuable asset in the marketplace. It legitimizes a technology and is used to obtain financial assistance, capital, and recognition of the superiority of the patented product in the marketplace.

ASK THE PARTICIPANTS IF THEY UNDERSTAND THE DIFFERENCE BETWEEN EXCLUSIVE AND NONEXCLUSIVE LICENSES. WHY MUST THE GOVERNMENT BE ABLE TO GRANT EXCLUSIVE LICENSES IN ORDER FOR SOME TRANSFERS TO OCCUR?

ROYALTIES

Transparency 13-12: Selecting a Royalty

Royalties are always a primary subject for negotiation in any patent license. There are basically two aspects to selecting a royalty. First, the royalty base must be established. This is the base upon which the royalty is levied. The royalty base could be a number of pounds, gross sales, net sales, gallons, barrels, etc. Secondly, there must be a variable or fixed percentage of that royalty base that will be taken as the royalty from the royalty base. This percentage is the royalty rate.

A real suit against the government by a satellite manufacturer that began back in the 1970s can be used to illustrate the difference between the royalty base and the royalty rate. The manufacturer had a patent covering a stabilization system for a satellite. The system itself was quite simple in theory and relatively inexpensive to implement. In fact, the stabilization system was so good that the government was using it on most communication satellites that it was launching.

Unfortunately, the government was using the system without a license. In the ensuing litigation, the manufacturer offered to settle for a five percent royalty. That seemed fair, but the royalty base that the manufacturer wanted was the cost of the satellite. The satellite, they maintained, could not operate without the stabilization system, so the royalty base should be the $20 million that the satellite cost. Five percent of $20 million would have been a million dollars for each satellite.

Of course, the government maintained that the royalty base ought to be the nuts and bolts and the pipes and the jets and the hydrogen peroxide that was used to implement the stabilization system, and the royalty base for those nuts and bolts would have been a lot less. Patent litigation takes a very long time. The suit is still pending; but in first-stage litigation, the government was found liable for patent infringement.

Another mechanism for establishing a royalty is for the licensor to get a percentage of the profits, or a percentage of the cost savings produced by the licensed technology. By rule of thumb, courts have awarded 25 to 33 percent of the savings or profits as being the licensor's equitable share.

Royalty rates as a percentage of net sales are very common and vary from one percent to 20 percent or more. Government patent licenses are typically in the range of three to six percent.

The negotiation of a royalty rate will depend on a number of factors, including the investment required by the licensee, the strength of the proprietary technology against possible legal challenge, the cost and availability of competing technologies, the savings or profits to be realized by the licensee, the age of the licensed technology and its expected remaining useful life, and other terms of a license.

There are other schemes for patent royalties, including, for example, lump-sum, up-front payment as advanced royalty payments, minimum annual royalty payments, and graduated royalty payments depending on quantity. The amount of royalty and the manner in which it is determined and paid depend on the creativity and flexibility of the negotiators and will be judged satisfactory when both parties feel they have received benefit from the undertaking.

ASK THE PARTICIPANTS WHAT THEY THINK IS THE PURPOSE OF ROYALTIES.

Congress has required that royalties from licensed technologies be shared among laboratories and inventors to encourage more active participation in laboratory technology transfer activities. However, there may be some misunderstanding about the purpose of the financial incentives. Industrially funded R&D and royalties have been promoted on university campuses as a method of increasing revenue to the university, rather than as an incentive to participate in technology transfer. Although licensing does provide additional sources of revenues to Federal laboratories, the danger is that the success of technology transfer efforts may come to be evaluated in terms of the

revenue generated. This would be a serious mistake because the revenues will (for the most part) be modest and long-term in comparison to a laboratory's other revenue sources. More importantly, the purpose of technology transfer from the public sector is to promote innovation--which is a public good--rather than to produce revenue for a university or Federal laboratory.

NOTE: REMOVE THE TRANSPARENCY AND ASK FOR ADDITIONAL QUESTIONS AND COMMENTS.
