

**INTELLECTUAL PROPERTY AS ASSETS IN THE OIL & GAS INDUSTRY:
WHAT ARE PATENTS, COPYRIGHTS, TRADEMARKS, AND TRADE SECRETS,
AND HOW DO YOU PROTECT THEM?**

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**INTELLECTUAL PROPERTY AS ASSETS:
WHAT ARE PATENTS, COPYRIGHTS, TRADEMARKS, AND TRADE SECRETS,
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I. WHAT IS INTELLECTUAL PROPERTY?

A. Overview

“Intellectual property,” or “IP,” is an umbrella term that covers several types of property rights that arise due to some type of intellectual creativity. Because of the intellectual, non-physical nature of these rights, they are intangible property rights (or “incorporeal,” in civil-law terminology),¹ instead of tangible like land or cars. In some European countries, the term “industrial property” is used instead of intellectual property.

The classical types of IP are copyrights, trademarks, patents, and trade secrets.² The IP category can also be used to encompass recent legal innovations, such as the mask work protection available for semiconductor integrated circuits (ICs),³ and the proposed *sui generis* right in databases, or collections of

information.⁴ (There is currently an extraordinarily high number of proposed legislative changes to various aspects of patent and copyright law, which are touched on herein as relevant.)⁵

In America, copyrights and patents are governed almost exclusively by federal law, since the Constitution grants Congress the power “to promote the progress of science and useful arts.”⁶ Despite the federal source of patents and copyrights, various aspects touching thereon, such as *ownership* of patents, are based on state law, although these tend to be fairly uniform.⁷ Federal trademarks, by contrast, not being explicitly authorized in the Constitution, are based on the interstate commerce clause and thus only cover marks for goods and services in interstate commerce. State trademarks, therefore, have not been pre-empted, but federal marks tend to be more

¹See N. Stephan Kinsella, *A Civil Law to Common Law Dictionary*, 54 LA. L. REV. 1265, 1273 (defining “incorporeals”).

²A useful introduction to IP can be found in Arthur R. Miller & Michael H. Davis, *Intellectual Property: Patents, Trademarks, and Copyrights* (1990). Ronald B. Hildreth, *Patent Law: A Practitioner’s Guide* (2d ed. 1993) contains a good introduction to patent law. More in-depth treatises with further information on IP law include DONALD S. CHISUM, CHISUM ON PATENTS (1998), MELVILLE B. NIMMER, NIMMER ON COPYRIGHT (1998); J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION (4th ed. 1998), and ROGER M. MILGRIM, MILGRIM ON TRADE SECRETS (1998). Useful brochures and pamphlets are available from the Copyright Office (202-707-9100 or 202-707-3000; <<http://lcweb.loc.gov/copyright>>) and from the Patent and Trademark Office of the Department of Commerce (703-557-INFO; <<http://www.uspto.gov>>).

³See 17 U.S.C. § 901 *et seq.*

⁴See, e.g. H.R. 2652, Collections of Information Antipiracy Act; available at <<http://thomas.loc.gov>>. See also Jane C. Ginsburg, *Copyright, Common Law, and Sui Generis Protection of Databases in the United States and Abroad*, 66 U. CIN. L.REV. 151 (1997).

⁵See, e.g., <<http://dev.abanet.org/intelprop/currentleg.html>>

⁶U.S. CONST. art. I, § 8; *Kewanee Oil Co. v. Bicron Corp.*, 415 U.S. 470, 479, 94 S.Ct. 1879, 1885 (1974). For a discussion of the interesting question of whether patents and copyrights are ethically justifiable in a free society, see Tom G. Palmer, *Are Patents and Copyrights Morally Justified? The Philosophy of Property Rights in Ideal Objects*, 13 HARV. J. L. & PUB. POL’Y 817 (1990); *idem*, *Intellectual Property: A Non-Posnerian Law and Economics Approach*, 12 HAMLINE L. REV. 261 (1989).

⁷See Paul C. van Slyke & Mark M. Friedman, *Employer’s Rights to Inventions and Patents of Its officers, Directors and Employees*, 18 AIPLA Q.J. 127 (1990); CHISUM, *supra*, § 22.03; 17 U.S.C. §§ 101, 201.

important. Trade secrets are generally protected under state, not federal, law.

B. Significance to Today's Oil & Gas Industry

IP has always been important to businesses, and its importance today has, if anything, been increasing. For example, with the advent of the Internet and the World-Wide Web, the increase in international trade, and the globalization of markets, trademark law must be relied on to an increasing extent to protect companies' reputations and names. Trademark law also faces the challenge of adapting to protect Internet domain names⁸ as well as to provide more uniform international protection of trademarks.

Patents have also become increasingly important, with the onset of the computer and microprocessor age. Despite the oft-cited apocryphal comment of a Patent Office official decades ago that the Patent Office should be abolished since we would soon run out of new things to invent, innovation does not appear to be on the wane, but, on the contrary, proceeds at a healthy pace.

In this technological age, therefore, patents and other types of IP are extremely important to business. This is especially so for American businesses, given our dominant and healthy economy and commercial and geopolitical significance on the world stage. The

⁸A domain name is typically used to identify a website on the world wide web (WWW) or as a part of email addresses used to transmit email messages over the Internet. For example, the domain name "duanemorris.com" is used for my law firm's WWW website <<http://www.duanemorris.com>> as well as for my email address nskinsella@duanemorris.com. (For curious readers, a WWW address is technically known as an URL (uniform resource locator), and "http" stands for HyperText Transport Protocol. The commonly-used acronym "html" stands for HyperText Mark-up Language, the language in which web pages are written, which contains special codes such as hyperlinks (e.g., URLs) pointing to other web sites.)

importance of U.S. patents is enhanced by the fact that, taking into account cost of obtaining and enforcing patents, size of market, wealth and sophistication of consumers, and reliability in respecting and enforcing IP rights, the United States is the single best patent value in the world.⁹

Moreover, American patents have become increasingly valuable and reliable since the establishment of the Court of Appeals for the Federal Circuit in 1982,¹⁰ which strengthened and unified the protection afforded to issued U.S. patents. In addition, patent law has been expanded and clarified in recent years to cover software inventions and other new forms of innovation.¹¹

The heightened significance of IP is also reflected in the rising demand for IP lawyers, in particular patent lawyers. IP lawyers, once treated as the red-headed stepchild of the law by regular lawyers, are now being courted by major firms and are jumping from firm to firm like professional sports stars.¹²

The oil & gas industry has begun, in recent years, to realize how important IP is to the industry.¹³ Like other businesses, trademarks and copyrights have always played a role, and like all technology-related businesses, patents have been pursued. Today, however, high

⁹See Michael D. Bednarek, *Planning a Global Patent Strategy to Maximize Value: Where to Get the Most "Bang for Your Buck,"* 77 JPTOS 381 (1995).

¹⁰Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (April 2, 1982).

¹¹See Examination Guidelines for Computer-Related Inventions, 61 FED.REG. 7478, Feb. 28, 1996; *In re Alappat*, 33 F.3d 1526, 31 USPQ2d 1545 (Fed. Cir. 1994).

¹²See, e.g., Mark Hansen, *IP Means Impressive Pay*, ABA J., Jan. 1997, 27.

¹³See Kate Thomas, *Oil Biz Gushes Patents*, NAT'L L. J. Feb. 16, 1998, A1. See also Bernard Wysocki Jr., *Royalty Rewards: How Patent Lawsuits Make a Quiet Engineer Rich and Controversial*, WALL ST. J., Apr. 9, 1997, A8.

technology and computer-assisted devices and processes permeate the oil & gas industry. With increased competition, lower oil prices, and more and more difficulty in exploring and producing formations and deposits, slight improvements in ability to find or produce oil and gas can make or break a company. In the future (the very distant future, it is to be hoped), as oil and gas deposits begin to be depleted, companies having better-than-average exploration and production techniques—especially proprietary techniques protected by patent or trade secret—stand to earn astronomical fortunes.

The oil & gas industry has entered the high tech, computer age with vigor. It employs a host of high-technology processes, such as: sophisticated algorithms and related software that process 3-D seismic data; deep-water offshore E&P techniques and apparatuses; ingenious, improved equipment such as downhole tools and drill bits; explosive techniques for perforating well casings; improved, sophisticated software-implemented methods to efficiently and accurately guide and steer drill bits; horizontal drilling techniques; transmission of control and data signals between well and surface; and methods to fasten production platforms to the ocean floor.

For these reasons, intellectual property rights can constitute extremely important assets in modern oil & gas companies' portfolios. This article discusses the basic types of IP in more detail, with emphasis on patents. Some of the key features of a good in-house IP program are also discussed.

II. TYPES OF INTELLECTUAL PROPERTY

As described above, the four basic types of IP are copyrights, trademarks and service marks, patents, and trade secrets. Each is briefly discussed in turn below.

A. Copyrights

1. Description

A copyright is a right given to authors of “original works,” which gives them the exclusive right to reproduce the work, prepare derivative works, or to perform or play the work publicly. While patents protect the *substance* of ideas, copyrights protect only the form in which ideas are “fixed.”

2. How Copyrights are Obtained

While a copyright may be registered to obtain some extra legal advantages, a copyright need not be registered to exist. Rather, a copyright comes into existence automatically the moment the work is “fixed” in a “tangible medium of expression,” and lasts for the life of the author plus 50 years, or a total of 75 years in certain cases where the employer owns the copyright. (Recent proposed legislation would lengthen these terms.)¹⁴

The author is presumed to be the owner of the copyright, absent agreement or assignment to the contrary, although the presumption changes in work-for-hire situations. A “work made for hire” is a work prepared by an employee within the scope of his or her employment; or certain specially commissioned works if there is an express written agreement providing that the work is a work made for hire. In the case of a work made for hire, the employer or other person for whom the work was prepared is considered not only to be the owner of the copyright to the work, but also the *author* of the work.¹⁵ In a non-work-for-hire situation, where the author assigns the copyright to another, the assignee owns the copyright but is not the author.

3. Applications

Copyright has a variety of typical applications such as copyrights on books, articles, manuals,

¹⁴See H.R. 2589, the Sonny Bono Copyright Term Extension Act/Fairness in Music Licensing Act of 1998.

¹⁵17 U.S.C. §§ 101, 201.

and software programs. (Software may also be protected, in some cases, by patents or as trade secrets, as discussed below.) Copyright may also be used to protect aspects of databases and maps, such as those resulting from a 3-D seismic survey.

However, copyright protection for databases, or compilations of facts, as well as the factual content of maps, was severely limited by the U.S. Supreme Court in 1991, in *Feist Publications, Inc. v. Rural Telephone Serv. Comp., Inc.*¹⁶ In *Feist*, the Supreme Court rejected the creatively-named “sweat-of-the-brow” doctrine, thereby casting a shadow on the copyrightability of many items—like maps and databases—previously protectable by copyright. Under the sweat-of-the-brow doctrine, even works exhibiting minimal creativity, like maps and other so-called compilations or collections of facts (essentially, databases), were entitled to a copyright as the reward for the intense labor involved in compiling such facts, which are undeniably useful to the public. In *Feist*, however, the Court squarely rejected this doctrine, holding only creativity, not intense labor, can render factual compilations copyrightable.

In particular, *Feist* held that a factual compilation is copyrightable only if it “features an original selection or arrangement of facts.” This originality requires a compiler to make at least minimally creative, independent choices regarding the selection and arrangement of facts. In the *Feist* decision, this rule was used to hold that an alphabetical listing of surnames in a white pages telephone directory is not protectable, since such a listing is “devoid of even the slightest trace of creativity,” and thus lacks the requisite originality. Although such phonebooks are extremely useful lists of facts that require immense labor to produce, their

¹⁶499 U.S. 340, 111 S.Ct. 1282 (1991); see also *Alexandria Drafting Co. v. Amsterdam*, 43 USPQ2D 1247 (E.D. Pa. 1997) (copyrights in maps).

production lacks the creativity necessary to imbue them with copyrightability.

Accordingly, under current law, collections of facts such as the databases and maps produced by innovative or time-consuming techniques, are not provided with very much protection under copyright law. This may change, however, if the proposed *sui generis* right in databases, or collections of information, is adopted.¹⁷ In the meantime, such information should be maintained as trade secrets where possible.

B. Trademarks

1. Description

A trademark (or service mark, for services) is a word, phrase, symbol, or design that *identifies* the source of goods or services sold and distinguishes them from good or services of others. A good example is the Coca-Cola® mark and design that appears on soft drink cans to identify products as coming from that company, and which distinguishes them from competitor colas such as Pepsi® brand cola.

2. How Trademarks are Obtained

Unlike copyrights and patents, trademark rights can last indefinitely if the owner continues to use the mark. The term of a federal trademark registration is 10 years, with 10-year renewal terms being available.¹⁸

Trademarks generally *arise* under state law, but may be registered federally if used in interstate commerce. State common-law trademark rights are obtained by use of the mark, and wider protection is available within some states by filing a state trademark application to obtain a state trademark registration. Even broader protection on the national level is available by filing a federal

¹⁷See note 4, *supra*.

¹⁸15 U.S.C. § 1501 *et seq.*; 37 C.F.R. Part 2.

trademark application to obtain a federal trademark registration, if the mark is used, or intended to be used, in interstate commerce.

3. Applications

Trademarks and service marks are of course important in protecting the names and marks of oil & gas companies and their services and product lines.

C. Trade Secrets

1. Description

A trade secret consists of any confidential formula, device, or other information that may give a company an advantage over competitors.¹⁹ Trade secrets can, therefore, include secret information and processes. Indeed, the classic example is the formula for Coca-Cola® brand cola. Trade secrets are protected under state law, although recent federal law has been enacted aimed at preventing theft of trade secrets.²⁰

2. How Trade Secrets are Obtained

A trade secret is obtained by maintaining the subject thereof as secret. It theoretically may last indefinitely, although disclosure, reverse-engineering, or independent invention may destroy the trade secret. One disadvantage of relying on trade secret protection is that a competitor who independently invents the subject of another's trade secret can obtain a patent on the device or process and actually prevent the original inventor (the trade secret holder) from using the invention. (However, controversial proposed legislation would provide a "prior user right" that would ameliorate this problem.)²¹

¹⁹See, e.g., RESTATEMENT (FIRST) OF TORTS, § 757 (1939).

²⁰Economic Espionage Act of 1996, 18 U.S.C. §§ 1831-39.

²¹See S. 507, Omnibus Patent Act of 1997; H.R.400, 21st Century Patent System Improvement

3. Applications

Since trade secrets can protect secret information and processes, they are extremely important to the oil & gas industry, especially given the diminished ability of copyright to protect compilations of data and maps, discussed above. They can also be used to protect software source code that is not disclosed and not otherwise protectable by patent.

D. Patents

1. Description

a. Patent Term

A patent is a property right granted by the U.S. government to an inventor (or his assignee) to exclude others from making, using, or selling an invention fulfilling certain requirements.²² Until recently, in America a patent term was 17 years from the date of issuance of the patent. Effective June 8, 1995, however, pursuant to the GATT treaty,²³ issued patents last from the date of issuance until 20 years from the original filing date of the patent application.²⁴ Thus, a patent filed on day one and issued two years later has an 18-year term.

One of the reasons for this change in patent term was to address the problem of so-called "submarine patents." Under the previous system, a patent could conceivably issue several decades after being filed, during which time its existence is secret. During this time, others might independently invent the technology and begin to employ it on a wide scale, only to have the patent suddenly and unexpectedly issue ("emerge" like a submarine), covering a very basic technology

Act; available at <<http://thomas.loc.gov>>.

²²35 U.S.C. § 1 *et seq.*; 37 C.F.R. Part 1.

²³General Agreement on Tariffs and Trade, Pub. L. No. 103-465, 108 Stat. 4809 (1994).

²⁴35 U.S.C. § 154(a)(2).

that may be widely used in an entire, mature industry.²⁵ Under the current system, the patent can last for no more than 20 years from the initial filing date, with some exceptions,²⁶ so that the longer the applicant takes to have his patent issued, the shorter the length of his patent term when the patent ultimately issues. (Legislation has been proposed to change the term to the *longer* of 20 years from filing date of 17 years from issue date.)²⁷

b. Exclusion and Improvement Patents

A patent effectively grants the inventor a limited monopoly on the manufacture, use, or sale of the invention. However, since the patent actually only grants the right to *exclude* to the patentee, it does not actually grant to the patentee the right to *use* the patented invention. For example, suppose the Deep Well Co. invents a new drill bit and obtains a patent therefor, claiming elements A, B, and C. Competitor Reliable Well Co. then becomes aware of the drill bit, and comes up with an improvement, which involves adding a special perforated molybdenum steel collar D to Deep Well's drill bit. Reliable Well then obtains a patent for the improvement, claiming elements A, B, C, and D.

In this case, Reliable can exclude anyone (including Deep Well) from using a drill bit containing these four elements in the United States. However, since use of a drill bit having elements A, B, C, and D necessarily involves using a drill bit also having elements A, B, and C, use of the improved drill bit would infringe Deep Well's patent. However, were Deep Well to add a perforated

molybdenum steel collar to its own drill bit, it would infringe Reliable Well's collar. The solution in such cases is often for the two parties to cross-license their respective patents to one another, or for one to purchase or exclusively license the other's patent.

c. Disclosure: The Bargain

One of the stated reasons for having a patent law is to promote the progress of science. If an inventor can receive a legal monopoly over an invention, he can obtain monopoly profits and thus have an extra economic incentive to attempt to invent. These inventions generally inure to the public benefit during the term of the patent (when sold to the public by the inventor or licensees) and also after the patent has expired and the invention enters the public domain.

The patent is considered to be a "bargain" whereby the public and inventor both benefit. To fulfill his side of the bargain, the inventor is under a strict duty to make a complete disclosure of the invention in the patent application. Thus, the patent benefits the public by being published as soon as it issues, thereby disseminating information about new ideas and discoveries that might otherwise be kept secret by companies. Even during the period of the patent term, therefore, the inventor's innovations are made public knowledge and may be used for further innovations, discoveries, and research.

d. Types of Patents

There are three types of patents: utility patents, design patents, and plant patents. Utility patents are the standard type of patent, typically referred to simply as a "patent," that covers inventions such as new device, new chemical compositions, or new processes or innovative ways of doing useful things. Design patents cover new, original, and ornamental designs for an article of manufacture.²⁸ Plant

²⁵See, e.g., Gabriel P. Katona, "The Myth of Submarine Patents," <<http://www.heckel.org/congress/104cong/articles104/katona1.htm>>; U.S. Pat. No. 5,283,641, issued 42 years after the initial filing, to Jerome Lemelson.

²⁶35 U.S.C. §§ 154(b), 155.

²⁷See H.R.811, Patent Term Restoration Act of 1997 (introduced 02/25/97); available at <<http://thomas.loc.gov>>.

²⁸35 U.S.C. § 171.

patents are granted to one who invents or discovers and asexually reproduces any distinct and new variety of plant.²⁹ For most oil & gas companies, the standard (utility) patent will be most frequently used and of most significance.

2. How Patents are Obtained

A patent is obtained by preparing a patent application and filing it with the U.S. Patent and Trademark Office (PTO). The patent attorney typically drafts a patent application after reviewing an invention disclosure prepared by the inventor and after discussing the invention with the inventor.

This process typically costs between \$7000-\$10,000, but can sometimes be much higher for very complex or involved inventions.³⁰ Such services are usually billed on an hourly basis, with hourly rates ranging anywhere from \$120 to \$250, or more.³¹ In recent years there has been a growing trend for flat-fee billing, where, for example, a firm agrees to prepare a large number of patent applications for, say, \$7000 each, regardless of the number of hours required for preparation.

After the application is filed with the PTO, it is categorized by the PTO according to its technical subject matter and “examined” by a PTO employee called, appropriately enough, an Examiner who works in an “art unit” appropriate to the invention. These employees are typically non-lawyers with technical degrees such as engineering or chemistry. Patent lawyers are practicing attorneys, of course, and almost always have at least one engineering or technical degree, and often have master’s degrees or Ph.Ds in a technical field.

The patent application contains a description of the invention and any drawings necessary to explain the invention, and concludes with a set of one or more *claims*. The claims define and stake out the legal boundaries of the invention for which protection is sought; the claims capture the novel aspects of the device or process invented. The claims are thus analogous to the physical boundaries, or metes and bounds, of real property.

As an example, suppose no one had ever invented a three-legged chair before, also having a back and footrests. In this case, the patent application would describe the “prior art” (e.g., four-legged chairs), and would describe problems with this prior art. The application would then describe, with text and drawings, various embodiments of the new invention, typically along with descriptions of how it is better than the prior art. At the end of the application, one or more single-sentence claims, following very precise and sometimes arcane rules of grammar, stake out exactly what invention the inventor claims protection on. (For example, a “hole” cannot be claimed directly, for a hole does not have “independent” existence. Rather, it has to be claimed indirectly, viz: “a truss member having a hole defined in the center thereof”.) The three-legged chair might be claimed as follows:

1. A chair, comprising:
 - a rigid seat member having a back portion and a bottom side;
 - a back member attached to and extending upward from the back portion of the rigid seat member;
 - exactly three legs extending downward from the bottom side of the rigid seat member; and
 - a footrest member fixed between two of the three legs.

If the Examiner initially rejects the patent application’s claims, the applicant, through the patent attorney, can attempt to overcome the rejection, either by modifying the patent’s

²⁹35 U.S.C. § 161.

³⁰See generally AIPLA, REPORT OF ECONOMIC SURVEY 1997, Table 21.

³¹*Id.* at Table 33.

claims or text to satisfy the Examiner's concerns, or by arguing legally or technofactually (or even grammatically) with the Examiner to convince him that the rejection was erroneous.

This process of filing an application and going back and forth with the PTO in an attempt to obtain a patent is, strangely enough, referred to as "patent prosecution." It usually takes at least a year, and typically about two years or even longer in some cases, from the date of filing the application to the date of issuance of a patent.

Unlike copyright registration papers and some trademark applications, which are sometimes filed by lay individuals, the preparation of a patent application is a complex task which normally requires the attention of a patent attorney or agent.³²

A valid patent may not be obtained if the invention has been in public use or on sale in the U.S. for more than one year prior to the filing of the patent application. If the invention has been already made public in this manner, but for less than a year, a U.S. patent is not barred, but most foreign patent rights may have been lost, as most other countries have a so-called "absolute novelty" requirement, rather than a one-year publication grace period as in the U.S.

In addition to other formal requirements, the invention must be novel, have utility, and must be nonobvious over the prior art. Usually, inventions can be shown to have utility, or usefulness, although some applications, such as those for perpetual motion machines, are

³²Indeed, as the U.S. Supreme Court has noted, "[t]he specification and claims of a patent . . . constitute one of the most difficult legal instruments to draw with accuracy . . ." *Topliff v. Topliff*, 145 U.S. 156, 171, 12 S.Ct. 825 (1892). For a counterexample of successful patent prosecution by a layman, see the discussion of the spectacularly successful inventor Jerome Lemelson, in Wysocki, *supra* note 13.

rejected for lack of utility. Most of the time, however, an applicant will not bother filing an application unless the invention has utility.

Novelty means the invention must be *new*; i.e., it must not have already been invented, or "anticipated," by a prior invention or by prior existing knowledge. The non-obviousness test is often the most difficult to overcome. (Non-obviousness is sometimes referred to as the "inventive step" requirement in other countries.) Under this test, an invention is not patentable over what was already known in the prior art, if it would have been obvious at the time the invention was made, to a person having ordinary skill in the art, to make such changes in the prior art so as to arrive at the claimed invention. Thus, even if an invention is novel, it might still not be nonobvious, because it could be that someone skilled in that type of technology could have relatively easily invented it if he had tried; it would have been obvious.

3. Applications

As discussed above, the oil & gas industry employs a large variety of high-technology techniques, many of which may be patented as new devices or apparatuses, methods or processes, or computer software-implemented algorithms. Along with trade secrets, patents can constitute a valuable portion of a company's technology-related assets.

A typical patent issued to an oil & gas company is U.S. Pat. No. 4,087,741, issued May 2, 1978, to the inventor Irshad R. Mufti, and assigned to Standard Oil Company (Indiana), for "Downhole Geoelectric Remote Sensing Method".³³

³³Claim 1 of this patent reads:

1. A method of exploring for electrically resistive geological anomalies lateral to but not penetrated by a borehole comprising:

- traversing the borehole with an electrode array comprising a current electrode for passing current into earth formations cut by the borehole and

Other representative patents in the oil & gas industry include: U.S. Pat. No. 4,677,385, issued June 30, 1987 and assigned to Chevron Research Company, for “Method of logging an earth formation penetrated by a borehole to provide an estimate of impedance distribution with depth using end emitting current electrodes sequentially activated and a multiplicity of potential electrodes of a moving logging array”; U.S. Pat. No. 5,045,795, issued Sep. 3, 1991 and assigned to Halliburton Logging Services Inc., for “Azimuthally oriented coil array for MWD resistivity logging”; U.S. Pat. No. 5,017,778, issued May 21, 1991 and assigned to Schlumberger Technology Corp., for “Methods and apparatus for evaluating formation characteristics while drilling a borehole through earth formations”; and U.S. Pat. No. 4,839,644, issued June 13, 1989 and assigned to Schlumberger Technology Corp., for “System and method for communicating signals in a cased borehole having tubing.”

III. ESTABLISHING AN IN-HOUSE INTELLECTUAL PROPERTY PROGRAM

A. Overview

a plurality of upper and a plurality of lower voltage sensing electrodes positioned above and below, respectively, the current electrode,

- passing current into the earth formations by means of the current electrode and a ground electrode at the earth's surface;

- recording the potential differences induced by said current in the formations between each adjacent pair of said upper and lower voltage sensing electrodes at each of a plurality of positions of said electrode array in the borehole, and

- combining a first potential difference from said upper voltage sensing electrodes recorded at a first of said electrode array positions with a second potential difference from said lower voltage sensing electrodes recorded at a second of said electrode array positions to obtain a potential difference from which a symmetrical formation resistivity value may be determined.

For both large and small companies, it is important to have in place a set of policies, procedures, and safeguards designed to ensure that the value of all of the company's actual and potential IP rights is maximized, and also to avoid infringing others' IP rights. This section discusses some of the most important aspects of such programs.

B. Intellectual Property Committee

In a sufficiently large company, an IP committee is often established that oversees the various types of issued discussed in this section. In smaller firms, a designated employee or outside IP attorney can fulfill this role. The IP committee decides, for example, what types of inventions to encourage inventors to pursue, whether to file for a patent application or maintain as a trade secret or license various inventions under consideration. The IP committee typically meets periodically, either monthly or quarterly, or more frequently if called for in urgent cases.

C. Ownership and Employment Agreements

Default legal principles often provide that, in many standard employment situations, employers automatically own inventions and other works created by employees in the scope of their employment. For example, copyright law has the work-for-hire doctrine, and patent law has the hired-to-invent (or directed-to-invent) doctrine.³⁴ However, in the event of a dispute, it is not always easy to prove, without resorting to litigation, the company's right to the IP in dispute. At the very least, a cloud may be placed over the title to potentially valuable IP rights.

For this reason, companies should have employer-employee agreements in place that explicitly provide for ownership of IP. For example, the agreement may provide that any inventions, discoveries, developments, procedures, innovations, systems, programs,

³⁴See sources cited in note 7, *supra*.

designs, or the like, which are conceived and/or developed in whole or in part by the employee during the term of his employment and which result from any work done for or at the request of the employer, shall be the exclusive property of the employer. The agreement should also provide that the employee will assist in securing appropriate IP protection for such things, execute necessary instruments such as declarations and assignments, and the like.

D. Invention Disclosure Program

It is also important to encourage employees to disclose their ideas and inventions, and to sufficiently disclose and document them. This requires educating and motivating employees, as well as providing them with incentives. For example, a bonus or honorarium (on the order of \$300-\$1000) may be paid to any inventor for submitting an invention disclosure to the IP committee; and an additional sum may be paid upon filing and/or issuance of the application.

For patent or invention disclosures, uniform, clear forms should be provided so that the inventor/engineer clearly discloses enough of his invention to allow the IP committee to make an informed decision about whether to pursue patent protection, and also to assist the patent attorney in drafting a good application.

Such disclosures typically ask the inventor to provide technical information about the invention, such as the title of the invention; its purpose and relation to prior art; how infringement would be detected; advantages of the invention; the “essential elements” of the invention; whether it has been sold, disclosed, or commercially used or not yet or is about to be offered for sale or disclosed; whether the invention has been implemented yet or is still “on paper”; and who the inventors are. The forms also ask the inventor whether the invention is likely to be actually commercially used and, if so, to estimate the potential market value of the invention; in which foreign

countries it might be good to obtain patent protection; and similar issues.

Document retention and lab notebook policies are essential so that the date of invention can be proved later on if it becomes necessary. In America, unlike most other countries, the first to invent, rather than the first to file, generally has priority in case of independent invention. In addition, certain prior art only counts as prior art if it was made public before the invention date, rather than the application’s filing date. Therefore, in some cases it becomes important to be able to document the earliest date on which the invention was conceived.

It is also necessary to educate all key employees to ensure that there is no inadvertent public disclosure of inventions or other proprietary or confidential information. Disclosure by an employee of a trade secret or unpatented invention can dissolve the trade secret and bar or limit the ability to pursue patent protection. An employer/employee agreement used to provide for invention ownership, as discussed above, may also provide that the employee will maintain as confidential, during and after his employment, any of the company’s trade secrets, proprietary information, and the like.

By the same token, appropriate confidentiality and non-disclosure agreements should be used when disclosing confidential technology to others, such as business partners.³⁵ Employers should also be watchful to ensure that former

³⁵See Richard L. Lagarde, *Confidentiality, Non-Circumvention, and Consulting Agreements*, ADVANCED OIL AND GAS SHORT COURSE (University of Houston Law Foundation, Dallas & Houston, 1998); M.W. Cockrell, Jr., *Secrets in the Oil Patch: A Primer on the Use, Protection, Preservation and Defense of Oil and Gas Trade Secrets and Proprietary Data*, LSU MINERAL LAW INSTITUTE (Baton Rouge, 1994); see also Robert Lenzner & Carrie Shook, *Whose Rolodex is it, anyway?*, FORBES, Feb. 23, 1998, 100.

employees do not disclose confidential information to competitors.

E. Outside Attorney Guidelines

It is also a good idea for the IP committee to establish written guidelines for outside counsel who are used to prepare patent applications and perform other IP-related work for the company. These guidelines typically specify the types of claims the company prefers, international filing guidelines, deadline issues, how to interact with engineers and in-house counsel, billing matters, and the like.

F. Patents, Trade Secrets, and Licenses

The IP committee also should decide whether to pursue a patent or a trade secret protection for a given innovation, based on a combination of commercial and legal factors. For example, some things, such as databases, are simply not (yet) patentable and thus must be maintained as a trade secret, if possible, if any protection is to be obtained.

Even if the invention appears to be patentable, patent protection lasts at most 20 years, unlike trade secrets, which have no time limit. Further, it is extremely expensive to obtain foreign patent protection in a large number of countries (these costs can run into the hundreds of thousands of dollars). Thus, obtaining a U.S. patent may expose one to immediate competition in foreign countries where a corresponding foreign patent is not obtained, and to local competition after the patent term expires. The teachings of the published patent application can also be used to educate third parties about one's techniques, which can advance the competitors' technology so long as it does not infringe the patent claims.

Also, third parties may improve on the patent and obtain an improvement patent therefor, and it may become necessary to cross-license with the third party in order to be able to use the improvement.

In contrast to a patent's maximum 20-year term, a trade secret does not automatically expire, and does not inform competitor's of the company's proprietary information. On the other hand, opting for trade secret protection is also sometimes precarious, since others can reverse-engineer or independently invent the secret process, formula, or device.

Once a patent is obtained, strategic commercial and legal decisions must be made concerning whether, how, and to whom to license the patent. Sometimes a group of patents in a portfolio are cross-licensed with a competitor's group of patents, to settle an accusation of infringement by the competitor. However, antitrust concerns must be kept in mind in such situations.

Licensing programs can generate very high profits in some cases. On the other hand, an existing patent invented by a third party may also sometimes be purchased or licensed to fit into a company's IP strategy.

G. Monitor for Infringement by Others

Once the time and trouble is taken to obtain a patent, companies should be alert and monitor for possible infringement by others. Indeed, the very ability to detect infringement factors into the decision whether to pursue patent protection; if infringement of a patented invention would be for some reason impossible or difficult to detect, it may not be worth pursuing patent protection. Companies should also be alert for infringement of other types of IP, such as trademark or copyright infringement. When infringement is detected, the appropriate response must be formulated. E.g., various options to consider are filing a lawsuit, sending a cease-and-desist letter, or offering to license the covered technology.

H. Avoid Infringement of Others' Patents

Companies should also establish policies designed to minimize the risk that they are infringing others' IP rights, since the results of

such infringement may be costly. In addition to paying back royalties and damages to the IP owner, it is possible for the IP owner to be a competitor and refuse to allow the use of the technology at all. Huge investments in capital and product lines may have been made on the assumption that key technology would be available; without the technology, the investment may be rendered worthless, or at least less profitable. One such policy calls for periodic patent searches for all recent patents assigned to certain key competitors likely to innovate in certain technical areas.

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[Current Info (as of 6/02: Kinsella is General Counsel and Vice President-Intellectual Property with Applied Optoelectronics, Inc., in Sugar Land, Texas. He handles AOI's IP protection strategy, including patent and trademark prosecution, licensing, and IP portfolio management, and also supervises all other legal affairs of the company. Contact info at: www.KinsellaLaw.com]

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