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William A. Eklund

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Intellectual Property Rights in Joint Research Ventures with the National Laboratories

by
WILLIAM A. EKLUND*

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* Senior Patent Counsel, University of California, Los Alamos National Laboratory,
Los Alamos, New Mexico 87545.

I Background

The National Laboratories discussed here are the major research laboratories sponsored by the United States Department of Energy (DOE).¹ They include such laboratories as Brookhaven in New York; Argonne in Illinois; Oak Ridge in Tennessee; Pacific Northwest Laboratory in Washington; Los Alamos in New Mexico; Lawrence Berkeley Laboratory (LBL), just above the Berkeley campus; and several others.²

These are large, multi-program research institutions that were founded during or shortly after World War II.³ The Atomic Energy Commission created such programs to conduct research on various aspects of nuclear energy, for both military and peaceful applications.⁴ They typically have a staff of up to several thousand scientific professionals, along with supporting technical and administrative staff.

These laboratories are operated by contractors to the Department of Energy, which are known as "management and operating" (M&O) contractors.⁵ About half of the M&O contractors are academic institutions, such as the University of California and the University of Chicago, and the other half are private corporations, such as Martin Marietta.⁶

There are, incidentally, several hundred other national research laboratories, operated by the Departments of Defense, Agriculture, HHS, and other federal agencies. Those laboratories are typically smaller and are dedicated to specific scientific missions. They are typically Government-owned and Government-operated (GOGO) laboratories,⁷ as opposed to Government-owned and contractor-operated (GOCO) laboratories of DOE.⁸ They range from small agricultural

1. See generally 48 C.F.R. pt. 970 (1995).

2. Philip J. Hilts, *Panel Seeks to Streamline Nuclear Labs*, N.Y. TIMES, Feb. 2, 1995, at A20. See also Omer F. Brown, II, *Energy Department Contractors and the Environment: A More "Special Relationship,"* 37 FED. B. NEWS & J. 86, 89 n.4 (1990).

3. The National Laboratories had their origins in the Atomic Energy Act of 1946, Pub. L. No. 79-585, 60 Stat. 755 (codified as amended at 42 U.S.C. §§ 2011-2297g (1988 & Supp. V 1993), which required the Atomic Energy Commission, the predecessor to DOE, to own the facilities used to produce nuclear materials and to conduct research and development. *Id.*

4. See 48 C.F.R. § 17.604 (1995). A good synopsis of the early history of the DOE contracts can be found in C. S. Hiestand, Jr. & Mark J. Florsheim, *The AEC Management Contract Concept*, 29 FED. B.J. 67 (1969).

5. See 48 C.F.R. pt. 970 (1995).

6. Brown, *supra* note 2, at 89 n.4.

7. See, e.g., 48 C.F.R. § 45.302-2 (1995).

8. See, e.g., 48 C.F.R. §§ 31.001, 31.109, 31.203, 37.204, 952.227-78 (1995).

research stations to specialized military applications laboratories. Although the intellectual property law policies and practices of those laboratories are in some cases similar to those of the DOE laboratories, their interactions with the private sector are fewer and smaller, and will not be discussed further here.

One common result of the M&O contractual relationship utilized by DOE is that the National Laboratories are relatively independent institutions. Although the managers of these laboratories are accountable both to their parent institutions and to the DOE, they are allowed and indeed encouraged by the DOE to exercise considerable discretion as to the direction and scope of the research programs that they conduct.

This is a natural consequence of being charged by the Government with the responsibility for providing expert advice and assistance to the Government in determining the direction and scope of federally funded Research and Development (R&D) programs. Consequently, the National Laboratories are, for the most part, research institutions that are run by scientists, for scientists, for the purpose of conducting scientific research.

As such the National Laboratories are relatively unique in the scientific world. While some of them remain heavily focused on national security issues related to nuclear weapons,⁹ they are not burdened with the educational responsibilities of colleges and universities, nor do they have the commercial motivations of the major corporate R&D laboratories in the United States. With the decline of the major corporate R&D labs in the United States due to worldwide economic pressures, defenders of the National Laboratories point to them as the last national resource available for conducting "big science" and other basic research that may not be appropriate for academic institutions or private corporations.

The National Laboratories initially were created to serve a national security purpose,¹⁰ and to this day a few of them, including Los Alamos, remain largely dedicated to the defense programs of the DOE. Nevertheless, all of the National Laboratories have in fact been broadening the scope of their research programs for almost three decades. The end of the cold war in the past few years has accelerated this trend.

9. Los Alamos, Sandia, and Lawrence Livermore National Laboratories. Kathleen Parker, *Nuclear Research in Future, For All Labs, DOE Official Says*, SANTA FE NEW MEXICAN, Feb. 14, 1995, at B3.

10. See Hiestand & Florsheim, *supra* note 4.

In the past year the Galvin Commission, chartered by the Secretary of Energy, has studied the National Laboratories with the goal of making a recommendation as to their future missions.¹¹ That report was just recently released to the public.¹² Although critical of various aspects of the management of the National Laboratories,¹³ the Commission has concluded that the National Laboratories remain a national scientific resource that should be retained.¹⁴

11. Report of the Secretary of Energy Advisory Board Task Force on Alternative Futures for the Department of Energy National Laboratories, *Alternative Futures for the Department of Energy National Laboratories* (Feb. 1995) (on file with HASTINGS COMMUNICATIONS AND ENTERTAINMENT LAW JOURNAL).

12. Hiltz, *supra* note 2.

13. Ralph Vartabedian, *Panel Calls for Cutbacks at Nuclear Lab; Weapons: Warhead Design at Lawrence Livermore Facility Should be Moved to New Mexico, National Commission Says. Energy Secretary Responds Favorably to Recommendation*, L.A. TIMES, Feb. 2, 1995, at A3. "The long-anticipated report found that the Energy Department's network of 10 major laboratories, which are engaged in everything from nuclear bombs to biological research, are overstaffed and inefficiently managed." *Id.*

14. *Joint Hearing on the Galvin Report: Alternative Futures for the DOE National Laboratories Before the House Subcomm. on Basic Research and the House Subcomm. on Energy and Environment of the House Comm. on Science*, FED. NEWS SERV., Mar. 9, 1995 (prepared testimony of Robert W. Galvin, Chairman of the Task Force on Alternative Futures for the Department of Energy National Laboratories):

The futures for the laboratories should and do derive from the past. They have been and are: a National Security role, an Energy role that includes Environmental factors and related Science and Engineering, an Environmental Cleanup role, a Science and Engineering role, an Economic role, though with de-emphasis on general industrial competitiveness.

The primary National Security mission is to provide for a safe, secure and reliable nuclear stockpile in the absence of explosive testing for nuclear weapons and many other derivative and decommissioning factors.

The primary Energy mission is to pursue a research and technology development agenda which enhances the long-term prospects for adequate energy supplies and efficient end use technology which minimizes adverse environmental impacts.

The Environmental Cleanup role represents a monumental task in dealing with the radioactive and hazardous wastes at former nuclear weapons production sites and laboratories. This task cannot be addressed in an affordable fashion using today's technologies. The national laboratories have or can develop the technology which is urgently needed for the cleanup mission.

The national laboratories must serve a broad Scientific and Engineering Mission which underpins the Department's above cited mission areas and certain discrete areas such as high energy, nuclear and condensed matter physics.

The Economic Development role should be focused on those parts of the economy and industries that fall within the basic mission areas. Any other general benefit should be viewed as a derivative from the core missions. Development of technology for private sector companies in other areas should not be a prime mission.

Id.

II Intellectual Property Rights

While much of what is discussed below is applicable to all of the DOE National Laboratories, it should be understood that the policies and practices discussed are in particular those of the three National Laboratories operated by the University of California (Los Alamos, Livermore, and LBL), and that actual practices may vary slightly at other DOE Laboratories. In particular, it is noted that the University of California Laboratories each have extensive computing facilities that have been characterized as state of the art super-computing facilities for a number of years.¹⁵ Consequently, some focus will be placed on the intellectual property policies and practices related to the procurement, development, use, and dissemination of software and computer science technologies at these National Laboratories.

The intellectual property rights issues of interest here are those that arise in business transactions between the National Laboratories and the private sector where scientific research is to be performed. Such business transactions range from traditional procurement of R&D by the National Laboratories,¹⁶ through cooperative R&D projects,¹⁷ to the performance of sponsored research for paying customers.¹⁸

These transactions may be categorized logically according to the direction of money flow: from R&D or software simply purchased by the National Laboratories, to no-cost cooperative procurement or Cooperative Research and Development Agreements (CRADAs), to sponsored research funded entirely by private companies and performed by the National Laboratories. Also addressed will be the licensing of intellectual properties generated at the National Laboratories.¹⁹

15. Siegfried S. Hecker, *Retargeting the Weapons Laboratories*, ISSUES IN SCIENCE & TECH., Mar. 22, 1994, at 44.

16. See, e.g., *Contract between The United States of America and The Regents of the University of California, Modification No. M205, Supplemental Agreement to Contract No. W-7405-ENG-48 (LLNL)*, Article VIII—Procurement (on file with HASTINGS COMMUNICATIONS AND ENTERTAINMENT LAW JOURNAL) [hereinafter *Contract*].

17. 35 U.S.C. § 3710a (1988 & Supp. V 1993).

18. *Contract*, *supra* note 16, at Article III, cl. 4—Work for Others.

19. *Id.* at Article XII—Intellectual Property.

III R&D Subcontracting Policies

The National Laboratories have historically contracted out some part of their R&D programs. R&D subcontracts are awarded to both academic institutions and private companies, as appropriate. As a general rule, the National Laboratories act as though they are extensions of the federal government in this arena, at least with regard to rights in patents. DOE policy in this area is driven by the Bayh-Dole Act,²⁰ which by its terms applies to R&D subcontracts funded by the federal government.²¹

Small businesses and nonprofit institutions are allowed to retain title to their inventions, while big businesses are required to assign their patent rights to the government.²² The government retains a license in all patents retained or acquired by subcontractors,²³ and government march-in rights exist.²⁴ Additionally, there is a "substantial United States manufacture" requirement.²⁵

With regard to rights in copyrights and rights in data, there is no similar express statutory policy. DOE policy is driven instead by the more general provisions of the Atomic Energy Act of 1954,²⁶ which contains a provision favoring the dissemination of research results obtained with DOE funding.²⁷ Consequently DOE requires its contractors and subcontractors to request permission before asserting copyrights in works created with federal funds.²⁸ Normally the subcontractor is required to acknowledge that the government shall have unlimited rights to use and reproduce all data generated under a subcontract.²⁹

With cost-shared R&D procurement, there is somewhat greater flexibility. Rights in data can be expanded to allow a subcontractor to

20. Pub. L. No. 96-517, § 6, 94 Stat. 3020 (codified as amended at 35 U.S.C. § 202 (1988 & Supp. V 1993)).

21. 35 U.S.C. § 202(c).

22. *Id.*

23. *Id.* § 202(c)(4).

24. *Id.* § 203; *see also* 48 C.F.R. § 27.304-1(g).

25. *Id.* § 205.

26. Act of Aug. 30, 1954, ch. 1073, 68 Stat. 921 (codified as amended at 42 U.S.C. § 2011 et seq.).

27. 42 U.S.C. §§ 2013, 2051, 2161-66, 5817.

28. *See, e.g., Contract, supra* note 16, at Article XII, Cl. 7, § (e)—Copyrighted works (other than scientific and technical articles).

29. *Id.* §§ 2051(d), 2161(b), 2166(b). DOE claims a responsibility to disseminate scientific and technical information under these statutes.

retain commercially valuable data.³⁰ Commercial software purchased by the National Laboratories, but not developed particularly for the National Laboratories, is typically acquired under "limited rights" provisions that are intended to acquire for the Laboratories only the minimum rights required by the National Laboratory and the government, while recognizing the vendors' legitimate interest in protecting proprietary interests in their software.³¹

IV

Cooperative Research and Development Agreements

Cooperative Research and Development Agreements are a relatively new form of industrial partnership agreement that are being used by the National Laboratories of DOE as well as other federal agencies. They have been authorized by statute since about 1989.³² They are true cost-sharing projects.

CRADAs are essentially joint research projects. The projects are defined such that they are of mutual interest to the DOE Laboratories, to meet their institutional objectives, as well as to a private partner.³³ In practice, each project is divided into two sub-projects. The National Laboratory performs one sub-project, usually with its own staff, its own funds, and its own research facilities. The private sector partner performs the other sub-project, also with its own staff and research facilities. The results are exchanged, presumably to the benefit of each party. The theory is that each party can leverage the results of its own research with the results of the other party's research.

Although CRADA projects are generally structured as just stated, that is, in terms of distinct sub-tasks, it is also possible to have more integrated projects, including exchanges of personnel, facilities, and equipment where appropriate.³⁴ Intellectual property rights in CRADAs are treated in a generally reciprocal manner.³⁵ The private partner retains title to its inventions, although the government obtains

30. *Contract, supra* note 16, Article XII, Cl. 7—Rights in Data; *see also* 48 C.F.R. § 27.409(h).

31. *Contract, supra* note 16, Article XII, Cl. 7, § (h)—Rights in Restricted Computer Software.

32. Pub. L. No. 101-189, Div. C., Title XXXI, Part C, § 3133(a), (b), 103 Stat. 1675 (codified as amended at 15 U.S.C. § 3710a (1988 & Supp. V 1993)).

33. 15 U.S.C. § 3710a(d)(1).

34. *Id.*

35. *See Department of Energy (DOE) Modular Cooperative Research and Development Agreement (CRADA) Articles VII-IX, XI-XXI* (on file with HASTINGS COMMUNICATION AND ENTERTAINMENT LAW JOURNAL) [hereinafter *CRADA*].

a license to those inventions.³⁶ Likewise, the National Laboratory retains title to its CRADA inventions, with in most cases, a paid-up nonexclusive license being granted in advance to the CRADA partner.³⁷ Jointly made inventions are generally jointly owned.³⁸

The National Laboratory M&O contractors are allowed some latitude in negotiating even more useful arrangements with their CRADA partners. For example, at Los Alamos a CRADA partner is ordinarily given, in addition to a paid up nonexclusive license to Los Alamos inventions, a first option to negotiate an exclusive license to those inventions. With respect to jointly made and owned inventions, provision is usually made for mutual consent to, and sharing of revenues from, any licensing of the invention to third parties.

For the most part, copyrights in software are treated much the same as rights in patents.³⁹ Software generated under CRADAs, however, can be problematic. DOE policy is to retain a form of march-in right with respect to software, despite the fact that there is no statutory basis for retaining such rights.⁴⁰ In view of widespread complaints regarding this practice, DOE has in the past year or two relented, and will now approve CRADA language that no longer requires CRADA partners to acknowledge DOE march-in rights, or the obligation to provide copies of source codes to DOE.

CRADAs enjoy special statutory protection with regard to data generated under CRADAs.⁴¹ This protection was enacted to meet concerns regarding the impact of the Freedom of Information Act and certain provisions of the Atomic Energy Act on CRADA partners. As enacted, the CRADA legislation allows technical information produced under CRADAs to be withheld from mandatory public disclosure for up to five years from the date of generation.⁴² Technical information must be properly marked to maintain this protection.⁴³

As a general observation, there is little or no downside to entering into a CRADA with one of the National Laboratories. This is particularly true for those companies that are already engaged in

36. *Id.* at Article XV: Title to Inventions. DOE retains this right under 15 U.S.C. § 3710a(b)(2), (3), as well as 35 U.S.C. § 202(c)(4).

37. *CRADA*, *supra* note 35, at Article XV: Title to Inventions.

38. *Id.*

39. *CRADA*, *supra* note 35, at Article XIII: Copyrights.

40. *Id.* at pt. E. DOE accomplishes this by a provision requiring licensing to "a responsible applicant" after a period [not to exceed five years] when the material is "Protected CRADA Information" defined in Article VIII. *Id.* See also 48 C.F.R. § 27.304-1(g).

41. 15 U.S.C. § 3710a(c)(7).

42. 15 U.S.C. § 3710a(c)(7)(B).

43. See *CRADA*, *supra* note 35, at Article VIII: Obligations as to Protected CRADA Information.

R&D, and who would conduct the same R&D regardless of the existence of any CRADA opportunity. For those companies no additional research funding need be budgeted.

Research programs that would be conducted without the partnership of a National Laboratory can be identified as a CRADA project, if a suitable National Laboratory team can be found that has complementary research interests and a program sponsor willing to approve the CRADA. In such a situation the benefits of the National Laboratory's CRADA efforts are obtained at essentially no cost to the private partner.

V

Sponsored Research and User Facility Agreements

The National Laboratories are able to accept private funding to perform research for private companies and other entities. This is normally done indirectly, through purchase order agreements entered into with the DOE. Funding must be provided by a private sponsor in advance. Funds are then transferred by DOE to the Laboratory.

If the sponsor pays the full cost of R&D, including all overhead charges imposed by DOE, the sponsor can obtain title to patents and copyrights arising from the R&D at the National Laboratory.⁴⁴ The usual rules apply—the government and its contractors retain a license to use the intellectual properties for governmental purposes, and the government retains march-in rights in the properties.⁴⁵

Under User Facility Agreements, private companies can use designated National Laboratory facilities for experimental purposes.⁴⁶ User facility agreements are entered into directly with the individual Laboratory. Users may obtain services of a National Laboratory's support and scientific staff as necessary. So long as all costs are paid, users can mark technical data as proprietary and remove it from the premises.⁴⁷ Users retain title to their own inventions and copyrightable works, and are given a nonexclusive, paid-up license in patent-

44. See *Contract, supra* note 16, at Article XII, Cl. 1, § (q)—Rights Governed by Other Agreements. See also 37 C.F.R. § 401.14.

45. 48 C.F.R. § 27.304-1(g); 37 C.F.R. § 401.6.

46. See *Contract, supra* note 16, at Article XII, Cl. 1, § (q)—Rights Governed by Other Agreements. See also 37 C.F.R. 401.14.

47. See *Contract, supra* note 16, at Article XII, Cl. 1, § (q)—Rights Governed by Other Agreements. See also *Guidance for Funds-In Agreements, U.S. Dept. of Energy, Albuquerque Operations Office, Mar. 1995* (on file with HASTINGS COMMUNICATIONS AND ENTERTAINMENT LAW JOURNAL).

ble inventions or copyrightable works of the National Laboratory's staff.⁴⁸

VI Licensing of Intellectual Properties

For R&D funded through ordinary federally funded programs, the contract between the University of California and the DOE provides that the University can retain title to patents covering most inventions developed at the National Laboratories.⁴⁹ There are certain exceptions relating to weapons-related inventions⁵⁰ and to certain areas of technology in which DOE has entered into preexisting intellectual property agreements with private companies or through international treaties.⁵¹ However, these exceptions apply to only a small fraction of the inventions made at the National Laboratories.

As a condition to granting the right to retain title, the DOE requires that the University return all revenues from its National Laboratory licensing program to the National Laboratory, to support additional research, education, and technology transfer activities.⁵² Thus the University does not profit directly from the licensing of National Laboratory technologies.

Consequently, the National Laboratories have their own patent and licensing operations. Some DOE policy requirements are imposed on these operations. For example, licensing opportunities must generally be advertised.⁵³ The Commerce Business Daily is one advertising medium. Also, licenses must contain United States preference clauses, requiring substantial United States manufacture of licensed products or other showings of benefit to the United States economy.⁵⁴

Furthermore, the government retains a license to use the intellectual property,⁵⁵ and also retains march-in rights to ensure effective utilization.⁵⁶ Certain conflict of interest requirements are also imposed on the University and its employees in the licensing of DOE funded technologies.⁵⁷ The National Laboratories are able to offer

48. *Id.*

49. *Id.* at Cl. 1, § (b)(1).

50. *Id.* at Cl. 1, § (b)(2).

51. *Id.* at Cl. 1, § (b)(3)-(4).

52. *Contract, supra* note 16, at Article XII, cl. 11(I)(h).

53. *Contract, supra* note 16, at Article XII, cl. 11(I)(e).

54. *See, e.g.,* 35 U.S.C. § 205; *CRADA, supra* note 35, at Article XXII—U.S. Competitiveness.

55. *See* 37 C.F.R. § 401.14.

56. *See* 48 C.F.R. § 27.304-1(g); 37 C.F.R. § 401.6.

57. 15 U.S.C. § 3710a(c)(3)(A); 48 C.F.R. § 952.209-72.

field-of-use licenses, development licenses, and various kinds of technical support in connection with their licenses of patents and copyrights.⁵⁸

Licensing of copyrights in software is characterized by a slightly different governmental policy outlook than the licensing of patents. While the Bayh-Dole Act addresses contractor rights in federally funded patentable inventions,⁵⁹ there is no comparable statute covering federally funded copyrightable works. Consequently, governmental policy in this area is affected by other factors.

For example, the statutory prohibition against copyrights in works produced by governmental employees⁶⁰ seems to impart a generally negative attitude toward the concept of copyrighting and licensing software at the National Laboratories. The University of California, for example, must request permission from the government each time it wishes to assert a copyright in software produced at the National Laboratories, and must certify that it has a concrete licensing opportunity in each case.⁶¹ While this has become more or less a formality that is now routinely approved, it does reveal the government's differing views on different kinds of intellectual properties.

On the other hand, in other respects, the government seeks to treat copyrights in a manner similar to patents. For example, the DOE has created, as a matter of policy, a practice of retaining something akin to march-in rights with respect to software.⁶² Though there is no statutory basis for doing so, as there is for patented inventions, it is apparently the view of the government that the same considerations exist, and that march-in rights are appropriate to protect the interests of the government and the public.

In practice, however, there has been no situation in which those march-in rights have been exercised by the government; and even in the case of patents, the government's march-in rights have only been exercised a handful of times in the past 40 years or so. Moreover, DOE at least has in the past year or two shown a willingness to retreat from its practice of routinely attempting to retain this right.

58. *Contract*, *supra* note 16, Article XII, cl. 11.

59. 35 U.S.C. § 202.

60. 17 U.S.C. § 105 (1988 & Supp. V 1993). Compare Andrea Simon, Note, *A Constitutional Analysis of Copyrighted Government-Commissioned Work*, 84 COLUM. L. REV. 425 (1984), finding that exempting government contractors from the copyright prohibition is inconsistent with the justifications which otherwise support the broad ban of § 105 and arguing to extend the prohibition to federal contractors by revising the section.

61. See, e.g., *Contract supra* note 16, at Article XII, Cl. 7, § (e)—Copyrighted works (other than scientific and technical data).

62. See *supra* notes 40-43 and accompanying text.

