[4830-01-p]

DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

[REG-112991-01]

RIN 1545-AY82

Credit for Increasing Research Activities

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Notice of proposed rulemaking and notice of public hearing.

SUMMARY: This document contains proposed regulations relating to the computation of the research credit under section 41(c) and the definition of qualified research under section 41(d). In addition, this document contains proposed regulations describing when computer software that is developed by (or for the benefit of) a taxpayer primarily for the taxpayer's internal use is excepted from the internal-use software exclusion contained in section 41(d)(4)(E). These proposed regulations reflect changes to section 41 made by the Tax Reform Act of 1986, the Revenue Reconciliation Act of 1989, the Small Business Job Protection Act of 1996, the Taxpayer Relief Act of 1997, the Tax and Trade Relief Extension Act of 1998, and the Tax Relief Extension Act of 1999. This document also provides notice of a public hearing on these proposed regulations.

DATES: Written and electronic comments and requests to speak (with outlines of oral comments) at the public hearing

scheduled for March 27, 2002 must be received no later than March 6, 2002.

ADDRESSES: Send submissions to: CC:IT&A:RU (REG-112991-01), room 5226, Internal Revenue Service, POB 7604, Ben Franklin Station, Washington, DC 20044. Submissions may also be hand delivered Monday through Friday between the hours of 8 a.m. and 5 p.m. to: CC:IT&A:RU (REG-112991-01), Courier's Desk, Internal Revenue Service, 1111 Constitution Avenue NW., Washington, DC. Alternatively, taxpayers may submit comments electronically via the Internet by selecting the "Tax Regs" option of the IRS Home Page, or by submitting comments directly to the IRS Internet site at: http://www.irs.gov/tax_regs/reglist.html. The public hearing will be held in the IRS Auditorium (7th Floor), Internal Revenue Building, 1111 Constitution Avenue, NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Concerning the regulations, Lisa J. Shuman, 202-622-3120; concerning submissions of comments and the hearing, LaNita VanDyke, 202-622-7180 (not toll-free numbers).

SUPPLEMENTARY INFORMATION:

Paperwork Reduction Act

The collections of information contained in this proposed regulation have been previously reviewed and approved by the **Office of Management and Budget** (OMB) in accordance with the Paperwork Reduction Act of 1995 (44

U.S.C. 3507(d)) and assigned OMB Control Number 1545-1625. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid control number assigned by OMB.

Books or records relating to a collection of information must be retained as long as their contents may become material in the administration of any internal revenue law. Generally, tax returns and tax return information are confidential, as required by 26 U.S.C. 6103.

Background

On January 3, 2001, Treasury and the IRS published in the **Federal Register** (66 FR 280) final regulations (TD 8930) relating to the computation of the credit for increasing research activities (the research credit) under section 41(c) and the definition of qualified research under section 41(d). In response to taxpayer concerns regarding TD 8930, on January 31, 2001, Treasury and the IRS published Notice 2001-19 (2001-10 I.R.B. 784), announcing that Treasury and the IRS would review TD 8930 and reconsider comments previously submitted in connection with the finalization of TD 8930. Comments were requested on all aspects of TD 8930 with specific comments requested on whether modifications should be made to the documentation requirement contained in §1.41-4(d).

Notice 2001-19 also provided that, upon the completion of this review, Treasury and the IRS would announce changes

to the regulations, if any, in the form of proposed regulations. Notice 2001-19 stated that TD 8930 would be revised so that the provisions of the regulations, including any changes to TD 8930, would be effective no earlier than the date when the completion of this review was announced, except that the provisions relating to internal-use computer software (including any revisions) generally would be applicable for taxable years beginning after December 31, 1985.

Explanation of Provisions

This document amends 26 CFR part 1 to provide additional rules under section 41. Section 41 contains the rules for the research credit. After consideration of the statute and legislative history, the court decisions, TD 8930 and the comments previously submitted in connection with the finalization of TD 8930, and the comments submitted in response to Notice 2001-19, Treasury and the IRS have revised TD 8930 to provide rules regarding:

(i) the requirement in section 41(d)(1)(B)(i) that qualified research be "undertaken for the purpose of discovering information which is technological in nature";

(ii) the requirement in section 41(d)(1)(C) that qualified research be research "substantially all of the activities of which constitute elements of a process of experimentation";

(iii) the type of computer software constituting

software "which is developed by (or for the benefit of) the taxpayer primarily for internal use by the taxpayer" for purposes of section 41(d)(4)(E); and

(iv) the documentation required to substantiate the research credit.

These and other changes to TD 8930 are discussed below.

I. Research that is Undertaken for the Purpose of Discovering Information which is Technological in Nature

Section 41(d)(1)(B)(i) requires that qualified research must be "undertaken for the purpose of discovering information which is technological in nature." TD 8930 provided that "research is undertaken for the purpose of discovering information only if it is undertaken to obtain knowledge that exceeds, expands, or refines the common knowledge of skilled professionals in a particular field of science or engineering" and that "information is technological in nature if the process of experimentation used to discover such information fundamentally relies on principles of the physical or biological sciences, engineering, or computer science."

With respect to the phrase "undertaken for the purpose of discovering information," commentators noted that §1.174-2(a)(1) imposes a requirement that a taxpayer's activities must be "intended to discover information" in order to give rise to research and experimental expenditures under section 174, and that section 41(d)(1)(A) incorporates this requirement because an expenditure must qualify under

section 174 in order to give rise to the research credit. Commentators argued that the enactment of the section 41(d)(1)(B) "undertaken for the purpose of discovering information" language should not necessarily be viewed as imposing a different standard than that imposed under section 174 because the section 174 "intended to discover information" language was promulgated in regulations after section 41(d)(1)(B) was enacted.

Commentators also stated that the requirement that qualified research be "undertaken for the purpose of discovering information which is technological in nature" reflects Congress' concern that the research credit had been claimed for non-technological research. These commentators note that in 1984 hearings to evaluate the operation of the research credit prior to the changes of the Tax Reform Act of 1986, Public Law 99-514, 100 Stat. 2085, 2186 (the 1986 Act), members of the Subcommittee on Oversight of the House Committee on Ways and Means and Treasury officials cited research credit claims by fast food restaurants, fashion designers and hair stylists as examples of activities that should not be credit eligible. These commentators argue that the 1986 Act modifications to the research credit were intended to target research that relies upon principles of the physical or biological sciences, engineering, or computer science.

Based upon their review of these comments, the statute

and legislative history, Treasury and the IRS have determined that the definition of qualified research set out in TD 8930 does not fully address Congress' concerns regarding the importance of research activities to the U.S. economy. Accordingly, Treasury and the IRS have eliminated in these proposed regulations the requirement that qualified research must be undertaken to obtain knowledge that exceeds, expands, or refines the common knowledge of skilled professionals in a particular field of science or engineering. Rather, Treasury and the IRS believe that the requirement that qualified research be "undertaken for the purpose of discovering information which is technological in nature" is intended to distinguish technological research, which may qualify for the research credit, from non-technological research, which does not.

When the research credit rules were amended by the 1986 Act, Congress explained the requirement in section 41(d)(1)(B)(i) as follows:

> [t]he determination of whether the research is undertaken for the purpose of discovering information that is technological in nature depends on whether the process of experimentation utilized in the research fundamentally relies on principles of the physical or biological sciences, engineering, or computer science/3/--in which case the information is deemed technological in nature--or on other principles, such as those of economics--in which case the information is not to be treated as technological in nature. For example, information relating to financial services or similar products (such as new types of variable annuities or legal forms) or advertising does not qualify as technological in nature.

H.R. Conf. Rep. No. 99-841, at II-71 (1986) (footnote omitted). This explanation of section 41(d)(1)(B)(i) focuses on the distinction between information derived from a process of experimentation that fundamentally relies on principles of physical or biological sciences, engineering or computer science, and information derived by other means. This and other changes to the research credit by the 1986 Act were driven by Congressional concerns that the research credit had been applied "too broadly" and that "[m]any taxpayers claiming the credit were not in industries that involved high technology or its application in developing new and improved products or methods of production." H.R. Rep. No. 99-426, at 177-78; S. Rep. No. 99-313, at 694-95. The examples provided by Congress illustrate this point. Information relating to financial services, variable annuities, legal forms and advertising all involve information derived from non-technological research. This distinction between technological and non-technological research is further emphasized by other changes made to the definition of qualified research by the 1986 Act. For example, section 41(d)(4)(D) specifically excludes from the definition of qualified research certain non-technical activities including efficiency surveys, activities relating to management function or technique, market research testing, routine data collection and quality control testing. Similarly, section 41(d)(3)(B) generally provides

that if the purpose of research relates to style, taste, cosmetic or seasonal design factors, then that research cannot constitute qualified research. The 1986 Act also expanded the list of social science exclusions contained in section 41(d)(4)(G).

In contrast, the 1986 legislative history does not indicate that section 41(d)(1)(B)(i) was enacted to impose a scientific discovery requirement. The legislative history does not contain a definition of the term discovery. The footnote 3 referenced in the above quoted legislative history does state:

> Research does not rely on the principles of computer science merely because a computer is employed. Research may be treated as undertaken to discover information that is technological in nature, however, if the research is intended to expand or refine existing principles of computer science.

H.R. Conf. Rep. No. 99-841, at II-71, n.3 (1986). This footnote, however, does not set forth a rule of general application, but instead merely illustrates a clear example of research satisfying the requirement that qualified research be technological in nature.

For all of these reasons, Treasury and the IRS have concluded that there should be no "discovery" requirement in the research credit regulations separate and apart from that already required under §1.174-2(a)(1), which states, in part:

> Expenditures represent research and development costs in the experimental or laboratory sense if they are for

> activities intended to discover information that would eliminate uncertainty concerning the development or improvement of a product. Uncertainty exists if the information available to the taxpayer does not establish the capability or method for developing or improving the product or the appropriate design of the product.

Accordingly, these proposed regulations do not retain from TD 8930 the requirement that qualified research must be undertaken to obtain knowledge that exceeds, expands, or refines the common knowledge of skilled professionals in a particular field of science or engineering. Instead, the proposed regulations repeat the requirement from §1.174-2(a)(1) by stating that research is undertaken for the purpose of discovering information if it is intended to eliminate uncertainty concerning the development or improvement of a business component. Uncertainty, for purposes of this requirement, exists if the information available to the taxpayer does not establish the capability or method of developing or improving the business component, or the appropriate design of the business component.

These proposed regulations expand on the definition of technological in nature set out in TD 8930. As under TD 8930, information is technological in nature if the process of experimentation used to discover such information fundamentally relies on principles of the physical or biological sciences, engineering, or computer science. As in TD 8930, these proposed regulations clarify the definition of technological in nature by stating that a

taxpayer may employ existing technologies and may rely on existing principles of the physical or biological sciences, engineering, or computer science to satisfy this requirement.

TD 8930 contained a patent safe harbor providing that a taxpayer is conclusively presumed to have obtained knowledge that exceeds, expands, or refines the common knowledge of skilled professionals in the relevant field of science or engineering, if that taxpayer was awarded a patent (other than a patent for design issued under the provisions of 35 U.S.C. 171) for the business component. These proposed regulations contain a similar rule that conforms to the underlying requirement for credit eligibility in section 41(d)(1)(B)(i) that research must be undertaken for the purpose of discovering information that is technological in nature. Accordingly, these proposed regulations provide that a taxpayer is conclusively presumed to have discovered information that is technological in nature that is intended to eliminate uncertainty concerning the development or improvement of a business component if that taxpayer was awarded a patent (other than a patent for design issued under the provisions of 35 U.S.C. 171) for the business component.

II. Process of Experimentation

Together with the requirements of section 41(d)(1)(A) and (B), section 41(d)(1)(C) provides that qualified

research means research substantially all of the activities of which constitute elements of a process of experimentation related to a new or improved function, performance, or reliability or quality. In TD 8930, Treasury and the IRS clarified how the process of experimentation required by section 41(d)(1)(C) differs from research and development in the experimental or laboratory sense required by §1.174-2(a). Specifically, TD 8930 provided that a process of experimentation is a process to evaluate more than one alternative designed to achieve a result where the capability or method of achieving that result is uncertain at the outset, but does not include the evaluation of alternatives to establish the appropriate design of a business component when the capability and method for developing or improving the business component are not uncertain. Several commentators objected to any distinction regarding the design of a business component and cited examples from the legislative history which these commentators contend show that the determination of the appropriate design of a business component involved a process of experimentation.

Treasury and the IRS continue to believe that the requirements for a process of experimentation under section 41 are more stringent than the requirements for research and development in the experimental or laboratory sense under §1.174-2(a)(1). However, Treasury and the IRS have

determined that a process of experimentation may exist if a taxpayer performs research to establish the appropriate design of a business component when the capability and method for developing or improving the business component are not uncertain. As is discussed in more detail below, not all research to arrive at the appropriate design of a business component will be credit eligible.

These proposed regulations provide that a process of experimentation is a process designed to evaluate one or more alternatives to achieve a result where the capability or the method of achieving that result, or the appropriate design of that result, is uncertain as of the beginning of the taxpayer's research activities. Whether a taxpayer has undertaken a process of experimentation is a facts and circumstances determination. The proposed regulations provide factors that are indicative of a process of experimentation. The factors listed are not exclusive, and no one factor is dispositive.

A taxpayer's activities do not constitute elements of a process of experimentation where the capability and method of achieving the desired new or improved business component, and the appropriate design of the desired new or improved business component, are readily discernible and applicable as of the beginning of the taxpayer's research activities so that true experimentation in the scientific or laboratory sense would not have to be undertaken to test, analyze, and

choose among viable alternatives. Similarly, a process of experimentation does not include merely selecting among several alternatives that are readily discernible and applicable. The fact that a taxpayer conducts only rudimentary or non-technological testing in order to develop or improve a business component tends to indicate that the appropriate design of the business component was readily discernible and applicable at the outset within the meaning of these rules.

TD 8930 provided that the substantially all requirement of section 41(d)(1)(C) is satisfied only if 80 percent or more of the research activities, measured on a cost or other consistently applied reasonable basis (and without regard to §1.41-2(d)(2)), constitute elements of a process of experimentation for a purpose described in section 41(d)(3). The substantially all requirement is applied separately to each business component. These proposed regulations retain the same rule. Treasury and the IRS, however, request comments on the application of the substantially all rule. Treasury and the IRS are specifically interested in comments on whether research expenses incurred for non-qualified purposes are includible in the credit computation provided that substantially all of the research expenses constitute elements of a process of experimentation.

III. Internal Use Software

Section 41(d)(4)(E) provides that, except to the extent

provided by regulations, research with respect to "computer software which is developed by (or for the benefit of) the taxpayer primarily for internal use by the taxpayer" (i.e., internal-use software) is excluded from the definition of qualified research. TD 8930 provided that the development of internal-use software constitutes qualified research only if the research satisfies both the general requirements for credit eligibility under section 41 (including that the research not be otherwise excluded) and an additional, three-part high threshold of innovation test. TD 8930 defined internal-use software as software that is to be used internally, such as software used in general and administrative functions of the taxpayer, or in providing noncomputer services. Noncomputer services are services offered by a taxpayer to customers who do business with the taxpayer primarily to obtain a service other than a computer service, even if such other service is enabled, supported, or facilitated by computer or software technology. TD 8930, however, contained an exception to this rule that provides that internal-use software does not include software that is designed to provide customers with a new feature, not available from the taxpayer’s competitors, with respect to a noncomputer service and that the taxpayer reasonably anticipates will give rise to increased customer demand for the noncomputer service.

The high threshold of innovation test in TD 8930

generally required that (i) the internal-use software be innovative; (ii) the development of the internal-use software involve significant economic risk; and (iii) the internal-use software not be commercially available. The high threshold of innovation test, however, does not apply with respect to the development of software (i) for use in conducting qualified research; (ii) for use in a production process; (iii) for use as part of a package of hardware and software developed concurrently; and (iv) for use in providing computer services to customers. Computer services are services offered by a taxpayer to customers who do business with the taxpayer primarily for the use of the taxpayer's computer or software technology.

In response to Notice 2001-19, several commentators objected to the internal-use software provisions of TD 8930. After reviewing the legislative history to the 1986 Act, the Tax and Trade Relief Extension Act of 1998, Public Law 105-277, 112 Stat. 2681, 2681-888 (the 1998 Act), and the Tax Relief Extension Act of 1999, Public Law 106-170, 113 Stat. 1860, 1919, together with the comment letters, Treasury and the IRS made several changes to the internal-use software rules. These proposed regulations clarify the definition of internal-use software contained in TD 8930 as well as the exceptions to this definition and the types of software that are not required to satisfy the high threshold of innovation test. These changes are discussed below.

Internal-use software defined

Under these proposed regulations, software that is developed by (or for the benefit of) the taxpayer primarily to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties is not treated as internal use software. All other software is presumed to be developed by (or for the benefit of) the taxpayer primarily for the taxpayer's internal use. This distinction reflects the view that software that is sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties is software that is intended to be used primarily by the customers of the taxpayer, whereas software that does not satisfy this requirement is software that is intended to be used primarily by the taxpayer for its internal use or in connection with a noncomputer service provided by the taxpayer.

These proposed regulations retain the provision in TD 8930 that excluded from the definition of internal-use software computer software and hardware developed as a single product. This rule, however, has been modified in response to a commentator's suggestion that some purchasers of combined software and hardware packages may develop their own computer software to operate the package or modify the imbedded computer software. Because the computer software is an integral part of the hardware, these commentators

urged that the computer software/hardware rule should be extended to these development costs. Treasury and the IRS agree that, provided the computer software is developed to be used with hardware as a single product and the activities are otherwise credit-eligible and not excluded under another provision (e.g., section 41(d)(4)(B)), the computer software/hardware rule should extend to these development costs. Thus, under these proposed regulations, internal-use software does not include a new or improved package of computer software and hardware developed together by the taxpayer as a single product (or to the costs to modify an acquired computer software and hardware package), of which the software is an integral part, that is used directly by the taxpayer in providing services in its trade or business to customers.

High threshold of innovation test

These proposed regulations retain the general rule contained in TD 8930 that internal-use software must satisfy the general requirements for credit eligibility (and not be excluded from the definition of qualified research under any other exclusion) and the three-part high threshold of innovation test. These proposed regulations clarify the first prong of the three-part test by providing that internal-use software is innovative if the software is intended to be unique or novel and is intended to differ in a significant and inventive way from prior software

implementations or methods. This change is being proposed pursuant to the authority provided in section 41(d)(4)(E) and the legislative history thereunder in order to update the definition of innovative contained in TD 8930. The TD 8930 definition was derived from the legislative history to the 1986 Act and required that the software be intended to result in a reduction in cost, improvement in speed, or other improvement, that is substantial and economically significant. Treasury and the IRS became concerned that the elements of the TD 8930 definition, while perhaps reflecting innovations in computer software in the mid-1980s, did not adequately reflect the factors that indicate that software is innovative today. The proposed change, therefore, is an attempt both to update the definition of innovative, and to provide a more flexible definition with continuing application. Several examples were added to these proposed regulations to illustrate the application of this proposed rule. The second and third prongs of the high threshold of innovation test (i.e., significant economic risk and commercial availability) remain unchanged from TD 8930.

Software not required to satisfy the high threshold of innovation test

Like TD 8930, these proposed regulations provide that software is not required to satisfy the high threshold of innovation test if the software was developed by the taxpayer for use in an activity that constitutes qualified research (other than the development of the internal-use

software itself), a production process that meets the requirements of section 41(d)(1), or in providing computer services to customers. These proposed regulations, however, eliminate the special rule contained in TD 8930 for software used to deliver noncomputer services to customers with features that are not yet offered by a taxpayer's competitors. Several commentators stated that this rule is too limited and subjective in its application to have significant value to taxpayers. Due to other revisions contained in these proposed regulations, Treasury and the IRS believe that the computer software targeted by this rule generally would be credit eligible without this rule.

Several commentators objected to the distinction between computer services and noncomputer services and urged that the definition of internal-use software exclude any software used to deliver a service to customers or any software that includes an interface with customers or the public. An exclusion for software that includes an interface with customers or the public would entail substantial administrative difficulties and may inappropriately permit certain categories of costs (e.g., certain web site development costs) to constitute qualified research expenses without having to satisfy the high threshold of innovation test.

With respect to software developed by a taxpayer for use in a production process satisfying the requirements of

section 41(d)(1), comments from service providers urged Treasury and the IRS to give service providers the same benefits as manufacturing companies. Congress provided an explicit exclusion for software developed for use in a production process; however, it did not provide a similar exclusion for software used in the provision of noncomputer services. Therefore, Treasury and the IRS conclude that software used in the provision of noncomputer services generally should be subject to the internal-use software requirements.

Effective date

Treasury and the IRS propose the revisions to the internal-use software rules to be effective for taxable years beginning after December 31, 1985. Treasury and the IRS believe that the proposed rule is consistent with the legislative history and the legislative mandate for retroactive application of the rule. Taxpayers, however, may continue to rely on TD 8930 until regulations are finalized.

IV. Shrinking-back Rule

TD 8930 contained a special shrinking-back rule. These proposed regulations revise the shrinking-back rule to conform it to the rule in the legislative history to the 1986 Act. These proposed regulations also reiterate that the shrinking-back rule may not itself be applied as a reason to exclude research activities from credit

eligibility.

V. Other Exclusions

Several commentators raised issues concerning activities excluded from the definition of qualified research. In particular, the commentators were concerned about the research after commercial production exclusion. Because the rules contained in §1.41-4(c) of TD 8930 closely reflected the legislative history regarding post-research activities, these proposed regulations retain the rules contained in TD 8930. See H.R. Conf. Rep. No. 99-841, at II-74-75. However, new examples are included to illustrate the application of the exclusions. Treasury and the IRS request comments concerning the application of the exclusions and the extent to which additional guidance concerning the exclusions may be helpful.

VI. Gross Receipts

When Congress revised the computation of the research credit to incorporate a taxpayer's gross receipts, neither the statute nor the legislative history defined the term gross receipts, other than to provide that gross receipts for any taxable year are reduced by returns and allowances made during the tax year, and, in the case of a foreign corporation, that only gross receipts effectively connected with the conduct of a trade or business within the United States are taken into account. See section 41(c)(6).

TD 8930 adopted a broad definition of the term gross

receipts for purposes of computing the research credit. TD 8930 generally defined gross receipts as the total amount derived by a taxpayer from all activities and sources. In addition, because certain extraordinary gross receipts might not be taken into account when a business determines its research budget, TD 8930 provided that certain items (e.g., receipts from the sale or exchange of capital assets, or repayments of loans or similar instruments) would be excluded from the computation of gross receipts. Further, TD 8930 excluded from the definition of gross receipts any income derived by a taxpayer in a taxable year that precedes the first taxable year in which the taxpayer derives more than $25,000 in gross receipts other than investment income.

In response to Notice 2001-19, some commentators suggested that the definition of gross receipts created an administrative burden to the extent that taxpayers would be obligated to apply the definition of the term for the four years preceding the determination years as well as to the 1984 through 1988 base years.

These proposed regulations retain the definition of gross receipts contained in TD 8930. Treasury and the IRS continue to believe that the definition of gross receipts should be construed broadly and that the definition of gross receipts in TD 8930 is appropriate for purposes of computing the research credit. Further, Treasury and the IRS believe that the administrative burden referred to by commentators

is due to the incremental nature of the credit and the statutorily determined base years, and not to the definition of gross receipts.

VII. Recordkeeping for the Research Credit

Under TD 8930, taxpayers were required to prepare and retain written documentation before or during the early stages of the research project that describes the principal questions to be answered and the information the taxpayer seeks to obtain that exceeds, expands, or refines the common knowledge of skilled professionals in the relevant field of science or engineering. These proposed regulations eliminate this recordkeeping requirement.

Treasury and the IRS recognize that the research credit presents a particular burden for taxpayers because tracking eligible expenditures may necessitate taxpayers preparing and keeping records unlikely to be prepared or kept for other business purposes. The fact that the records are not prepared or kept for other business purposes has made administration of the research credit burdensome for the IRS. Moreover, section 41 often requires an allocation between qualifying and non-qualifying costs that is difficult for taxpayers to make and for the IRS to administer.

Nevertheless, when the research credit was extended in 1999, Congress made clear that the credit should not impose unreasonable recordkeeping requirements:

> The conferees also are concerned about unnecessary and costly taxpayer record keeping burdens and reaffirm that eligibility for the credit is not intended to be contingent on meeting unreasonable recordkeeping requirements.

H.R. Conf. Rep. No. 106-478, at 132 (1999). Treasury and the IRS have re-evaluated whether a research credit-specific documentation requirement is warranted and have concluded that the high degree of variability in the objectives and conduct of research activities in the United States compels a conclusion that taxpayers must be provided reasonable flexibility in the manner in which they substantiate their research credits. Accordingly, Treasury and the IRS have concluded that the failure to keep records in a particular manner (so long as such records are in sufficiently usable form and detail to substantiate that the expenditures claimed are eligible for the credit) cannot serve as a basis for denying the credit. Treasury and the IRS have decided that the rules generally applicable under section 6001 provide sufficient detail about required documentary substantiation for purposes of the research credit. Consequently, no separate research credit-specific documentation requirement is included in these proposed regulations.

Section 1.6001-1 requires the keeping of records "sufficient to establish the amount of . . . credits, . . required to be shown . . . ." The consequence of failing to keep sufficient records substantiating a claimed credit may

be denial of the credit. To address any ongoing recordkeeping concerns regarding the research credit, Treasury and the IRS propose to use pre-filing processes, including industry issue resolution, pre-filing agreements, determination letters, and record retention agreements, to provide certainty to taxpayers about the records that must be kept and to ensure the availability to the IRS of the records necessary to examine taxpayers' returns expeditiously. Treasury and the IRS solicit comments from taxpayers on establishing recordkeeping rules that will facilitate compliance and administration, including whether pre-filing agreements should extend to the qualification of particular cost centers or to the procedures established by the taxpayer for determining the expenditures qualifying for the credit. Treasury and the IRS also solicit comments from taxpayers on the extent to which guidelines may be developed on an industry-by-industry basis.

Proposed Effective Dates

Except as specifically provided in §1.41-4(c)(6)(ix), the proposed amendments to §1.41-4 are proposed to apply to taxable years ending on or after December 26, 2001. Notwithstanding this prospective effective date, Treasury and the IRS believe that these rules prescribe the proper treatment of the expenditures they address, and the IRS generally will not challenge return positions consistent with the proposed regulations. Therefore, taxpayers may

rely on these proposed regulations until the date final regulations under §1.41-4 are published in the **Federal Register**.

Special Analyses

It has been determined that this notice of proposed rulemaking is not a significant regulatory action as defined in Executive Order 12866. It also has been determined that section 533(b) of the Administrative Procedures Act (5 U.S.C. chapter 5) does not apply to these regulations, and because these regulations do not impose a collection of information on small entities, the Regulatory Flexibility Act (5 U.S.C. chapter 6) does not apply. Therefore, a Regulatory Flexibility Analysis is not required. Pursuant to section 7805(f) of the Internal Revenue Code, this notice of proposed rulemaking will be submitted to the Chief Counsel for Advocacy of the Small Business Administration for comment on its impact on small business.

Comments and Public Hearing

Before these proposed regulations are adopted as final regulations, consideration will be given to any electronic and written comments (a signed original and eight (8) copies) that are submitted timely to the IRS. The IRS and the Treasury Department specifically request comments on the clarity of the proposed regulations and how they may be made easier to understand. All comments will be available for public inspection and copying. All comments will be

available for public inspection and copying.

A public hearing has been scheduled for March 27, 2002, at 10 a.m. in the IRS Auditorium (7th Floor), Internal Revenue Building, 1111 Constitution Avenue, NW., Washington, DC. Because of access restrictions, visitors will not be admitted beyond the building lobby more than 15 minutes before the hearing starts.

The rules of 26 CFR 601.601(a)(3) apply to the hearing.

Persons that wish to present oral comments at the hearing must submit (in the manner described in the ADDRESSES portion of this preamble) comments and an outline of the topics to be discussed and the time to be devoted to each topic by March 6, 2002.

A period of 10 minutes will be allotted to each person for making comments.

An agenda showing the scheduling of the speakers will be prepared after the deadline for receiving outlines has passed. Copies of the agenda will be available free of charge at the hearing.

List of Subjects in 26 CFR Part 1

Income taxes, Reporting and recordkeeping requirements.

Proposed Amendments to the Regulations

Accordingly, 26 CFR part 1 is proposed to be amended as follows:

PART 1--INCOME TAXES

Paragraph 1. The authority citation for part 1

continues to read in part as follows:

Authority: 26 U.S.C. 7805 * * *

Par. 2. Section 1.41-0 is amended as follows:

1. Revising the entry for §1.41-3.

2. Revising the entries for §1.41-4.

3. Revising the entry for §1.41-8.

The revisions read as follow:

§1.41-0 Table of contents.

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§1.41-3 Base amount for taxable years ending on or after December 26, 2001.

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§1.41-4 Qualified research for expenditures paid or incurred in taxable years ending on or after December 26, 2001.

(a) Qualified research.
(1) General rule.
(2) Requirements of section 41(d)(1).
(3) Undertaken for the purpose of discovering information.
(i) In general.
(ii) Application of the discovering information requirement.
(iii) Patent safe harbor.
(4) Technological in nature.
(5) Process of experimentation.
(i) In general.
(ii) Readily discernible capability, method and appropriate design.
(iii) Qualified purpose.
(iv) Factors tending to indicate that the taxpayer has engaged in a process of experimentation.
(6) Substantially all requirement.
(i) General rule.
(ii) Illustrations. [Reserved]
(7) Use of computers and information technology.
(8) Illustrations.
(b) Application of requirements for qualified research.
(1) In general.
(2) Shrinking-back rule.
(3) Illustration.

(c) Excluded activities.
(1) In general.
(2) Research after commercial production.
(i) In general.
(ii) Certain additional activities related to the business component.
(iii) Activities related to production process or technique.
(iv) Clinical testing.
(3) Adaptation of existing business components.
(4) Duplication of existing business component.
(5) Surveys, studies, research relating to management functions, etc.
(6) Internal use software for taxable years beginning on or after December 31, 1985.
(i) General rule.
(ii) Requirements.
(iii) Computer software and hardware developed as a single product.
(iv) Primarily for internal use.
(v) Software used in the provision of services.
(A) Computer services.
(B) Noncomputer services.
(vi) High threshold of innovation test.
(vii) Application of high threshold of innovation test.
(viii) Illustrations.
(ix) Effective date.
(7) Activities outside the United States, Puerto Rico, and other possessions.
(i) In general.
(ii) Apportionment of in-house research expenses.
(iii) Apportionment of contract research expenses.
(8) Research in the social sciences, etc.
(9) Research funded by any grant, contract, or otherwise.
(10) Illustrations.
(d) Recordkeeping for the research credit.
(e) Effective dates.

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§1.41-8 Special rules for taxable years ending on or after December 26, 2001.

Par. 3. Section 1.41-3 is amended by:

1. Revising the section heading.

2. Revising paragraph (e).

The revisions read as follows:

§1.41-3 Base amount for taxable years ending on or after

December 26, 2001.

* * * * *

(e) Effective date. The rules of this section are applicable for taxable years ending on or after December 26, 2001.

Par. 4. Section 1.41-4 is revised to read as follows:

§1.41-4 Qualified research for expenditures paid or incurred in taxable years ending on or after December 26, 2001.

(a) Qualified research--(1) General rule. Research activities related to the development or improvement of a business component constitute qualified research only if the research activities meet all of the requirements of section 41(d)(1) and this section, and are not otherwise excluded under section 41(d)(3)(B) or (d)(4), or this section.

(2) Requirements of section 41(d)(1). Research constitutes qualified research only if it is research--

(i) With respect to which expenditures may be treated as expenses under section 174, see §1.174-2;

(ii) That is undertaken for the purpose of discovering information that is technological in nature, and the application of which is intended to be useful in the development of a new or improved business component of the taxpayer; and

(iii) Substantially all of the activities of which constitute elements of a process of experimentation that

relates to a new or improved function, performance, reliability or quality.

(3) Undertaken for the purpose of discovering information--(i) In general. For purposes of section 41(d) and this section, research must be undertaken for the purpose of discovering information that is technological in nature. Research is undertaken for the purpose of discovering information if it is intended to eliminate uncertainty concerning the development or improvement of a business component. Uncertainty exists if the information available to the taxpayer does not establish the capability or method for developing or improving the business component, or the appropriate design of the business component.

(ii) Application of the discovering information requirement. A determination that research is undertaken for the purpose of discovering information that is technological in nature does not require the taxpayer be seeking to obtain information that exceeds, expands or refines the common knowledge of skilled professionals in the particular field of science or engineering in which the taxpayer is performing the research. In addition, a determination that research is undertaken for the purpose of discovering information that is technological in nature does not require that the taxpayer succeed in developing a new or improved business component.

(iii) Patent safe harbor. For purposes of section 41(d) and paragraph (a)(3)(i) of this section, the issuance of a patent by the Patent and Trademark Office under the provisions of 35 U.S.C. 151 (other than a patent for design issued under the provisions of 35 U.S.C. 171) is conclusive evidence that a taxpayer has discovered information that is technological in nature that is intended to eliminate uncertainty concerning the development or improvement of a business component. However, the issuance of such a patent is not a precondition for credit availability.

(4) Technological in nature. For purposes of section 41(d) and this section, information is technological in nature if the process of experimentation used to discover such information fundamentally relies on principles of the physical or biological sciences, engineering, or computer science. A taxpayer may employ existing technologies and may rely on existing principles of the physical or biological sciences, engineering, or computer science to satisfy this requirement.

(5) Process of experimentation--(i) In general. For purposes of section 41(d) and this section, a process of experimentation is a process designed to evaluate one or more alternatives to achieve a result where the capability or the method of achieving that result, or the appropriate design of that result, is uncertain as of the beginning of the taxpayer’s research activities. Thus, a taxpayer may

undertake a process of experimentation if there is no uncertainty concerning the taxpayer's capability or method of achieving the desired result so long as the appropriate design of the desired result is uncertain as of the beginning of the taxpayer's research activities. However, a process of experimentation does not include the evaluation of alternatives to achieve the desired result if the capability and method of achieving the desired result, and the appropriate design of the desired result, are readily discernible and applicable as of the beginning of the taxpayer's research activities. A process of experimentation may include developing one or more hypotheses designed to achieve the desired result, designing and conducting an experiment to test and analyze those hypotheses, and refining or discarding the hypotheses as part of a design process to develop or improve the business component. For purposes of this paragraph (a)(5), factors that tend to indicate that the taxpayer has engaged in a process of experimentation are listed in paragraph (a)(5)(iv) of this section.

(ii) Readily discernible capability, method and appropriate design. A taxpayer's activities do not constitute elements of a process of experimentation where the capability and method of achieving the desired new or improved business component, and the appropriate design of the desired new or improved business component, are readily

discernible and applicable as of the beginning of the taxpayer's research activities, so that true experimentation in the scientific or laboratory sense would not have to be undertaken to test, analyze, and choose among viable alternatives. A process of experimentation does not include any activities to select among several alternatives that are readily discernible and applicable.

(iii) Qualified purpose. For purposes of section 41(d) and this section, a process of experimentation is undertaken for a qualified purpose if it relates to a new or improved function, performance, reliability or quality of the business component. Research will not be treated as conducted for a qualified purpose if it relates to style, taste, cosmetic, or seasonal design factors.

(iv) Factors tending to indicate that the taxpayer has engaged in a process of experimentation. For purposes of section 41(d) and this section, in determining whether a taxpayer has undertaken a process of experimentation, all facts and circumstances with respect to a taxpayer's research activities are taken into account. No one factor is dispositive in making this determination. Further, it is not intended that only the factors described in this paragraph are to be taken into account in making the determination. Thus, no inference should be drawn from the taxpayer's failure to satisfy any or all of the factors. Among the factors that tend to indicate that the taxpayer

has engaged in a process of experimentation are–

(A) The taxpayer tests and analyzes numerous alternative hypotheses to develop a new or improved business component;

(B) The taxpayer engages in extensive, comprehensive, intricate or complex scientific or laboratory testing; or

(C) The taxpayer evaluates numerous or complex specifications related to the function, performance, reliability or quality of a new or improved business component.

(6) Substantially all requirement--(i) General rule. The substantially all requirement of section 41(d)(1)(C) and paragraph (a)(2)(iii) of this section is satisfied only if 80 percent or more of the research activities, measured on a cost or other consistently applied reasonable basis (and without regard to §1.41-2(d)(2)), constitute elements of a process of experimentation for a purpose described in section 41(d)(3). The substantially all requirement is applied separately to each business component.

(ii) Illustrations. [Reserved]

(7) Use of computers and information technology. The employment of computers or information technology, or the reliance on principles of computer science or information technology to store, collect, manipulate, translate, disseminate, produce, distribute, or process data or information, and similar uses of computers and information

technology does not itself establish that qualified research has been undertaken.

(8) Illustrations. The following examples illustrate the application of paragraph (a)(5) of this section:

Example 1. (i) Facts. X is engaged in the business of developing and manufacturing widgets. X wants to change the color of its blue widget to green. X obtains from various suppliers several different shades of green paint. X paints several sample widgets, and surveys X's customers to determine which shade of green X's customers prefer.

(ii) Conclusion. X's activities to change the color of its blue widget to green are not qualified research under section 41(d)(1) and paragraph (a)(5) of this section because substantially all of X's activities are not undertaken for a qualified purpose. All of X's research activities are related to style, taste, cosmetic, or seasonal design factors.

Example 2. (i) Facts. X is engaged in the business of manufacturing widgets and wants to change the color of its blue widget to green. X obtains samples of green paint from a supplier and determines that X must modify its painting process to accommodate the green paint because the green paint has different characteristics from other paints X has used. X obtains detailed data on the green paint from X's paint supplier. X also consults with the manufacturer of X's paint spraying machines and determines that X must acquire new nozzles that are designed to operate with paints similar to the green paint X wants to use. X installs the new nozzles on its paint spraying machines and tests the nozzles to ensure that they work as specified by the manufacturer of the paint spraying machines.

(ii) Conclusion. X's activities to modify its painting process is a separate business component under section 41(d)(2)(A). X's activities to modify its painting process by installing new nozzles on its paint spraying machines to change the color of its blue widget to green are not qualified research under section 41(d)(1) and paragraph (a)(5) of this section. The capability, method and appropriate design of the changes to X's painting process are readily discernible and applicable to X as of the beginning of X's activities. X's activities to test the nozzles to determine if the nozzles work as specified by the manufacturer of the paint spraying machines are not the type of testing activities that tend to indicate that a process of experimentation was undertaken.

Example 3. (i) Facts. X is engaged in the business of manufacturing food products and currently manufactures a large-shred version of a product. Because X's competitors manufacture both a large-shred and fine-shred version of comparable food products, X seeks to modify its current production line to permit it to manufacture both a large-shred version and fine-shred version of one of its own food products. A shredding blade capable of producing a fine-shred version of the food product is not commercially available. Thus, X must develop a new shredding blade that can be fitted onto X's current production line. X must test and analyze numerous alternative hypotheses to determine whether a new shredding blade must be constructed of a different material from that of its existing shredding blade. In addition, X must engage in comprehensive and complex scientific or laboratory testing to ensure that its modified production process, with the newly-developed shredding blade, can accommodate the manufacture of both the large-shred and fine-shred versions of X's food products.

(ii) Conclusion. X's activities to modify its current production line meet the requirements of qualified research as set forth in paragraph (a)(2) of this section. Substantially all of X's activities constitute elements of a process of experimentation because X must evaluate more than one alternative to achieve a result where the method and appropriate design are uncertain as of the beginning of the taxpayer's research activities. X must test and analyze numerous alternative hypotheses and engage in comprehensive and complex scientific or laboratory testing to ensure that its modified production process, with a newly-developed shredding blade, can accommodate the manufacture of both the large-shred and fine-shred versions of X's food products.

Example 4. (i) Facts. X operates wireless networks in several U.S. cities. X discovers in City a service problem and collects data on the nature of the problem. X analyzes the data and knows, based on its previous experience with wireless networks in other cities, that the installation of a new type of gateway will eliminate the problem. X installs the new gateway in its City network.

(ii) Conclusion. X's activities to determine a solution to its service problem are not qualified research under section 41(d)(1) and paragraph (a)(5) of this section. Substantially all of X's research activities do not constitute elements of a process of experimentation because the solution to the service problem is readily discernible and applicable by X as of the beginning of X's research activities.

Example 5. (i) Facts. X is engaged in the business of

manufacturing and selling automobiles. X incorporated into one of its new vehicles a new exhaust system that it designed. After X offered the vehicle for sale, X received complaints of a rattling noise that could be heard in the passenger compartment. X's engineers determined that the cause of the noise was the exhaust system coming into contact with the undercarriage of the vehicle. Based on previous experience with similar noise problems, X's engineers knew of two safe, effective, reliable solutions that would eliminate the noise. X's engineers selected one of the solutions based on cost studies that indicated it would be the less expensive alternative.

(ii) Conclusion. X's activities to eliminate the rattling noise are not qualified research under section 41(d)(1) and paragraph (a)(5) of this section. Substantially all of X's research activities do not constitute elements of a process of experimentation because the solution is readily discernible and applicable to X as of the beginning of X's activities.

Example 6. (i) Facts. X is in the business of designing, developing and manufacturing automobiles and decides to update one of its current model vehicles. In response to government-mandated fuel economy requirements, X undertakes to improve aerodynamics by lowering the hood of the current model vehicle. X determines that lowering the hood changes the air flow under the hood, which changes the rate at which air enters the engine through the air intake system, and which reduces the functionality of the cooling system. X designs, models, tests, refines, and re-tests proposed modifications to both the air intake system and cooling system until modifications are developed that meet X's requirements. X then integrates the modified air intake and cooling systems into a current model vehicle with a lower hood, modifying in the process the new air intake and cooling systems as well as the underhood wiring, brake lines and fuel line. X conducts extensive and complex scientific or laboratory testing to determine if the current model vehicle meets X's requirements. X conducts extensive and complex scientific or laboratory testing (including simulations and crash tests) to determine if the current model vehicle meets X's requirements.

(ii) Conclusion. X's activities to update its vehicle meet the requirements of qualified research as set forth in paragraph (a)(2) of this section. X must test and analyze numerous alternative hypotheses, engage in extensive testing and analysis, and evaluate complex specifications related to the functionality of several of the vehicle's underhood systems and to the vehicle's overall performance. These activities indicate that X undertook a process of

experimentation to achieve the appropriate design of the updated vehicle.

(b) Application of requirements for qualified research--(1) In general. The requirements for qualified research in section 41(d)(1) and paragraph (a) of this section, must be applied separately to each business component, as defined in section 41(d)(2)(B). In cases involving development of both a product and a manufacturing or other commercial production process for the product, research activities relating to development of the process are not qualified research unless the requirements of section 41(d) and this section are met for the research activities relating to the process without taking into account the research activities relating to development of the product. Similarly, research activities relating to development of the product are not qualified research unless the requirements of section 41(d) and this section are met for the research activities relating to the product without taking into account the research activities relating to development of the manufacturing or other commercial production process.

(2) Shrinking-back rule. The requirements of section 41(d) and paragraph (a) of this section are to be applied first at the level of the discrete business component, that is, the product, process, computer software, technique, formula, or invention to be held for sale, lease, or license, or used by the taxpayer in a trade or business of

the taxpayer. If the requirements for credit eligibility are met at that first level, then some or all of the taxpayer's qualified research expenses are eligible for the credit. If all aspects of such requirements are not met at that level, the test applies at the most significant subset of elements of the product, process, computer software, technique, formula, or invention to be held for sale, lease, or license. This shrinking back of the product is to continue until either a subset of elements of the product that satisfies the requirements is reached, or the most basic element of the product is reached and such element fails to satisfy the test. This shrinking-back rule is applied only if a taxpayer does not satisfy the requirements of section 41(d)(1) and paragraph (a)(2) of this section with respect to the overall business component. The shrinking-back rule is not itself applied as a reason to exclude research activities from credit eligibility.

(3) Illustration. The following example illustrates the application of this paragraph (b):

Example. X, a motorcycle engine builder, develops a new carburetor for use in a motorcycle engine. X also modifies an existing engine design for use with the new carburetor. Under the shrinking-back rule, the requirements of section 41(d)(1) and paragraph (a) of this section are applied first to the engine. If the modifications to the engine when viewed as a whole, including the development of the new carburetor, do not satisfy the requirements of section 41(d)(1) and paragraph (a) of this section, those requirements are applied to the next most significant subset of elements of the business component. Assuming that the next most significant subset of elements of the engine is the carburetor, the research activities in developing the new carburetor may constitute qualified research within the

meaning of section 41(d)(1) and paragraph (a) of this section.

(c) Excluded activities--(1) In general. Qualified research does not include any activity described in section 41(d)(4) and paragraph (c) of this section.

(2) Research after commercial production--(i) In general. Activities conducted after the beginning of commercial production of a business component are not qualified research. Activities are conducted after the beginning of commercial production of a business component if such activities are conducted after the component is developed to the point where it is ready for commercial sale or use, or meets the basic functional and economic requirements of the taxpayer for the component's sale or use.

(ii) Certain additional activities related to the business component. The following activities are deemed to occur after the beginning of commercial production of a business component--

(A) Preproduction planning for a finished business component;

(B) Tooling-up for production;

(C) Trial production runs;

(D) Trouble shooting involving detecting faults in production equipment or processes;

(E) Accumulating data relating to production processes; and

(F) Debugging flaws in a business component.

(iii) Activities related to production process or technique. In cases involving development of both a product and a manufacturing or other commercial production process for the product, the exclusion described in section 41(d)(4)(A) and paragraphs (c)(2)(i) and (ii) of this section applies separately for the activities relating to the development of the product and the activities relating to the development of the process. For example, even after a product meets the taxpayer's basic functional and economic requirements, activities relating to the development of the manufacturing process still may constitute qualified research, provided that the development of the process itself separately satisfies the requirements of section 41(d) and this section, and the activities are conducted before the process meets the taxpayer's basic functional and economic requirements or is ready for commercial use.

(iv) Clinical testing. Clinical testing of a pharmaceutical product prior to its commercial production in the United States is not treated as occurring after the beginning of commercial production even if the product is commercially available in other countries. Additional clinical testing of a pharmaceutical product after a product has been approved for a specific therapeutic use by the Food and Drug Administration and is ready for commercial production and sale is not treated as occurring after the

beginning of commercial production if such clinical testing is undertaken to establish new functional uses, characteristics, indications, combinations, dosages, or delivery forms for the product. A functional use, characteristic, indication, combination, dosage, or delivery form shall be considered new only if such functional use, characteristic, indication, combination, dosage, or delivery form must be approved by the Food and Drug Administration.

(3) Adaptation of existing business components. Activities relating to adapting an existing business component to a particular customer's requirement or need are not qualified research. This exclusion does not apply merely because a business component is intended for a specific customer.

(4) Duplication of existing business component. Activities relating to reproducing an existing business component (in whole or in part) from a physical examination of the business component itself or from plans, blueprints, detailed specifications, or publicly available information about the business component are not qualified research. This exclusion does not apply merely because the taxpayer examines an existing business component in the course of developing its own business component.

(5) Surveys, studies, research relating to management functions, etc. Qualified research does not include activities relating to--

(i) Efficiency surveys;

(ii) Management functions or techniques, including such items as preparation of financial data and analysis, development of employee training programs and management organization plans, and management-based changes in production processes (such as rearranging work stations on an assembly line);

(iii) Market research, testing, or development (including advertising or promotions);

(iv) Routine data collections; or

(v) Routine or ordinary testing or inspections for quality control.

(6) Internal use software for taxable years beginning on or after the December 31, 1985--(i) General rule. Research with respect to computer software that is developed by (or for the benefit of) the taxpayer primarily for the taxpayer's internal use is eligible for the research credit only if the software satisfies the requirements of paragraph (c)(6)(ii) of this section.

(ii) Requirements. The requirements of this paragraph (c)(6)(ii) are--

(A) The software satisfies the requirements of section 41(d)(1);

(B) The software is not otherwise excluded under section 41(d)(4) (other than section 41(d)(4)(E)); and

(C) One of the following conditions is met--

(1) The taxpayer develops the software for use in an activity that constitutes qualified research (other than the development of the internal-use software itself);

(2) The taxpayer develops the software for use in a production process that satisfies the requirements of section 41(d)(1);

(3) The taxpayer develops the software for use in providing computer services to customers; or

(4) The software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section.

(iii) Computer software and hardware developed as a single product. This paragraph (c)(6) does not apply to the development costs of a new or improved package of computer software and hardware developed together by the taxpayer as a single product (or to the costs to modify an acquired computer software and hardware package), of which the software is an integral part, that is used directly by the taxpayer in providing services in its trade or business to customers. In these cases, eligibility for the research credit is to be determined by examining the combined software-hardware product as a single product.

(iv) Primarily for internal use. Unless computer software is developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties, computer software is presumed developed by (or for the benefit of) the

taxpayer primarily for the taxpayer's internal use. For example, the computer software may serve general and administrative functions of the taxpayer, or may be used in providing a noncomputer service. General and administrative functions include, but are not limited to, functions such as payroll, bookkeeping, financial management, financial reporting, personnel management, sales and marketing, fixed asset accounting, inventory management and cost accounting. Computer software that is developed to be commercially sold, leased, licensed or otherwise marketed, for separately stated consideration to unrelated third parties is not developed primarily for the taxpayer's internal use. The requirements of this paragraph (c)(6) apply to computer software that is developed primarily for the taxpayer's internal use even though the taxpayer subsequently sells, leases, licenses, or otherwise markets the computer software for separately stated consideration to unrelated third parties.

(v) Software used in the provision of services--(A) Computer services. For purposes of this section, a computer service is a service offered by a taxpayer to customers who conduct business with the taxpayer primarily for the use of the taxpayer's computer or software technology. A taxpayer does not provide a computer service merely because customers interact with the taxpayer's software.

(B) Noncomputer services. For purposes of this

section, a noncomputer service is a service offered by a taxpayer to customers who conduct business with the taxpayer primarily to obtain a service other than a computer service, even if such other service is enabled, supported, or facilitated by computer or software technology.

(vi) High threshold of innovation test. Computer software satisfies this paragraph (c)(6)(vi) only if the taxpayer can establish that--

(A) The software is innovative in that the software is intended to be unique or novel and is intended to differ in a significant and inventive way from prior software implementations or methods;

(B) The software development involves significant economic risk in that the taxpayer commits substantial resources to the development and there is substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period; and

(C) The software is not commercially available for use by the taxpayer in that the software cannot be purchased, leased, or licensed and used for the intended purpose without modifications that would satisfy the requirements of paragraphs (c)(6)(v)(A) and (B) of this section.

(vii) Application of high threshold of innovation test. The costs of developing internal use software are eligible for the research credit only if the software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of

this section. This test takes into account only the results attributable to the development of the new or improved software independent of the effect of any modifications to related hardware or other software.

(viii) Illustrations. The following examples illustrate provisions contained in this paragraph (c)(6) of this section. No inference should be drawn from these examples concerning the application of section 41(d)(1) and paragraph (a) of this section to these facts. The examples are as follows:

Example 1. (i) Facts. X, an insurance company, has increased its number of insurance policies in force. In recent years, regulatory and financial accounting rules for computing actuarial reserves on these insurance policies have changed several times. In order to compute actuarial reserves in a more timely and cost-effective manner, X undertakes to create an improved reserve valuation software that will generate data for regulatory and financial accounting purposes.

(ii) Conclusion. The improved reserve valuation software created by X is internal use software because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. The improved reserve valuation software was developed by X to serve X's general and administrative functions. X's costs of developing the reserve valuation software are eligible for the research credit only if the software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section.

Example 2. (i) Facts. Assume the same facts as in Example 1. Also assume that in order to create an improved reserve valuation software, X purchases updated hardware with a new operating system to build the new software system. Several other insurance companies using the same updated hardware and new operating system have in place software systems that can handle the volume of transactions that X seeks to handle, provide reserve computations within a similar time frame, and accommodate the most current regulatory and financial accounting requirements.

(ii) Conclusion. X's reserve valuation software system is internal use software that does not satisfy the high threshold of innovation test of paragraph (c)(6)(vi) of this section. The software is not intended to be unique or novel in that it is intended to be merely comparable to software developed by other insurance companies. The software does not differ in a significant or inventive way from prior software implementations because X's reserve valuation software system was developed using the same technologies and methods that were employed by other insurance companies. Further, X's reserve valuation software is not excluded from the application of paragraph (c)(6) of this section by the rule of paragraph (c)(6)(iii) of this section.

Example 3. (i) Facts. In 1986, X, a large regional bank with hundreds of branch offices, maintained separate software systems for each of its customer's accounts, including checking, deposit, loan, lease, and trust. X determined that improved customer service could be achieved by redesigning its disparate systems into one customer-centric system. X also determined that commercially available database management systems did not meet all of the critical requirements of the proposed system. Specifically, available relational database management systems were well suited for the proposed system's data modeling requirements but not the data integrity and transaction throughput (transactions-per-second) requirements. Rather than waiting several years for vendor offerings to mature and become viable for its purpose, X decided to embark upon the project utilizing older technology that satisfied the data integrity and transaction throughput requirements but that was severely challenged with respect to the data modeling capabilities. X commits substantial resources to this project and, because of technical risk, X cannot determine if it will recover its resources in a reasonable period. Early in the course of the project, industry analysts observed that the project appeared highly ambitious and risky. The limitations of the technology X was attempting to utilize required that X develop a new database architecture that could accommodate transaction volumes unheard-of in the industry. X was unable to successfully develop the system and X abandoned the project.

(ii) Conclusion. X intended to develop a computer software system primarily for X's internal use because X did not intend to commercially sell, lease, license, or otherwise market the software, for separately stated consideration to unrelated third parties, and X intended to use the software in providing noncomputer services to its customers. X's software development activities satisfy the high threshold of innovation test of paragraph (c)(6)(vi) of

this section because the system was intended to be innovative in that it was intended to be novel and it was intended to differ in a significant and inventive way from prior software implementations. In addition, X's development activities involved significant economic risk in that X committed substantial resources to the development and there was substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period. Finally, at the time X undertook the development of the system, software meeting X's requirements was not commercially available for use by X.

Example 4. (i) Facts. X wishes to improve upon its capabilities in the area of insurance fraud prevention, detection and control. X believes that it can exceed the capabilities of current commercial offerings in this area by developing and applying pattern matching algorithms that are not implemented in current vendor offerings. X has determined that many insurance fraud perpetrators can evade detection because its current system relies too heavily on exact matches and scrubbed data. Because a computer software system that will accomplish these objectives is not commercially available, X undertakes to develop and implement advanced pattern matching algorithms that would significantly improve upon the capabilities currently available from vendors. X commits substantial resources to the development of the software system and cannot determine, because of technical risk, if it will recover its investment within a reasonable period.

(ii) Conclusion. X's computer software system is developed primarily for X's internal use because X did not intend to sell, lease, license or otherwise market the software, for separately stated consideration to unrelated third parties. X's software development activities satisfy the high threshold of innovation test of paragraph (c)(6)(vi) of this section because the software system is innovative in that it was intended to be novel and it was intended to differ in a significant and inventive way from prior software implementations. In addition, X's development activities involved significant economic risk in that X committed substantial resources to the development and there was substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available for use by X.

Example 5. (i) Facts. X is engaged in the business of designing, manufacturing, and selling widgets. X delivers its widgets in the same manner and time as its competitors. To improve customer service, X undertakes to develop

computer software that will monitor the progress of the manufacture and delivery of X's widgets to enable X's customers to track their widget orders from origination to delivery, whether by air, land or ship. In addition, at the request of a customer, X will be able to intercept and return or reroute packages prior to delivery. At the time X undertakes its software development activities, X is uncertain whether it can develop the real-time communication software necessary to achieve its objective. None of X's competitors have a comparable tracking system. X commits substantial resources to the development of the system and, because of technical risk, X cannot determine if it will recover its investment within a reasonable period.

(ii) Conclusion. X's computer software is developed primarily for X's internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's computer software was developed to be used by X in providing noncomputer services to its customers. X's software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section because, at the time the research is undertaken, X's software is designed to provide a new tracking capability that is novel in that none of X's competitors have such a capability. Further, the new capability differs in a significant and inventive way from prior software implementations. In addition, X's development activities involved significant economic risk in that X committed substantial resources to the development and there was substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available for use by X.

Example 6. (i) Facts. X, a multinational chemical manufacturer with different business and financial systems in each of its divisions, undertakes a software development project aimed at integrating the majority of the functional areas of its major software systems into a single enterprise resource management system supporting centralized financial systems, inventory, and management reporting. This project involves the detailed analysis of X's (as well as each of X's divisions') legacy systems to understand the actual current business processes and data requirements. X also has to develop programs to fill in the gaps between the software features and X's system requirements. X hires Y, a systems consulting firm to assist with this development effort. Y has experience in developing similar systems. X, working jointly with Y, evaluates its needs, establishes goals for the new system, re-engineers the business

processes that will be made concurrently with the implementation of the new system, and chooses and purchases a software system upon which to base its enterprise-wide system.

(ii) Conclusion. X's enterprise-wide computer software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's computer software was developed to be used by X to serve X's general and administrative functions. However, the development of X's enterprise management system does not satisfy the high threshold of innovation test of paragraph (c)(6)(vi) of this section because the system that X is seeking to develop is not intended to be unique or novel. Further, the software does not differ in a significant or inventive way from software implemented by other manufacturers.

Example 7. (i) Facts. X, a financial services company specializing in commercial mortgages, decides to support its ongoing expansion by upgrading its information technology infrastructure. In order to accommodate its expanding efforts to acquire and maintain corporate borrowers and draw securitized loan investors, X builds a scalable and modular enterprise network to run its latest business applications, including web-based portfolio access for investors and staff, document imaging for customer service personnel, desktop access to information services for in-house securities traders and multimedia on-line training and corporate information delivery for all company personnel. As a result, X is able to access market information faster and function more efficiently and effectively than before. The new network is based on a faster local area network technology which is better able to meet the higher bandwidth requirements of X's current multimedia applications.

(ii) Conclusion. X's software is software developed primarily for X's internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's software development activities do not meet the high threshold of innovation test of paragraph (c)(6)(vi) of this section because the system is not intended to be unique or novel. Further, the software does not differ in a significant or inventive way from other existing software implementations.

Example 8. (i) Facts. X, a corporation, undertook a software project to rewrite a legacy mainframe application using an object-oriented programming language, and to move the new application off the mainframe to a client/server

environment. Both the object-oriented language and client/server technologies were new to X. This project was undertaken to develop a more maintainable application, and to be able to implement new features more quickly. X had to perform a detailed analysis of the old legacy application in order to determine the requirements of the rewritten application. To accomplish this task, X had to train the legacy mainframe programmers in the new object-oriented and client/server technologies that they would have to utilize. Several of X's competitors had successfully implemented similar systems using object-oriented programming language and client/server technologies.

(ii) Conclusion. X's software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's activities to rewrite a legacy mainframe application using an object-oriented programming language, and to move the application from X's mainframe to a client/server environment do not satisfy the high threshold of innovation test of paragraph (c)(6)(vi) of this section. The software developed is not intended to be either unique or novel and is not intended to differ in a significant and inventive way from prior software implementations or methods.

Example 9. (i) Facts. X, a retail and distribution company, wants to upgrade its warehouse management software. Therefore, X performs an analysis of the warehouse management products and vendors in the marketplace. X selects vendor V's software and, in turn, develops the software interfaces between X's legacy systems and V's warehouse management software in order to integrate the new warehouse management system with X's financial and inventory systems. The development of these interfaces requires a detailed understanding of all the input and output fields and their data formats, and how they map from the old system to the new system and vice-versa. Once X develops the interfaces, X has to perform extensive testing and validation work to ensure that the interfaces work correctly and accurately.

(ii) Conclusion. X's software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's software development activities do not satisfy the high threshold of innovation test of paragraph (c)(6)(vi) of this section because the software development does not involve significant economic risk in that there is no substantial uncertainty, because of technical risk, that

such resources will be recovered within a reasonable period.

Example 10. (i) Facts. X, a credit card company, knows that its customers are not comfortable with purchasing products over the Internet because they feel the Web is not secure. X decides to build a payment system that provides customers with a single use, automatically generated, short-term time-based, transaction number. This single-use transaction number has a short expiration period that is just long enough to allow a merchant to process and fill the customer's order. Thus, when a customer wishes to make a purchase over the Internet, the customer requests X to generate automatically a single-use transaction number that merchant systems will accept as a legitimate card number. All purchases using single-use transaction numbers are automatically linked back to the customer's credit card account. X commits substantial resources to the development of the system and X cannot determine, because of technical risk, if it will recover its investment within a reasonable period. At the time of this project, nothing exists in the market that has these capabilities.

(ii) Conclusion. X's software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's computer software is developed primarily for X's internal use because it was intended to be used by X in providing noncomputer services to its customers. X's software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section because the system is a novel way to solve the security issue of making purchases over the Internet. Further, because of the secure payment capability, the software differs in a significant and inventive way from prior software implementations. In addition, X's development activities involved significant economic risk in that X committed substantial resources to the development and there was substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available for use by X.

Example 11. (i) Facts. X, a corporation, wants to expand its internal computing power, and is aware that its PCs and workstations are idle at night, on the weekends, and for a significant part of any business day. Because the corporate computations that X needs to make could be done on workstations as well as PCs, X develops a screen-saver like application that runs on employee computers. When employees' computers have been idle for an amount of time

set by each employee, the "screen-saver" starts to execute. However, instead of displaying moving lines, like the typical screen-saver, X's application goes back to a central server to get a new job to execute. This job will execute on the idle employee's computer until it has either finished, or the employee resumes working on his computer. X wants to ensure that it can manage all of the computation jobs distributed across its thousands of PCs and workstations. In addition, X wants to ensure that the additional load on its network caused by downloading the jobs and uploading the results, as well as in monitoring and managing the jobs, does not adversely impact the corporate computing infrastructure. At the time X undertook this software development project, X was uncertain, because of technical risk, it could develop a server application that could schedule and distribute the jobs across thousands of PCs and workstations, as well as handle all the error conditions that occur on a user's machine. Also, at the time X undertook this project, there was no commercial application available with such a capability.

(ii) Conclusion. X's computer software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's computer software was developed to be used by X to serve X's general and administrative functions. X's software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section because making use of idle corporate computing resources through what is ostensibly a screen-saver, was a novel approach to solving X's need for more computer intensive processing time. In addition, X's software development involves significant economic risk in that there was substantial uncertainty, because of technical risk, that the server application that schedules and distributes the jobs across thousands of PCs and workstations, as well as handles all the error conditions that can occur on a user's machine, amounts to developing a new operating system with new capabilities. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available for use by X.

Example 12. (i) Facts. (A) X, a corporation, wants to protect its internal documents without building a large public key infrastructure. In addition, X needs to implement a new highly secure encryption algorithm that has a "back-door" such that X can decrypt and read any document, even when the employee is on vacation or leaves the company. X wants to develop a new encryption algorithm that is both secure, easy to use, and difficult to break. Current commercial encryption/decryption products are too slow for

high-level secure encryption processing. Furthermore, no commercial product exists that provides the capability of having a secure back-door key to decrypt files when the owner is unavailable.

(B) The development of the encryption/decryption software requires specialized knowledge of cryptography and computational methods. Due to the secret nature of X's work, the encryption algorithm has to be unbreakable, yet recoverable should the employee forget his key. X commits substantial resources to the development of the system and, because of technical risk, cannot estimate whether it will recover its investment within a reasonable period.

(ii) Conclusion. X's back-door file encryption software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's back-door file encryption software was developed to be used by X to serve X's general and administrative functions. X's encryption software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section because, at the time the research is undertaken, X's software is designed to provide encryption and back-door decryption capabilities that are unique in that no other product has these capabilities, which indicates the software encryption system differs in a significant way from prior software implementations. Further, the encryption and back-door decryption capabilities indicate that the software differs in a significant and inventive way from prior software implementations. In addition, X's development activities involved significant economic risk in that X committed substantial resources to the development and there was substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available for use by X.

Example 13. (i) Facts. X, a large regional telephone company, is experiencing rapidly increasing customer demand. X would like to determine whether evolutionary algorithms such as genetic algorithms may improve its ability to design cost-effective networks and extend existing networks. X would also like to determine whether such adaptive algorithms may be used to optimize the routing of call traffic across existing networks in order to use efficiently the resources available without causing congestion. X first explores the use of evolutionary algorithms for the call routing task, because X determines that this type of complex, unpredictable problem is most appropriate for an

adaptive algorithm solution. X develops and tests genetic algorithms until it determines that it has developed a software system it can test on a pilot basis on its existing networks. X commits substantial resources to the project, and cannot predict, because of technical risk, whether it will recover its resources within a reasonable period. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available for use by X.

(ii) Conclusion. X's software is developed primarily for internal use because the software is not developed to be commercially sold, leased, licensed, or otherwise marketed, for separately stated consideration to unrelated third parties. X's computer software is intended to be used by X in providing noncomputer services to its customers. X's software satisfies the high threshold of innovation test of paragraph (c)(6)(vi) of this section because the software is intended to be novel and is intended to differ in a significant and inventive way from other existing software implementations. In addition, X's development activities involved significant economic risk in that X committed substantial resources to the development and there was substantial uncertainty, because of technical risk, that such resources would be recovered within a reasonable period. Finally, at the time X undertook the development of the software, software satisfying X's requirements was not commercially available.

(ix) Effective date. This paragraph (c)(6) is applicable for taxable years beginning after December 31, 1985.

(7) Activities outside the United States, Puerto Rico, and other possessions--(i) In general. Research conducted outside the United States, as defined in section 7701(a)(9), the Commonwealth of Puerto Rico and other possessions of the United States does not constitute qualified research.

(ii) Apportionment of in-house research expenses. In-house research expenses paid or incurred for qualified services performed both in the United States, the Commonwealth of Puerto Rico and other possessions of the

United States and outside the United States, the Commonwealth of Puerto Rico and other possessions of the United States must be apportioned between the services performed in the United States, the Commonwealth of Puerto Rico and other possessions of the United States and the services performed outside the United States, the Commonwealth of Puerto Rico and other possessions of the United States. Only those in-house research expenses apportioned to the services performed within the United States, the Commonwealth of Puerto Rico and other possessions of the United States are eligible to be treated as qualified research expenses, unless the in-house research expenses are wages and the 80 percent rule of §1.41-2(d)(2) applies.

(iii) Apportionment of contract research expenses. If contract research is performed partly in the United States, the Commonwealth of Puerto Rico and other possessions of the United States and partly outside the United States, the Commonwealth of Puerto Rico and other possessions of the United States, only 65 percent (or 75 percent in the case of amounts paid to qualified research consortia) of the portion of the contract amount that is attributable to the research activity performed in the United States, the Commonwealth of Puerto Rico and other possessions of the United States may qualify as a contract research expense (even if 80 percent or more of the contract amount is for research performed in

the United States, the Commonwealth of Puerto Rico and other possessions of the United States).

(8) Research in the social sciences, etc. Qualified research does not include research in the social sciences (including economics, business management, and behavioral sciences), arts, or humanities.

(9) Research funded by any grant, contract, or otherwise. Qualified research does not include any research to the extent funded by any grant, contract, or otherwise by another person (or governmental entity). To determine the extent to which research is so funded, §1.41-4A(d) applies.

(10) Illustrations. The following examples illustrate provisions contained in paragraphs (c)(1) through (9) (excepting (c)(6)) of this section. No inference should be drawn from these examples concerning the application of section 41(d)(1) and paragraph (a) of this section to these facts. The examples are as follows:

Example 1. (i) Facts. X, a tire manufacturer, develops a new material to use in its tires. X conducts research to determine the changes that will be necessary for X to modify its existing manufacturing processes to manufacture the new tire. X determines that the new material retains heat for a longer period of time than the materials X currently uses and, as a result, adheres to the manufacturing equipment during tread cooling. X evaluates numerous options for processing the treads at cooler temperatures. X designs, develops, and conducts sophisticated tests on the numerous options for a new type of belt to be used in tread cooling. X then manufactures a set of belts for its production equipment, installs the belts, and tests the belts to make sure they were manufactured correctly.

(ii) Conclusion. X's research with respect to the design of the new belts to be used in its manufacturing of

the new tire may be qualified research under section 41(d)(1) and paragraph (a) of this section. However, X's expenses to implement the design, including the costs to manufacture, install, and test the belts were incurred after the belts met the taxpayer's functional and economic requirements and are excluded as research after commercial production under section 41(d)(4)(A) and paragraph (c)(2) of this section. In addition, amounts expended on component materials of the production belts and the costs of labor or other elements involved in the manufacture and installation of the production belts are not qualified research expenses. These expenses are not for expenditures that may be treated as expenses under section 174 and thus are not qualified research under section 41(d)(1)(A) and paragraph (a)(2)(i) of this section. See section 174(c) and §1.174-2(b). Further, testing or inspection to determine whether the production belts were manufactured correctly is quality control testing under §1.174-2(a)(4) and thus is not qualified research under section 41(d)(1)(A) and paragraph (a)(2)(i) of this section.

Example 2. (i) Facts. For several years, X has manufactured and sold a particular kind of widget. X initiates a new research project to develop a new or improved widget.

(ii) Conclusion. X's activities to develop a new or improved widget are not excluded from the definition of qualified research under section 41(d)(4)(A) and paragraph (c)(2) of this section. X's activities relating to the development of a new or improved widget constitute a new research project to develop a new business component. X's research activities relating to the development of the new or improved widget, a new business component, are not considered to be activities conducted after the beginning of commercial production under section 41(d)(4)(A) and paragraph (c)(2) of this section.

Example 3. (i) Facts. X, a computer software development firm, owns all substantial rights in a general ledger accounting software core program that X markets and licenses to customers. X incurs expenditures in adapting the core software program to the requirements of C, one of X's customers.

(ii) Conclusion. Because X's activities represent activities to adapt an existing software program to a particular customer's requirement or need, X's activities are excluded from the definition of qualified research under section 41(d)(4)(B) and paragraph (c)(3) of this section.

Example 4. (i) Facts. The facts are the same as in

example 3, except that C pays X to adapt the core software program to C's requirements.

(ii) Conclusion. Because X's activities are excluded from the definition of qualified research under section 41(d)(4)(B) and paragraph (c)(3) of this section, C's payments to X are not for qualified research and are not considered to be contract research expenses under section 41(b)(3)(A).

Example 5. (i) Facts. The facts are the same as in example 3, except that C's own employees adapt the core software program to C's requirements.

(ii) Conclusion. Because C's employees' activities to adapt the core software program to C's requirements are excluded from the definition of qualified research under section 41(d)(4)(B) and paragraph (c)(3) of this section, the wages C paid to its employees do not constitute in-house research expenses under section 41(b)(2)(A).

Example 6. (i) Facts. X manufacturers and sells rail cars. Because rail cars have numerous specifications related to performance, reliability and quality, rail car designs are subject to extensive, complex testing in the scientific or laboratory sense. B orders passenger rail cars from X. B's rail car requirements differ from those of X's other customers in that B wants fewer seats in its passenger cars and a higher quality seating material and carpet. X manufactures rail cars meeting B's requirements. X does not conduct complex testing in the scientific or laboratory sense on the rail cars manufactured for B.

(ii) Conclusion. X's activities to manufacture rail cars for B are excluded from the definition of qualified research. The rail cars designed for B were not subject to the type of complex testing that is indicative of a process of experimentation. Further, the rail car sold to B was not a new business component, but merely an adaptation of an existing business component. Thus, X's activities to manufacture rail cars for B are excluded from the definition of qualified research under section 41(d)(4)(B) and paragraph (c)(3) of this section because X's activities represent activities to adapt an existing business component to a particular customer's requirement or need.

Example 7. (i) Facts. X, a manufacturer, undertakes to create a manufacturing process for a new valve design. X determines that it requires a specialized type of robotic equipment to use in the manufacturing process for its new valves. X is unable to locate robotic equipment that meets X's precise specifications, and, therefore, purchases the

existing robotic equipment for the purpose of modifying it to meet its needs. X's engineers conduct experiments using modeling and simulation in modifying the robotic equipment and conduct extensive scientific and laboratory testing of design alternatives. As a result of this process, X's engineers develop a design for the robotic equipment that meets X's specifications. X constructs and installs the modified robotic equipment on its manufacturing process.

(ii) Conclusion. X's research activities to determine how to modify X's robotic equipment for its manufacturing process are not excluded from the definition of qualified research under section 41(d)(4)(B) and paragraph (c)(3) of this section.

Example 8. (i) Facts. An existing gasoline additive is manufactured by Y using three ingredients, A, B, and C. X seeks to develop and manufacture its own gasoline additive that appears and functions in a manner similar to Y's additive. To develop its own additive, X first inspects the composition of Y's additive, and uses knowledge gained from the inspection to reproduce A and B in the laboratory. Any differences between ingredients A and B that are used in Y's additive and those reproduced by X are insignificant and are not material to the viability, effectiveness, or cost of A and B. X desires to use with A and B an ingredient that has a materially lower cost than ingredient C. Accordingly, X engages in a process of experimentation to develop, analyze and test potential alternative formulations of the additive.

(ii) Conclusion. X's activities in analyzing and reproducing ingredients A and B involve duplication of existing business components and are excluded from the definition of qualified research under section 41(d)(4)(C) and paragraph (c)(4) of this section. X's experimentation activities to develop potential alternative formulations of the additive do not involve duplication of an existing business component and are not excluded from the definition of qualified research under section 41(d)(4)(C) and paragraph (c)(4) of this section.

Example 9. (i) Facts. X, a manufacturing corporation, undertakes to restructure its manufacturing organization. X organizes a team to design an organizational structure that will improve X's business operations. The team includes X's employees as well as outside management consultants. The team studies current operations, interviews X's employees, and studies the structure of other manufacturing facilities to determine appropriate modifications to X's current business operations. The team develops a recommendation of proposed modifications which it presents to X's management. X's management approves the team's recommendation and begins

to implement the proposed modifications.

(ii) Conclusion. X's activities in developing and implementing the new management structure are excluded from the definition of qualified research under section 41(d)(4)(D) and paragraph (c)(5) of this section. Qualified research does not include activities relating to management functions or techniques including management organization plans and management-based changes in production processes.

Example 10. (i) Facts. X, an insurance company, develops a new life insurance product. In the course of developing the product, X engages in research with respect to the effect of pricing and tax consequences on demand for the product, the expected volatility of interest rates, and the expected mortality rates (based on published data and prior insurance claims).

(ii) Conclusion. X's activities related to the new product represent research in the social sciences (including economics and business management) and are thus excluded from the definition of qualified research under section 41(d)(4)(G) and paragraph (c)(8) of this section.

(d) Recordkeeping for the research credit. A taxpayer claiming a credit under section 41 must retain records in sufficiently usable form and detail to substantiate that the expenditures claimed are eligible for the credit. For the rules governing record retention, see §1.6001-1. To facilitate compliance and administration, the IRS and taxpayers may agree to guidelines for the keeping of specific records for purposes of substantiating research credits.

(e) Effective dates. In general, the rules of this section are applicable for taxable years ending on or after December 26, 2001.

Par. 5. Section 1.41-8 is amended by:

1. Revising the section heading.

2. Revising paragraph (b)(4).

The revisions read as follows:

§1.41-8 Special rules for taxable years ending on or after December 26, 2001.

* * * * *

(b) * * *

(4) Effective date. Paragraphs (b)(2) and (3) of this section are applicable for taxable years ending on or after December 26, 2001.

Charles O. Rossotti

Commissioner of Internal Revenue