

The Research and Experimentation Tax Credit: A Credit Fraught with Uncertainty and in a Process of Experimentation

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Abstract

Purpose – The purpose of this paper is fourfold: to provide an overview of the alternative simplified credit (ASC) and a basic understanding of how it works; to provide a brief history of the research and experimentation credit as a whole and its evolution; to emphasize the importance of this credit to companies in maintaining a commanding research and development presence in the USA; and lastly to discuss hot topics/issues relating to the taxpayer as they pertain to capturing the maximal value of qualifying research expenditures (QREs) and sustaining this credit upon IRS examination.

Design/methodology/approach – The driver for this article came from interviews and discussions with CEOs, Vice Presidents, VPs of Tax and Director level engineers and scientists over the past two years who have demonstrated great interest in capturing the benefits from the credit but was unclear as to how to proceed.

Findings – Directors overseeing research and development commonly misclassify research and development expenses as something else. For example, specialized computer software that is used in research and development may be misclassified as general and administrative expenses. Other times, companies performing research and development do not realize that the work they perform qualifies for the research and experimentation tax credit. Consultants can potentially save a significant amount of tax dollars by carefully examining client records, interviewing client personnel to gain an understanding of a client's R&D spend to see if reclassification is possible and justifiable.

Originality/value – The author clearly describes the workings of the ASC and the status of the research and experimentation credit as a whole. The paper provides an overview of the subject, and is written so that the messages can be understood by senior management who do not necessarily possess highly tax technical knowledge. It also touches upon some interesting aspects of optimization as they relate to capturing and defending the research and experimentation credit. The author's ideas of integrating operations management and operations research tools and methodologies in optimizing the defensibility of the research and experimentation tax credit are novel and appear to be very promising.

Keywords Taxes, Research and development, Tax planning, Optimization techniques, Operations management

Paper type Research paper

1. Introduction

The purpose of the research and experimental (R&E) tax credit is to encourage research and development of new technologies and processes. Many refer to the research and experimental credit as the research and development (R&D) credit and in practice the two are used interchangeably.

The tax law allows two separate credits. The first credit is for incremental research expenditures and is available to all entities. The second credit, the basic research credit, is available only to corporations. The incremental credit is equal to 20 percent of the



qualified research expenditures in the current year in excess of the base amount. Qualified expenditures need to be technical in nature and intended to be useful in the development of a new or improved business component to the firm (Holtzman, 2006).

From a strategic new product development viewpoint, investments in product development are very different than investments in research. The end result of a product development investment is a new product. The goal is clear, and the activities followed to get there are reasonably well defined. Investments in research, on the other hand, are aimed at creating, acquiring, or improving core competencies or other capabilities that will be used on future products. The results of research efforts could be a new material, new process, new chemistry, or new electronic module, which is then applied to establish innovative product differences or a new product platform. The R&D tax credits facilitate companies' capacity to lower their cost of performing R&D (Holtzman, 2006). Many manufacturing and technology companies use a metric called the research and development effectiveness index (RDEI) which equals the ratio of the new products' profits to the products' R&D investment costs and time to market, a metric of speed for the idea-to-market innovation process. The effective utilization of federal and state tax credits can increase the first ratio while lowering the second.

Industrial expenditures on research and development (R&D) are approximately 10 percent of US gross domestic product (Cohen, 2006). Most companies are interested in maximizing and optimizing the deployment of their research and development dollars and therefore should at very least be cognizant of the direct and indirect benefits attributable to the research and experimental credit.

2. Discussion of applicable law

Quantification of qualified activities under Internal Revenue Code § 41

The R&D tax credit was originally enacted as part of the Economic Recovery Tax Act of 1981 ("the act")[1]. The purpose of enacting the R&D tax credit was to encourage companies to perform the research necessary to increase the innovative qualities and efficiency of the US economy. Prior to 1986, Congress believed that the credit provision was applied too broadly in practice. In general, the definition of qualified research as stated in the act means research that involves engaging in a process of experimentation to discover technological information, which is intended to be useful in developing new or improved functional aspects of the taxpayer's products or manufacturing processes[2]. The current R&D tax credit is codified in § 41 of the Internal Revenue Code of 1986[3].

Beginning in 2009 § 41 of the code provides that the alternative simplified research credit (ASC) for the taxable year shall be an amount equal to the sum of 14 percent of the excess of the taxpayer's "qualified research expenses" (QREs) for the taxable year over 50 percent of its average QREs in the three previous tax years[4]. Qualified research expenses means the sum of "in-house research expenses" and "contract research expenses" incurred by the taxpayer during the taxable year in carrying on a trade or business[5]. In-house research expenses include amounts incurred by the taxpayer in the form of wages[6] for "qualified services" and for supplies[7] used in the conduct of these services[8]. Qualified services mean the performance of "qualified research", or engaging in the direct supervision or direct support of those who are performing qualified research[9]. Contract research expenses include 65 percent of the amount paid by the taxpayer to any person other than an employee for qualified research, as long as the contract is entered into prior to the performance of the qualified

research activity. In addition, the research must be performed on behalf of the taxpayer, and requires the taxpayer to bear the expense of the research even if the project is unsuccessful, and the taxpayer retains substantial rights in the technology[10].

Qualified research is defined as research activities which:

- have expenditures that may be treated as expenses under IRC § 174;
- are “technological-in-nature”;
- are intended to result in a “new or improved business component”; and
- constitute a “process-of-experimentation”[11].

Internal Revenue Code § 174

The first requirement is that the activities must be eligible for expensing under IRC § 174. For the past 45 years, IRC § 174 has served to accomplish the dual objectives of encouraging investment in research and development and providing certainty of tax treatment for businesses making such expenditures. Congress has reconfirmed its intent that these objectives be accomplished by maintaining, without modification, the applicability of IRC § 174 to all “research and experimental expenditures.” Further, by utilizing the IRC § 174 definition as the starting point for eligibility for the IRC § 41 credit, Congress effectively has twice ratified that definition and its long standing interpretation from the 1957 regulation[12]. To determine qualified research, the first requirement is that the activities be eligible for the § 174 expensing election. Section 174 applies to “research or experimental expenditures” which are incurred by the taxpayer in connection with its trade or business[13]. The term research or experimental expenditures is not clearly defined.

The current regulations provide that “the term, research or experimental expenditures, as used in section 174, means expenditures incurred in connection with the taxpayer’s trade or business which represents research and development costs in the experimental or laboratory sense. The term includes generally all such costs incident to the development of or improvement of a product”[14]. When interpreting this term the Tax Court[15] and the IRS[16] have stated that § 174 includes costs incurred in developing the concept of the process as opposed to constructing the actual process itself. Implicit in the development of a concept is the creation of something that is currently unknown.

The common theme in the plain English definition of “research or experimental”, and the treasury regulations, case law, and IRS rulings interpreting these terms is the concept of an unknown. Uncertainty is the state of not knowing something[17]. Thus, there must be some uncertainty present in order for activities to be considered research and experimental. Recent commentary suggests that § 174 should apply to the cost of research activities when the taxpayer is either: unsure of whether it can develop or produce an asset; or unsure of how to develop or produce a particular asset[18]. In addition, Treasury Regulation § 1.174-2 provides in part that:

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 or the appropriate design of the product. For purposes of this section, the term product includes any pilot model, process, formula, invention, technique, patent . . .[19].

Technological in nature

The second requirement is that the taxpayer must be discovering information that is technological-in-nature. An activity is technological-in-nature if it fundamentally relies on the principles of the physical or biological sciences, engineering, or computer science[20].

New or improved business component

The third requirement is that the activities must be intended to result in a new or improved business component. A business component means any product, process, computer software, technique, formula, or invention which is held for sale or used by the taxpayer in its trade or business[21]. The activities must be intended to result in a new or improved function, performance, reliability, or quality of the business component[22]. In regard to the business component, production processes are treated as a business component separate and distinct from the product[23].

Process of experimentation

The fourth requirement is that substantially all of the activities constitute elements of a process-of-experimentation[24]. The term process-of-experimentation means a process involving the evaluation of one or more alternatives designed to achieve a result where the means of achieving that result are uncertain at the outset[25]. This may involve developing one or more hypotheses, testing and analyzing those hypotheses, and refining or discarding the hypotheses as part of a sequential design process to develop the overall business component[26]. The committee reports state clearly that in order for an activity to constitute a process of experimentation, the taxpayer only has to be uncertain regarding the means of achieving the desired result, not uncertain as to whether or not the desired result can be achieved at all.

The first and fourth requirements stated above are both based on the concept of uncertainty. Therefore, in order for development activities to be research or experimental in the § 174 sense and constitute a process-of-experimentation in the § 41 sense, uncertainty must exist at the outset of the activity. The taxpayer must be either: unsure of whether it can develop or produce a new or improved product or process; or unsure of how to develop or produce a particular new or improved product or process.

In summary, in order for research activities to constitute research, the following four requirements must be met:

- (1) The research activities must fundamentally rely on the principles of engineering or computer science.
- (2) The research activities must be intended to result in a new or improved function, performance, reliability, or quality of the product or process being developed.
- (3) Some uncertainty must exist at the outset of the activity regarding either:
 - whether the desired result can be achieved; or
 - how the desired result can be achieved.
- (4) A process of experimentation is undertaken to address this uncertainty.

Excluded activities

Qualified research does not include any research conducted after the beginning of commercial production or use of a business component[27]. Commercial production is deemed to begin when the business component has been developed to the point where it either meets the basic functional and economic requirements of the taxpayer for such business component, or is ready for commercial sale or use[28]. Expenditures incurred after this point in time are not eligible for the credit.

There are additional activities which are excluded from the definition of qualified research[29]. These other exceptions are either not applicable to Veeco or apply on a limited basis, and will be discussed below where applicable.

Qualified research also excludes the cost of acquiring or producing fixed assets used in the taxpayer's trade or business:

Amounts expended for research or experimentation do not include the costs of the component materials of the depreciable property, the costs of labor or other elements involved in its construction and installation, or costs attributable to the acquisition or improvement of the property[30].

Qualifying costs

The qualifying costs allowable under IRC § 41 include in-house research expenses, which are wages, supplies, certain computer rental costs, and contract research expenses[31].

Wages

In the determination of qualifying costs, includable wages are defined as “any wages paid or incurred to an employee for qualified services performed by such employee”[32]. Based on this statement, the definition of wages and qualified services requires additional guidance to determine the proper amounts to include for calculating the R&D tax credit. First, wages generally mean the amount determined for inclusion in the employee's Form W-2 under IRC § 3401(a)[33]. There are additional codified rules regarding self-employed individuals and wage subject to the targeted jobs credit. These will not be discussed in any detail here since these situations did not arise at Veeco. The next issue is determining what constitutes qualified services. According to the IRC, qualified services mean services consisting of:

- engaging in qualified research; or
- engaging in the direct supervision or direct support of research activities, which constitute qualified research[34].

Direct supervision is further defined by the regulations to mean “the immediate supervision of qualified research (as in the case of a research scientist who directly supervises laboratory experiments, but who may not actually perform experiments)”[35]. Direct support activities mean services in the direct support of either:

- persons engaging in actual conduct of qualified research; or
- persons who are directly supervising persons engaging in the actual conduct of qualified research. For example, direct support of research includes the services of a secretary for typing reports describing laboratory results derived from

qualified research, of a laboratory worker for cleaning equipment used in qualified research, of a clerk for compiling research data, and of a machinist for machining a part of an experimental model used in qualified research . . .[36]. Excluded from this definition are individuals performing services related to the preparation of user manuals, etc.

Finally, if substantially all the services of the employee meet the above requirements of qualified research, then qualified services for determining the amount eligible for the R&D credit mean all the services performed by the employee qualify for the credit. As defined by the regulations, substantially all means 80 percent[37]. Therefore, if an employee performs qualified R&D services at least 80 percent of the time, then 100 percent of his Form W-2 wages are eligible for the R&D tax credit.

Supplies

Supplies used and consumed in the conduct of qualified research are eligible for the R&D tax credit. Once the qualified research has been determined, the supplies relating to the research activity may be quantified. “The term ‘supplies’ means any tangible property other than – (i) land or improvements to land, and (ii) property of a character subject to the allowance for depreciation”[38]. Furthermore, “research or experimental expenditures” as used in section 174 of the IRC defines expenditures that represent research and development costs in the experimental or laboratory sense and state that the term includes generally all such costs incident to the development of an experimental or pilot model (i.e. prototype), a plant process, a product, a formula, or similar property, and the costs of obtaining a patent[39].

Contract R&D

Contract research expenditures are eligible for the R&D tax credit at 65 percent of the actual expense paid to a contractor other than an employee for the performance for the performance of qualified research on behalf of the taxpayer. All the qualified research tests outlined above must be met relative to the contract research. In addition, an expense is only considered “incurred for the performance of qualified research” if the contract or agreement:

- is entered into prior to the performance of the qualified research;
- provides that research be performed on behalf of the taxpayer; and
- requires the taxpayer to bear the expense even if the research is not successful (at risk)[40].

The Treasury regulations provide further guidance to define “performed on behalf of the taxpayer.” This guidance states that the taxpayer must retain rights in the research results; however, exclusive rights are not required[41].

3. The research and development tax credit: how does it all work?

The research tax credit, provided for pursuant to section 41 of the internal revenue code (IRC), is a federal income tax incentive providing a dollar-for-dollar reduction of a company’s otherwise computed federal tax liability. The credit is incremental in nature and is computed as 20 percent (13 percent if the reduced credit is elected pursuant to section 280C(c) on a timely filed return) of current year qualified research expenses

incurred in excess of historical research spending, subject to the application of the 50 percent base limitation. The research credit was enacted to encourage businesses to increase their research and development spending. In addition, to the federal research credit many states also provide similar tax incentives for research activities, which are often modeled after the federal credit (Carter, 2006).

Federal and state research credits offer eligible companies significant tax and financial benefits including:

- reduced federal and state effective tax rates;
- increased earnings per share;
- increased cash flows; and
- the ability to fund future or additional research activities (Willis, 2010).

Furthermore, the 20 percent research tax credit is not a deduction but rather it is an actual dollar-for-dollar credit against taxes owed or taxes paid and in addition, the taxpayer may be able to expense all such costs in the year incurred. There are additional opportunities to implement other tax saving strategies including state tax credits and expensing versus capitalizing under section 174.

Research and development costs are those costs incurred in connection with the taxpayer's trade or business, which are experimental. This includes all costs incident to the development or improvement of a product, such as the costs of obtaining a patent, producing a pilot model, process, formula, invention, technique or similar property. For regular tax purposes, section 174 indicates that a taxpayer has several choices:

- An election may be made to expense research and development expenses in the year in which they are incurred. Alternatively, a ten year write-off may be chosen for all or part of the costs incurred during the year.
- These expenditures may be treated as deferred expenses and amortized over a 60 month period. This particularly applies to property that has no determinable useful life.
- These expenses may be capitalized over the property's useful life.

4. Alternative simplified method for claiming the research credit

On June 17, 2008, the IRS issued final and temporary regulations (T.D.9401, Temp. Regs. Secs. 1.41-6T(j), 1.41-8T(b)(5), and 1.41-9T(d)) relating to the alternative simplified credit (ASC) method of computing the research and experimentation credit under Sec.41(c)(5). The ASC was enacted in December 2006 as a part of the Tax Relief and Health Care Act of 2006, P.L. 109-432. Before the addition of the ASC, Sec.41 allowed the taxpayer to choose between two other calculation methodologies: the regular research credit (RRC) and the alternative incremental research credit (AIRC). It is important to note at the outset, that section 41 is not permanent and of the writing of this article (April 2010) is currently expired.

The RRC calculation methodology is complicated and involves a computation of a "base amount" which requires historical qualified research expenses (QREs) and gross receipts going back to the 1984-1988 period as well as an average of the gross receipts for the last four years. The AIRC calculation methodology is somewhat simpler in that no historical QREs are needed to compute the base amount, but there is still a gross receipts component to the calculation. The ASC simplified the calculation of the credit

by limiting the base period computation solely to the use of average QREs incurred over the prior three-year period with no inclusion of gross receipts in any portion of the calculation.

In addition, the ASC includes a special provision that allows taxpayers to take the credit even if they do not have QREs in all three of the preceding tax years.

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5. Calculating the research credit using the ASC

The ASC is calculated by multiplying the total amount of current year QREs that exceed 50 percent of the average of the three prior years by 12 percent (2008) 14 percent (2009) see Table I. For taxpayers that did not have QREs in any of the three prior tax years, the credit is calculated using 6 percent of current year QREs. Also, if any of the three prior tax years are short years, the total QREs for the short tax year must be annualized before being included in the calculation. For a controlled group of corporations, the research credit is computed for each single entity using the method that provides the greatest credit at the single entity level. The credit is then calculated at the group level to determine the method that produces the greatest group credit.

Each single entity is then allocated a portion of the total group credit based on a percentage of the individual credit to the total of all the individual credits computed at the single entity level regardless of what method was used to compute each credit. For example, group XYZ has the greatest combined credit using the ASC (see Table II).

At the single-entity level, the greatest credit for A is created using the regular method, the greatest credit for B is created using the AIRC, and the greatest credit for C is achieved using the ASC. The total group credit is then allocated to each entity based on the regular credit for A, the AIRC for B, and the ASC for C. Table III demonstrates the computation of the group credit and the allocation of the credit among the companies included in the controlled group.

Table I.
Simplified ASC
computation example

Total QREs, current year	(A)	\$400,000
QREs first preceding year		300,000
QREs second preceding year		280,000
QREs third preceding year		250,000
Total QREs for the three preceding years		\$830,000
Average QREs for the three preceding years		276,666
50 percent of average QREs for the three preceding years	(B)	138,333
(A)-(B)	(C)	216,667
Credit 14 percent of (C)		30,333

Table II.
ASC computation
(controlled group)

		\$
QREs – current year	(A)	100X
Average QREs for three preceding years		80X
50 percent of average QREs for three preceding years	(B)	40X
(A)-(B)	(C)	60X
Credit 14 percent of (C)		8.4X

Election and reporting

To make a valid election of either the ASC or AIRC calculation methodology, a Form 6765, credit for increasing research activities, must be filed with the taxpayer’s timely filed return (including extensions). However, the regular research credit calculation may be claimed on Form 6765 on either a timely filed return (including extensions) or an amended return for which the statute of limitation has not run. The election to use the regular, AIRC or ASC method is made by filing the form using the method chosen. For the AIRC or ASC, once chosen, the taxpayer must use the calculation methodology each year until the taxpayer revokes this election. The taxpayer may revoke a prior election for the ASC or the AIRC by filing the subsequent year’s form using a different method. However, once either the ASC or AIRC is elected for the current tax year, the taxpayer cannot change the election on an amended return.

For controlled groups, the election is made on the return of the designated member. Under Regs.Sec. 1.41-8(b)(4)(ii), the designated member is defined as the “member” of the group that is allocated the greatest amount of the group credit under Regs. Sec. 1.41-6(c). All members of the controlled group must follow this election and file Form 6765 using the same method.

6. The alternative simplified credit in practice

The ASC methodology has allowed many taxpayers to begin claiming the research credit for the first time or to increase the amount of credit claimed. There are several types of taxpayers who find the ASC methodology beneficial. Many taxpayers, especially many small to midsize companies in manufacturing industries that I have spoken with over the past couple of years have expressed their renewed excitement about the possibility of claiming the R&E credit. Historically, they were limited in their ability to claim the credit due to a lack of historical records required to document their base period (for many of these manufacturing companies for the period 1984-1988). For other groups of taxpayers, such as those in the pharmaceuticals and software industries, the inclusion of gross receipts as part of the base amount calculation substantially limits the amount of the research credit received because their QREs did not increase as fast as their gross receipts. Yet another example of a group of taxpayers that benefit from selecting the ASC regime of calculating their R&D tax credit are banking and insurance companies, with historically very low levels of QREs relative to gross receipts (GR). Many of these taxpayers would never have considered taking the R&D credit because the available calculation methodologies all included a base amount with a gross receipt component. The ASC methodology provides a simplified way to calculate the research credit using recent QREs without any gross receipts component in the base amount calculation.

	Company A	Company B	Company C	Company D
Stand alone entity credit	0	\$1.2X	\$3X	\$4.2X
Allocation ratio (stand alone entity credit)	0/4.2	1.2/4.2	3/4.2	
Multiplied by group credit	\$3.6X	\$3.6X	\$3.6X	
Equals credit allocated to each member	\$0	\$1.03X	\$2.57X	\$3.6X

Table III.
Credit allocation to each
entity (controlled group)

The research and experimentation tax credit (R&E tax credit) has a well deserved reputation for difficulty and complexity of implementation and uncertainty for taxpayers, the research credit code section 41 nevertheless remains a valuable source of support to businesses that conduct qualified research and development. In fiscal year 2009 alone, the credit represented an estimated \$5.7 billion federal subsidy for R&D.

From the government's perspective, although questions persist over whether the temporary credit effectively and equitably accomplishes its goal of encouraging new research and development, Congress has renewed it almost continually for 28 years and has often advanced proposals to make it permanent part of the tax code. Many of the provision's difficulties derive from its perennially temporary status. The Government Accountability Office in a recent study concluded that the credit did foster innovation and economic growth, reducing businesses' costs of new qualified research by between 6.4 and 7.3 percent (the research tax credit's design and administration can be improved, GAO-10-136). Nevertheless, the GAO recommended that Congress amend the law and that the treasury department provide new guidance, which the latter agreed to do.

As of this writing (April 2010), the R&D credit is among a number of "extender" provisions still awaiting congressional authorization for 2010. This would be the 14th temporary extension of the credit and the ninth retroactive extension in a row.

Challenging issues for the R&D credit

Despite a consensus in Congress that the R&D credit is a valuable incentive, its administration has been complicated by uncertainty in a number of areas, as identified by the GAO, most notably:

- disparities between taxpayers in the amount and incentive effects of the credits received;
- what costs constitute qualified research expenses (QREs) eligible for the credit; and
- the required manner of documenting and substantiating those expenses.

Different methodologies can deliver very different outcomes

The R&D tax credit is for taxpayers of any size that design, develop or improve products, processes, techniques, formulations or software. It is calculated on the basis of incremental increases in research activities and expenditures; thus it is intended to reward, in general, those whose R&D programs are growing and pursuing innovation with continually increasing investment. However an alternative simplified credit method (ASC) allows taxpayers to claim research credits if research costs remain the same or even decline when compared with prior years (Willis, 2010).

One generally acknowledged shortcoming of the R&D credit is that its regular method of calculating the credit (the regular research credit, RRC) utilizes a base period that can reach back as far as 1984, with disparate results that can reward some taxpayers with substantial benefit and completely deny a credit to others. The GAO recommended that Congress consider eliminating the RRC in favor of a revised version of the only other method available for tax years beginning on or since January 1, 2009, the alternative simplified credit. The ASC became available in 2007; it replaces the alternative incremental research credit (AIRC).

Which calculation method should a taxpayer utilize?

Taxpayers should carefully analyze which of the two credit calculation methods, the RRC or the ASC, may yield the best results as well as determine whether the components of the calculation are readily available and can be sufficiently documented.

Taxpayers that have the following fact pattern may benefit from utilizing the ASC:

- incomplete records to document the startup base period;
- high base amount under the RRC;
- substantial amount of mergers, acquisitions and dispositions; and
- significant growth of gross receipts in recent years.

Calculating and substantiating the RRC can be challenging. Election of the ASC relieves much of the administrative burden by shifting the measurement of research incrementally over the three prior years.

For some taxpayers, one key benefit in choosing the ASC is the elimination of the gross receipts from the equation if the facts reflect a rising revenue stream. In addition, manufacturing and high technology companies may benefit from this change if their facts reflect a limitation in the amount of RRC available to them due to a shift in the relationship of QREs to gross receipts from the base period to those in recent years.

For example, a chemical manufacturer during the period 1984-1988, it was common for these companies to spend substantial amounts on R&D in relation to sales. As these chemical manufacturers in later years increased productivity by developing more efficient and cost effective processes, their relative sales may have increased faster than their increase in research spending. As a result, the ratio of QREs to gross receipts has been decreasing effectively limiting the amount of credit available under the RRC (see Table I).

Even with decrease in current QREs, the taxpayer can still claim the credit under the ASC method. Under the RRC method, a similar decrease in QREs can significantly limit even eliminate the ability to claim the credit – even more so with higher fixed base percentages.

7. The capturing of eligible QREs

The costs eligible for the research credit as QREs must meet the definition of IRC Code Section 174, which permits a taxpayer to elect either to deduct R&E expenditures or to amortize the costs over a period of not less than 60 months. The grouping of expenses that are included are: in house wages; supplies attributable to qualified research; and 65 percent of contract research expenses, that is, amounts paid to outside contractors in the US for conducting qualified research on the taxpayers behalf.

The phrase “research or experimental expenditures” is a term of art for tax purposes. As a practical matter, most corporate taxpayers use their financial accounting system determination of R&D costs as a starting point in calculating their research and development costs for tax purposes. Moreover the IRS requires that the taxpayer provide a more complete justification of the costs as research or experimental expenditures for tax purposes where the costs might be classified as R&D for financial statement purposes.

Beyond the regulations under IRC code section 174, the term “research or experimental expenditures” in that provision has not been the focus of substantial

interpretation by the courts and IRS. The 1986 Tax Reform Act targeted the definition of qualified research with respect to which the credit is allowed. Initially, the term “qualified research” is defined as research with respect to which expenditures may be treated as expenses under section 174. In addition, section 41(d) sets forth three other requirements, some of which have been subject to extensive disagreement and controversy between the IRS and taxpayers. In order to constitute qualified research:

- the research must be performed to discover information that is technological in nature;
- the vast majority of all of the research activities must constitute a process of experimentation; and
- the experimentation needs to relate to a permitted purpose.

The definition is wide-ranging and includes such activities as:

- streamlining/enhancing internal processes;
- developing prototypes or models;
- developing new technologies;
- developing new products;
- improving/developing software technologies;
- environmental testing;
- certification testing; and
- improving manufacturing facilities.

8. Research credit supporting documentation

In order to successfully sustain a credit claim, a taxpayer must substantiate its qualified research. This involves preparing, filing and retaining documentation on paper or electronically. There have been several court cases over the past few years reflecting the challenges and the friction between the IRS and taxpayers in administering the research credit. Some of the most recent court cases, such as *United States vs. McFerrin* (docket no. H-05-3730, S.D. Texas, vacated and remanded, 5th Cir. 2009) and *Union Carbide Corp. v. Commissioner* (TC Memo 2009-50), have addressed research credit substantiation and credible documentation, a key issue in IRS examinations. In these cases, the courts ruled that the taxpayers, in the absence of certain contemporaneous records such a time tracking or project accounting system, may still use an estimation of research and development expenses by obtaining the testimony of credible personnel (subject matter experts (SMEs)). There is real merit and value in gathering documentation with a real time approach in which contemporaneous documentation for the 2010 tax year is collect during 2010. This is accomplished as several site visits to the clients R&D and manufacturing locations in real time and this should provide for stronger substantiation and sustainability upon audit. To effectively and efficiently implement such a model we can lean on some of the tools available in process optimization and process mapping, where for example, the four-part-test and the additional three part test for internal use software are surgically introduced into a company’s product lifecycle. To successfully implement such an operational plan one needs to gain a thorough understanding of the clients industry

and products. This work does need to be customized on a client-by-client basis, and the success or failure of such an undertaking is buried in the granular details of the project.

Other considerations

Research and experimental (R&E) expenses alternately may be deducted or capitalized. Under section 174 the taxpayer must elect either to deduct or amortize such expenses or, on the other hand, claim the credit for them, but may not do both. Under section 280C(c), taxpayers may reduce their deduction or amortization by the amount of the expenses for which they claim a credit. They may also elect to reduce their credit in proportion to an increased deduction or amortization, but this election must be made before the filing date for the taxable year and is irrevocable.

As mentioned above, the ASC election must be made on the original return; however the taxpayer can file Form 6765, credit for increasing research activities, with the ASC election as a placeholder in the original return and file an amended claim later. This is not the situation with the regular research credit (RRC), where the taxpayer does not need to make an election on the original return.

The R&D credit is also subject to the limitations of the general business credit. The total of it and others of the 35 incentive credits enumerated in section 38(b) are limited to 25 percent of the taxpayer’s net tax liability over \$25,000. To the extent that a research credit is not available for use in the current year or immediate prior year, unused credits have a 20-year carryforward.

The Housing and Economic Recovery Act of 2008 provides tax relief for corporations in alternative minimum tax (AMT) or net operating loss (NOL) positions. Companies can elect to accelerate a portion of their unused research credit carryforwards in lieu of the 50 percent “bonus” depreciation enacted as part of the Economic Stimulus Act of 2008. Any company that is making or plans on making capital expenditures and has significant R&D tax credit carryforwards might benefit from this legislation. The 50 percent bonus depreciation provision expired on December 31, 2009.

In addition to the federal R&D tax credit, research tax credits have been put in place by many of the states. While the states generally follow the federal credit, it is strongly recommended to confirm with the appropriate state authorities.

The research tax credit has also been designated a Tier 1 issue by the IRS, which requires the IRS to follow certain protocols when reviewing R&D credit claims.

Substantiating the research tax credit

Research tax credits present unusual problems of documentation and support. Substantiating activities and expenses to meet the statutory definition of “research” often requires subjective judgments, subject to disparate interpretations. These issues often play out in contentious IRS examinations of the research credit. Developments over the past year have given taxpayers some much-needed guidance in this area.

Ever since the IRS designated research tax credit refunds as a Tier I examination issue, IRS examinations of the credit have been increasingly difficult. IRS examiners routinely deny research credit claims by requiring taxpayers to adhere to exacting documentation standards. Although specific documentation standards have been a part of treasury regulations under section 41 or other guidance to taxpayers, examiners have imposed strict requirements in order to limit research credit claims.

Developments during the past year demonstrate that there has been some movement on documentation issues. Two significant cases – *McFerrin*, 570 F.3d 672(5th Cir. 2009), and *Union Carbide Corp.*, T.C. Memo. 2009-50 have allowed more flexibility in documenting the research tax credit.

In the *McFerrin* case, the taxpayer filed a claim for refund for the 1999 tax year based on a flow through of research tax credits from four subchapter S corporations. Although the IRS paid refund claims to the S corporation shareholders, it later filed suit to recover the refunds as erroneously issued under Section 7405. The case ended up in the US district court. The government argued that there was insufficient documentation to support the research tax credit because the taxpayer relied on estimates in determining qualified research expenses. The district court ruled in favor of the government and disallowed the tax refunds based on the research tax credit.

On appeal, the Fifth Circuit reversed the district court and reinstated the tax refunds. The court held that taxpayers can use a fair estimate of time and expenses to calculate the credit. The court held that subject matter expert (SME) testimony and other knowledge of employees is acceptable in arriving at a fair estimate of QREs and ultimately the credit.

Shortly after the *McFerrin* decision, the tax court offered its opinion on the research tax credit in the *Union Carbide Corp.* case. The taxpayer filed claims for refund based on additional expenses that it strongly held that now qualified for the research tax credit. On its originally filed return, *Union Carbide* claimed research tax credits that the IRS accepted. This was followed by *Union Carbide* filing amended returns to claim additional research expenses incurred in process improvements in *Union Carbide's* production runs. The additional credits were under issue with the tax court.

Even though the government prevailed with respect to the amount of the additional qualified research expenses eligible for the credit, there were several rulings that were favorable to the taxpayer. *Union Carbide* did not maintain detailed time records for employees engaged in R&D. To determine the amount of wages of those engaged in research at the company, employees made estimates of hours spent on various projects and later testified as to the time allocation. The tax court ruled that the testimony of employees of the estimated time spent on research was credible and sufficient to substantiate the wages paid to those employees. The tax court accepted the oral testimony of those performing R&D in order to substantiate qualified wages for the R&D credit purposes.

McFerrin and *Union Carbide* are significant because in the application of the law and in the type of evidence needed to support a credit claim. For taxpayers without detailed time records, *McFerrin* and *Union Carbide* allow reasonable estimates based on the longstanding rule in *Cohan*, 39 F.2d 540 (2d Cir. 1930).

Substantiation of research activities and expenses is a contentious matter for taxpayers and the IRS. The service argues that it is unable to audit research credit claims without detailed records that tie specific expenses to defined research activities. Taxpayers are understandably concerned that the IRS applies such elevated documentation standards during examinations without providing guidance in the final regulations or other forms of official guidance. The challenge of substantiating the validity of a research tax credit claim represents a significant discouragement to potential credit users; however, the flexibility in substantiation methods that many practitioners seek could help some taxpayers claim larger credits than those to which

they are entitled. It would be valuable if the IRS took up the GAO's recommendation and collaborate with industry representatives and make the R&D tax credit more readily available to qualified taxpayers.

9. An international perspective: the Canadian scientific research and experimental development

Canada has a very attractive scientific research and experimental development (SR&ED). To achieve improvements in innovation, Canada has set a goal to be among the top five countries in terms of R&D performance. This objective has been translated into a very aggressive R&D credit. The federal government allows both a deduction and a 20 percent credit for expenditures for scientific research and experimental development (SR&ED). Many of the provincial governments also encourage support research activities through deductions and tax credits, with the credit rates varying depending upon the province. The Canadian deduction is allowed for both capital as well as current expenditures for SR&ED, but land and buildings are not eligible for expensing. Excess deductions can be carried forward indefinitely. This is a much more aggressive credit than is the US credit and certainly should serve as food for thought as those who want to keep research and development in the US. Table IV summarizes the differences between the US Research & Experimentation (R&E) and Canadian scientific research and experimental development (SR&ED).

Some final thoughts

The research credit has always been a temporary provision and is currently expired (March 2010). There are already proposals to make this credit permanent. There are many issues that are unresolved relating to the research credit.

Other countries have research and development tax credits that are more attractive than what is offered in the US. Having discussed the issue of tax credits and incentives with many VPs of research and development and business development leaders of US *Fortune* 1000 companies, they are not reluctant to move their research and development overseas. There should be a real sense of urgency in making the research and development tax credit permanent and strengthening it further.

Taxpayer and practitioner objections to the contemporaneous documentation requirement that was first introduced in the 2001 regulations were based on the presumed burden the requirement would impose on research and development field personnel, who would ultimately be required to record and maintain contemporaneous documentation of their qualified research activities. But the contemporaneous documentation requirement does not have to be a time consuming task. Taxpayers

	Canada	US
Wages and salaries	Yes	Yes
Overhead	Yes, 65 percent of wages	No
Capital equipment	Yes	No
Materials	Yes	Yes
Contracted research	Yes	Some (65 percent)
Work done abroad	Some (up to 10 percent)	No

Table IV.
Comparison of the
Canadian SR&ED and
the US R&E credits

should consider the implementation of a robust and proactive real time approach for substantiating their research credit claims.

Recent court guidance should suggest to taxpayers that a minimum level of contemporaneous documentation is required to prove that qualified research activities occurred. The documentation only needs to demonstrate how each claimed activity satisfies the requirements of the four-part test. I have implemented this genuinely contemporaneous model on engagements, in which we document each part of the qualitative analysis through contemporaneous interviews with R&D personnel that occur at designated intervals throughout the credit period and while the R&D is actually being performed. Contemporaneous documents that are created in the ordinary course of the research are more easily identified and collected on a real time basis as part of the continuing product lifecycle (PLC) process than they are in a look back study which seeks project documentation that may span multiple tax years and may not even exist any more. Furthermore, one obtains a more granular story, provided by the engineer in real time, and all of the iterations and failures are inherently embedded in the product/process lifecycle at each of the different stage-gate checkpoints.

With respect to the quantitative analysis, taxpayers should leverage existing systems for example, SAP or other internal time tracking systems to capture and create the contemporaneous documentation needed to document the amount of QRE that is associated with qualified research activities. There are operational and process methods to facilitate contemporaneous time and expense reporting that will further effectively and efficiently facilitate tracking actual employee and/or contractor hours dedicated to qualified research. In addition, different tools can be developed and effectively deployed to create nexus between the support and supervision personnel and the particular qualifying activities and projects.

There are many tools in the fields of operations management, applied mathematics and operations research that can help optimize and create efficiencies in the gathering, substantiating, and quantifying of the research credit data to make the entire process more contemporaneous and thus the R&D credit more defensible. There are many examples of operational and process levers that can be integrated to optimize both the quantitative and qualitative aspects of a research and development tax credit study. One example discussed above, involves surgically introducing the traditional four part test and the additional three tests for internal use software into the product development lifecycle of a company, business unit, or division, resulting in a contemporaneous documentation of the genuine “real time” engineering and scientific efforts, goals, objectives, successes and failures. A more detailed discussion of mathematical and operations management tools and how they can be used to optimize the defensibility of a research and development tax credit study are beyond the scope of this paper.

Notes

1. P.L. 97-34, 95 Stat. 172 (1981) (hereinafter “1981 ERTA”). The credit, originally codified in § 44F of the code, is found at 1981 ERTA, § 221(a).
2. General Explanation of the Tax Reform Act of 1986, Staff of Joint Committee on Taxation, 100th Cong., 1st Sess. 130-31 (1987).

3. IRC § 41 (2002). This credit has been subsequently extended by the 1989 Revenue Reconciliation Act, the 1990 Revenue Reconciliation Act, the 1991 Tax Extension Act, the 1993 Omnibus Budget Reconciliation Act, the 1996 Small Business Protection Act, the 1997 Taxpayer Relief Act and most recently, H.R. 1180, Ticket to Work and Work Incentives Improvement Act of 1999.
4. IRC §41(c)(5).
5. IRC § 41(b)(1).
6. Wages are defined to include amounts considered to be wages for federal income tax withholding purposes. IRC § 41(b)(2)(D)(i), 3401(a).
7. Supplies are defined as any tangible property other than land or improvements to land, and property subject to depreciation. IRC § 41(b)(2)(C).
8. IRC § 41(b)(2)(A).
9. IRC § 41(b)(2)(B). Note: If substantially all of the services performed by an individual for the taxpayer during the taxable year consists of qualified services as defined in § 41(b)(2)(B), the term “qualified services” means all of the services performed by such individual for the taxpayer during the taxable year. IRC § 41(b)(2)(B).
10. Treas. Reg. § 1.41-2(e)(2) (as amended in 2000).
11. IRC § 41(d)(1).
12. McConaghy, Mark L. and Richard B. Ruge, Congressional Intent, Long-Standing Authorities Support Broad Reading of Section 174, Tax Notes, Feb. 1, 1993, at 653.
13. IRC § 174(a)(1).
14. Treas. Reg. § 1.174-2(a)(1).
15. *Mayrath v. Commissioner*, 41 T.C. 582, 590 (1964), *aff'd* on other grounds, 357 F. 2d 209 (5th Cir. 1966).
16. Rev. Rul. 73-275, 1973-1 C.B. 134.
17. *Webster's Ninth New Collegiate Dictionary*, 1283 (1983).
18. Hudson (1991). Note: At the time the article was written the author was the Attorney-Advisor to the Office of the Chief Counsel of the Internal Revenue Service.
19. Treas. Reg. 1.174-2(a).
20. General Explanation of the Tax Reform Act of 1986, Staff of Joint Committee on Taxation, 100th Cong., 1st Sess. 133 (1987).
21. IRC § 41(d)(2)(B). Note: Section 41(d)(2)(C) provides that a production process be treated as a separate business component distinct from the product it is intended to produce.
22. IRC §§ 41(d)(1)(C), 41(d)(3).
23. IRC § 41(d)(2)(C).
24. IRC § 41(d)(1)(C).
25. Proposed Treasury Reg. § 1.41-4(a)(5)(i).
26. General Explanation of the Tax Reform Act of 1986, Staff of Joint Committee on Taxation, 100th Cong., 1st Sess. 133 (1987).
27. IRC § 41(d)(4)(A).
28. General Explanation of the Tax Reform Act of 1986, Staff of Joint Committee on Taxation, 100th Cong., 1st Sess. 136 (1987).

29. IRC § 41(d)(4)(A)-(H).
30. Treas. Reg. § 1.174-2(b)(4).
31. IRC § 41(b)(2)-(3).
32. IRC § 41(b)(2)(A)(i).
33. IRC § 41(b)(2)(D)(i).
34. IRC § 41(b)(2)(B).
35. Treas. Reg. § 1.41-2(c)(2).
36. Treas. Reg. § 1.41-2(c)(3).
37. Treas. Reg. § 1.41-2(d)(2).
38. IRC § 41(b)(2)(C).
39. Treas. Reg. § 1.174-2(a)(1).
40. Treas. Reg. § 1.41-2(e)(2).
41. Treas. Reg. § 1.41-2(e)(3); see also *Lockheed Martin Corp. vs. United States*, 210 F. 3d 868 (Fed. Circ. 2000).

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Yair Holtzman is a partner at Anchin, Block & Anchin LLP in New York, where he is a member of Anchin’s Tax Credits and Incentives Group and leads its Research and Development (R&D) Tax Credits Practice. Holtzman, a certified public accountant, has more than 20 years of experience as a tax and management consultant focusing on research and development in the chemicals and life sciences industries. He has guided numerous clients in unlocking the potential of process and product development. Yair has a strong track record helping clients improve operational performance and drive tangible results to the bottom line. He has published several articles on the subjects of R&D, strategic new product development, accounting, taxation, business strategy, and innovation. He has been invited as a guest lecturer to speak on the topics of R&D, new product development, the US R&D tax credit, and operations excellence at conferences in the USA, Europe and Asia. He is a thought leader in the areas of research and development, operations excellence and innovation, and new product development. During the 1990s he founded and served as the owner/president of Plating Control Systems, an R&D chemical consulting firm. Prior to joining Anchin, Yair worked at WTP as a director with the Research and Development Tax Services and Business Advisory Services Group, at Deloitte Tax as a manager with the Northeast R&D team, at Ernst & Young in the Federal Tax practice, at A.T. Kearney as a consultant in the Operations and Automotive practice, and at Pittiglio Rabin Todd & McGrath (PRTM) as a consultant in the Chemicals practice. While in public accounting, Yair serviced the tax needs of clients in the following areas: domestic and international tax compliance; section 41

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