

T.C. Memo. 2019-37

SIEMER MILLING COMPANY, Petitioner,
v.
COMMISSIONER OF INTERNAL REVENUE, Respondent.

Docket No. 21655-15.

United States Tax Court.

Filed April 15, 2019.

Michael G. Goller, Amy L. Barnes, Sara Stelpflug Rapkin, and Benjamin B. Genzer, for petitioner.

Jonathan E. Behrens and Nathan M. Swingley, for respondent.

MEMORANDUM FINDINGS OF FACT AND OPINION

BUCH, Judge.

2 Siemer Milling Co. (Siemer) is based in Illinois and is engaged in the business of milling and selling wheat flour. During tax years ending May 31, 2011 and 2012, Siemer conducted activities for which it claimed *2 credits for increasing research activities under section 41.^[1] The primary question before the Court is whether Siemer has proven that the expenses from those activities are qualified research expenses under the Code. It has not.

FINDINGS OF FACT

Siemer has been in the wheat milling business since the 1950s. During the years in issue Siemer owned and operated two mills, one in Illinois and one in Kentucky. Siemer employed millers, maintenance personnel, lab technicians, lab supervisors, a research and development manager, research and development staff, and others during the years in issue. Siemer did not have any employees with the title engineer or geneticist during the years in issue. Nor did Siemer employ anyone who held a degree in computer science or chemical and mechanical engineering during the years in issue.

I. Credit Studies

CliftonLarsonAllen, LLP (CLA), has long served as Siemer's accounting firm. CLA has prepared Siemer's returns for more than two decades and as a result is familiar with Siemer's business. For the years in issue CLA prepared Siemer's returns as well as credit studies, certified audits, and financial statements.

3 *3 In 2004 David North, a CLA accountant, informed Siemer that it might qualify for tax credits related to increasing research expenditures under section 41. At that time Mr. North had spent several years preparing credit studies for companies in several industries. On the basis of advice from Mr. North and CLA, Siemer engaged CLA to prepare credit studies. Siemer claimed credits under section 41 on its returns for several years from the early 2000s through the years in issue. Since 2004 CLA has prepared credit studies for Siemer. CLA had "open access" to all of Siemer's books and records while it prepared the credit studies and returns. The credit studies were prepared on the basis of a combination of interviews conducted with Siemer employees and documents provided by Siemer to CLA.

Vernon Tegeler, Siemer's current vice president of production, was particularly involved in the preparation of Siemer's credit studies. He was interviewed for the credit studies for both years in issue. He provided estimates of the amount of time spent on research projects, collected contemporaneous documents, and ensured that CLA interviewed appropriate Siemer employees for the credit studies. He oversaw the preparation of the credit studies for Siemer.

4 CLA also interviewed several other Siemer employees, including: Sunil Maheshwari, the director of Siemer Specialty Ingredients; Rosemary Gibbons, the *4 research and development manager; Brent Boem, the head miller; Dave Brumleve,

the chief financial officer; Jane Summer, the administrative production assistant; Joyce Stock, the vice president of finance; Carl Schwinke, the vice president of grain merchandising; and Marianne Tegeler, a laboratory supervisor.

As part of preparing the credit studies, CLA prepared a calculation of Siemer's fixed-base percentage.^[2] Before the credit studies, Siemer reported a fixed-base percentage of 3%. According to Siemer, CLA used 3% as a "safe harbor" at a time when it did not intend to calculate a research credit for a taxpayer. Once Siemer engaged CLA to conduct the credit studies in 2004, Siemer filed amended returns claiming a fixed-base percentage of 0.2%. In making this calculation CLA used data estimates gathered through interviews of employees because Siemer could not find the relevant records. Siemer and CLA used estimates from Mr. Tegeler to determine the number of hours spent on research and experimentation during the base years. In later years the estimates were refined when Siemer retrieved wage information from Forms W-2, Wage and Tax Statement, and more documentation regarding expenses.

- 5 *5 The credit studies contain wage information for the years in issue and contemporaneous documentation of the research activities for each year. The contemporaneous documentation includes a range of items such as narratives of particular experiments, sample test orders, recipes used in testing flour products, and lab results. Many of the documents are not dated, and the authors and sources of the materials are not known.

Siemer identified four projects for the tax year ending May 31, 2011: the flour heat-treatment project, the Pulsewave project, the wheat hybrids project, and the ozone project. Siemer identified five projects for the tax year ending May 31, 2012: the Littleford Day project, the whole wheat flour project, the hydration project, a continuation of the previous year's flour heat-treatment project, and a second Pulsewave project. As a general matter Siemer routinely conducted lab tests whenever it engaged in new product development. For example it conducted testing to identify the right wheat source to be milled and the right adjustments to the milling system.

II. Research Projects

All of the projects were conducted in connection with Siemer's trade or business. Siemer is in the business of milling and selling flour, and all of the projects are related to the production and sale of flour.

6 *6 A. Flour Heat-Treatment Project

Siemer conducted the flour heat-treatment project to develop processes to produce (1) cake flour without the use of chlorine, (2) low-microorganism and low-bacteria flour without the use of chemicals, and (3) all-natural replacements for modified starches. The flour heat-treatment project took place in both years in issue. This project included heating flour for differing times and with various methods and testing the flour to measure its composition, functional characteristics, and level of bacteria and other microbiological material. Siemer installed its heat-treatment facilities in 2003.

B. Pulsewave Project

- 7 Siemer conducted the Pulsewave project in both tax years in issue. A Pulsewave machine operates on the principle of resonance disintegration. According to marketing materials the Pulsewave machine "reduces the particle size of various materials by the application of the physics of resonance, shock waves and vortex-generated shearing forces, as opposed to the crushing and grinding processes of conventional milling methods." Siemer conducted initial testing with a Pulsewave machine in June 2004 at the Pulsewave facility. Siemer entered into an agreement to lease its own Pulsewave machine from the manufacturer, Pulsewave LLC, on August 9, 2009. The machine was placed in *7 service in February 2010. At that time the Pulsewave machine was a new technology for the milling industry, and Siemer was the only miller using the Pulsewave machine during the years in issue.

During the tax year ending May 31, 2011, Siemer conducted the Pulsewave project to determine whether it could increase the speed at which the Pulsewave machine operated. As a result of their testing Pulsewave LLC made physical modifications to the Pulsewave machine. Siemer claimed that the Pulsewave machine was able to operate at only 3,600 rotations per minute (RPM), but data provided by Pulsewave LLC to Siemer from 2009 includes tests of milling applications with speeds of up to 5,000 RPM and wheat milling tests run at speeds of up to 4,500 RPM.

During the tax year ending May 31, 2011, Siemer was also unsure of the effect of processing different materials with the Pulsewave machine, including different grains and flour that had already been milled. To address these uncertainties Siemer used the Pulsewave machine to process different types of grain and varied load sizes. Additionally Siemer experimented with processing in the Pulsewave machine flour that had already been milled through conventional means.

- 8 *8 During the tax year ending May 31, 2012, Siemer conducted the Pulsewave project to determine whether it could (1) adjust the moisture level in finished flour, (2) keep the oil packet in the wheat kernel intact during milling, and (3) produce an ultrafine wheat flour and an ultrafine bran flour using the Pulsewave machine. Siemer also sought to discover how the speed, rotation, and flow rate affected the milling process. Siemer tested these variables and analyzed each sample it produced. As part of the project Siemer tested the finished product's composition as well as its performance in baking tests.

C. Wheat Hybrids Project

Siemer's wheat hybrids project tested new varieties of wheat to determine whether they could be used in current or new products. It conducted the wheat hybrids project in the tax year ending May 31, 2011. Siemer collected new varieties from breeders, milled them, and tested the composition and product yield of each sample. Siemer shared the results of the testing with the wheat breeders and its customers. Siemer conducted these tests because it was unsure which wheat hybrids would meet the needs of its customers.

D. Ozone Project

- 9 Ozone is a highly unstable form of oxygen that can be used to disinfect food products. Siemer conducted the ozone project during the tax year ending May 31, *9 2011. Siemer's ozone project was an effort to introduce ozone into the milling process to produce a low-microorganism flour for applications that may not include baking the final product. Before testing Siemer was unsure how introducing ozone into the milling process would affect the composition, bacterial content, and flavor of the flour. Ozone was introduced into the milling process at various stages including at the beginning of the process during cleaning and tempering, before milling, and during the crushing or milling of the grain. Samples of wheat at each stage of the process were tested and compared with untreated grain. The treated flour was then tested to determine composition, bacteria level, and flavor.

E. Littleford Day Project

Littleford Day is a company that performed testing for Siemer during the tax year ending May 31, 2012. Siemer wanted to be able to produce toasted wheat flours and bran flours but was unable to do so with its existing heat-treatment facilities. The purpose of the Littleford Day project was to find a system that could be incorporated into Siemer's existing milling facilities to toast wheat and bran to produce toasted products.

- 10 To conduct the Littleford Day project Siemer provided flour, grain, and bran samples to Littleford Day. Littleford Day heat treated or toasted the samples using *10 varying times and temperatures. Either Littleford Day or Siemer conducted compositional analyses of the resulting products and tested the products' functional characteristics. One of the variables that Siemer sought to control was the moisture level in the final toasted wheat flours and bran flours.

F. Whole Wheat Flour Project

Siemer conducted the whole wheat flour project during the tax year ending May 31, 2012. It conducted this project in an effort to produce an ultrafine whole wheat flour product. Siemer attempted to use pearling machines to strip the bran layer from the flour. Later the ground bran was reintroduced into the flour during the milling process. After processing the whole wheat flour, Siemer conducted tests to determine the amount of bacteria in the flour as well as other characteristics of the flour.

Before conducting this project Siemer was unsure of how to produce an ultrafine whole wheat flour. It did not know whether pearling machines, which had been used to process other types of grains, would be helpful in processing wheat, what size

loads should be used, how to incorporate the bran layer back into the flour, and what affect this processing technique would have on the composition of the final product.

11 *11 **G. Hydration Project**

Siemer wanted to find a method to maintain a consistent level of moisture in flour because that consistency is important to its customers. During the milling process evaporation causes the flour to lose more moisture than is optimal. Factors such as the time of year, ambient temperature, and humidity affect the moisture level in the finished flour. Siemer conducted the hydration project during the tax year ending May 31, 2012. In conducting this project Siemer hoped to improve its milling process by developing a method to reintroduce moisture into its flour products without increasing mold and bacteria growth. Siemer experimented with a machine that reintroduced moisture to the finished flour after milling. To control bacteria and mold growth Siemer also introduced ozone into the water used to hydrate the flour. Siemer measured the moisture levels in the flour before and after processing and the amount of bacteria in the flour, as well as the level of bacteria, in the finished flour.

III. Returns for the Years in Issue

On its returns for the tax years ending May 31, 2011 and 2012, Siemer claimed credits for increasing research and experimentation expenditures under section 41. Siemer's returns for both years were timely filed and included Forms 6765, Credit for Increasing Research Activities. For the tax year ending May 31, *12 2011, it claimed a credit of \$122,424 for increasing research activities. For the tax year ending May 31, 2012, Siemer claimed a credit of \$116,246 for increasing research expenses.

IV. Notice of Deficiency, Petition, and Answer

On July 15, 2015, the Commissioner issued a notice of deficiency to Siemer disallowing the credits for both years. The notice states that Siemer had "not proven that [its] * * * expenses qualify for research credit." As a result the Commissioner disallowed all credits for each year. The Commissioner also determined that Siemer was not entitled to bonus depreciation deductions, that Siemer must capitalize repair costs incurred in 2011, that Siemer must use a longer depreciation schedule than reported on certain assets, and that as a result of adjustments made to taxable income, Siemer's credit under section 199 was increased.

Siemer filed a timely petition for a redetermination of deficiencies for the tax years ending May 31, 2011 and 2012. In the petition Siemer argues that the Commissioner erred in making all of the determinations in the July 15, 2015, notice of deficiency.^[3]

13 *13 The Commissioner filed an answer denying that the determinations were in error and a first amendment to answer asserting accuracy-related penalties under section 6662 for both years. The Commissioner argues that Siemer's underpayments as shown in the notice of deficiency are subject to accuracy-related penalties because they are attributable to both a "substantial understatement of income tax" as defined under section 6662(d) and to negligence or disregard of rules or regulations as defined by section 6662(c).

V. Trial

At the opening of trial the Court received the parties' first stipulation of facts. The parties offered 113 documents for admission to the record as a part of that stipulation. The Commissioner raised hearsay objections to 19 of 113 documents offered into evidence. When the Court asked Siemer how it intended to use the documents to which the Commissioner had raised hearsay objections, *14 Siemer responded that it did not plan to use the documents for the truth of the matter asserted.

The Court ultimately determined that the documents would be admitted subject to the hearsay objections (i.e., not for the truth of the matter asserted) but gave the parties the opportunity to revisit any document to rebut a hearsay objection. The credit studies for both years in issue were admitted to the record subject to the Commissioner's hearsay objections. During

trial the parties revisited the wage summaries included in the credit studies. Those wage summaries were admitted as summary exhibits. The parties did not revisit the rest of the credit studies for the years in issue, and as a result they remained admitted subject to the hearsay objections.

At trial Siemer offered Mr. Tegeler as both a fact witness and an expert witness. Mr. Tegeler submitted an expert report as his expert testimony and gave oral testimony as a fact witness. Mr. Tegeler's expert report was accepted into the record. Mr. Tegeler has worked for Siemer since 1972. He began his career in the sanitation department. Over the course of several decades he rose through Siemer's ranks becoming head miller, plant manager, and finally, vice president for production. During his career Mr. Tegeler has served in several leadership positions for the International Association of Operative
15 Millers, including *15 technical committee member and international president. He has traveled the world touring mills, given several presentations on milling processes, and received awards in recognition of his accomplishments as a miller.

Mr. Tegeler's expert report focuses on the uncertainties that Siemer sought to address with each of its research projects. At trial he testified about the fixed-base percentage calculations, the types of activities Siemer employees conducted as a part of the projects, and results of the activities. Mr. Tegeler was the only witness that either party called that had participated in the projects. In both years a significant portion of Mr. Tegeler's work hours was dedicated to the research projects for which Siemer claimed credits.

Siemer also called Dave Brumleve, Siemer's chief financial officer, to testify. Mr. Brumleve has worked for Siemer for over 40 years. He began in the accounting department in 1974 and worked his way up. From 1984 to 1988 Mr. Brumleve was Siemer's controller. In 1992 he was promoted to chief financial officer, a position he held during the years in issue. At trial Mr. Brumleve testified that he relied on CLA's expertise when he signed the returns for the years in issue as Siemer's agent. Siemer did not call any of its other employees to testify.

Siemer called three of CLA's employees to testify: Jeff Taylor, Dave North, and Mike Meidel. Mr. Taylor is a certified public
16 accountant (CPA) and was the *16 principal author of the credit studies for the years in issue. Mr. North supervised Mr. Taylor in his preparation of the credit studies for the years in issue. Mr. North also prepared the base year calculations. Mr. Meidel is a CPA and was part of the team at CLA that prepared Siemer's returns for the years in issue, and he signed the returns as preparer.

The Commissioner called two witnesses at trial: Trevor Ziegler and Jacob Bramm. Mr. Ziegler is a former CLA employee who participated in preparing the credit study for the tax year ending May 31, 2011. Mr. Bramm is a current CLA employee. He was one of the CLA employees who prepared the credit study for the tax year ending May 31, 2012. The Commissioner did not call an expert witness to rebut Mr. Tegeler.

VI. Motion To Reopen the Record

On February 7, 2018, the Commissioner filed a motion to reopen the record. In that motion he argued that the Court should admit an email as written supervisory approval of the penalties asserted in the first amendment to answer. Siemer objected to the motion. It argued that the email offered as evidence of written supervisory approval was hearsay and should not be admitted to the record.

*17 OPINION

There are two questions before the Court. The first is whether Siemer has proven that it qualifies for credits under section 41 for the tax years ending May 31, 2011 and 2012. The second is whether Siemer is liable for accuracy-related penalties under section 6662. A subsidiary issue to this is whether the Commissioner's motion to reopen the record should be granted. We will take each in turn.

I. Burden of Proof

Generally the Commissioner's determinations in a notice of deficiency are presumed correct, and taxpayers bear the burden of proving otherwise.^[4] The Commissioner bears the burden of proof, however, on any new matter, increases in deficiency,

or affirmative defenses pleaded in his answer.^[5] The Commissioner filed a first amendment to answer asserting accuracy-related penalties under section 6662. The Commissioner therefore bears the burden of proof with respect to those penalties.

18 In limited situations the burden may shift to the Commissioner under section 7491(a). Siemer did not argue that the burden should shift, and we find *18 that the facts do not suggest that it should. Accordingly, the burden on all items at issue, other than the penalties asserted in the first amendment to answer, is on Siemer.

II. Qualified Research Expenses Under Section 41

Section 41(a)(1) provides a credit equal to the sum of 20% of the excess of qualified research expenses for the taxable year over the base amount. Qualified research expenses are defined as the sum of in-house research expenses and contract research expenses that are paid or incurred by a taxpayer in a taxable year in carrying on a trade or business.^[6] In-house research expenses are defined as "(i) any wages paid or incurred to an employee for qualified services performed by such employee, (ii) any amount paid or incurred for supplies used in the conduct of qualified research, and (iii) * * * any amount paid or incurred to another person for the right to use computers in the conduct of qualified research."^[7] Qualified services consist of engaging in "qualified research" or engaging in the direct supervision or direct support of "qualified research".^[8]

19 *19 There are four tests that an activity or project must meet to constitute qualified research. The four tests are the section 174 test, the technological information test, the business component test, and the process of experimentation test.^[9] In addition to the four tests for qualified research, section 41(d)(4) also explicitly excludes the following activities from the definition of qualified research: research after commercial production, adaptation of existing business components to a particular customer's needs, and duplication of existing business components. Surveys and studies including efficiency surveys, market research, routine data collection, and quality control testing are also excluded.^[10]

A. The Section 174 Test

20 Under the section 174 test, the expenditures for research must be eligible for treatment as expenses under section 174.^[11] "Section 174 provides alternative methods of accounting for 'research or experimental expenditures' that taxpayers would otherwise capitalize."^[12] Section 1.174-2(a)(1), Income Tax Regs., defines *20 research or experimental expenditures as "expenditures incurred in connection with the taxpayer's trade or business which represent research and development costs in the experimental or laboratory sense." The Treasury regulations also define research and development costs in the experimental or laboratory sense:

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. * * *
* ^[13]

Whether a taxpayer faces uncertainty is an objective test and is dependant on the information available to the taxpayer.^[14]

Similar to section 41(d)(4)(D)(v), section 1.174-2(a)(3)(i), Income Tax Regs., explicitly excludes "[t]he ordinary testing or inspection of materials or products for quality control" from research or experimental expenditures.

21 *21 Additionally, expenditures are qualified only to "the extent that the amount thereof is reasonable under the circumstances."^[15]

As we held in *Union Carbide Corp. & Subs.*, "[b]ecause section 174 refers to research and experimental expenditures, not research and experimental activities, we interpret section 41(d)(1)(A) as requiring only that qualified research activities constitute research and development within the meaning of section 174."^[16] Consequently, we consider whether the cost associated with the research and experimental activities "may be treated as expenses under section 174."^[17] At the heart of the section 174 test is whether the costs were incurred in connection with the taxpayer's trade or business and whether the

activities were "intended to discover information that would eliminate uncertainty concerning the development or improvement of a product."^[18]

22 *22 B. Technological Information Test

Under section 41(d)(1)(B)(i), for an activity to be "qualified research" it must be undertaken for the purpose of discovering technological information. Under the regulations information is technological if "the process of experimentation used to discover such information fundamentally relies on principles of the physical or biological sciences, engineering, or computer science."^[19]

C. Business Component Test

The business component test requires that the research be undertaken with the purpose of discovering information "the application of which is intended to be useful in the development of a new or improved business component of the taxpayer".^[20] A business component is "any product, process, computer software, technique, formula, or invention which is to be—(i) held for sale, lease, or license, or (ii) used by the taxpayer in a trade or business of the taxpayer."^[21]

23 *23 D. Process of Experimentation Test

Research is qualified research only if "substantially all of the activities * * * constitute elements of a process of experimentation for a purpose described in" section 41(d)(3).^[22] The "substantially all" requirement means that "80 percent or more of a taxpayer's research activities, measured on a cost or other consistently applied reasonable basis * * *, constitute elements of a process of experimentation for a purpose described in section 41(d)(3)."^[23] The test is applied separately to each of the taxpayer's business components.^[24]

24 The regulations define a process of experimentation as 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 *24 uncertain as of the beginning of the taxpayer's research activities."^[25] We have previously held that the uncertainty under the process of experimentation test is "essentially the same uncertainty as is required by the section 174 test".^[26]

In addition to the uncertainty requirement under the section 174 test, the process of experimentation test requires that the taxpayer have "a more structured method of discovering information than section 174" requires.^[27] We have previously explained that "the project must involve a methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[28] For example, the regulations explain that the "evaluation of products available from vendors is not a process of experimentation."^[29] In section 1.41-4(a)(8), Example (5), Income Tax Regs., a taxpayer wishes to upgrade their warehouse management software. The taxpayer evaluates several products available in the marketplace to determine which best meets its needs. The *25 example concludes the taxpayer's activities in evaluating software products are not qualified research because evaluating available products is not experimentation.

The final part of this test requires the activities be for a qualified purpose as described in section 41(d)(3).^[30] Qualified purposes include research related to "(i) a new or improved function, (ii) performance, or (iii) reliability or quality" of a business component.^[31] But research related to "style, taste, cosmetic, or seasonal design factors" is not conducted for a qualified purpose.^[32]

E. The Base Amount

To qualify for credits under section 41 a taxpayer must show that it paid or incurred qualified research expenses for the taxable year exceeding the base amount.^[33] The base amount is equal to the product of the fixed-base percentage and "the average annual gross receipts of the taxpayer for the 4 taxable years preceding the taxable year for which the credit is

26 being determined".^[34] "[T]he *26 fixed-base percentage is the percentage which the aggregate qualified research expenses of the taxpayer for taxable years beginning after December 31, 1983, and before January 1, 1989, is of the aggregate gross receipts of the taxpayer for such taxable years."^[35] The base amount cannot "be less than 50 percent of the qualified research expenses for the credit year."^[36]

III. The Commissioner's Arguments Regarding the Section 41 Tests

The Commissioner argues that Siemer has not met its burden with respect to any of the tests under section 41 for any of the research projects undertaken during the years in issue. There are several arguments that the Commissioner makes with respect to all of the projects. Those arguments are described below. The Commissioner's arguments that are specific to a particular project that we find pertinent are described with the analysis of the particular project and test.

A. Section 174 Test

27 The Commissioner argues that Siemer did not face uncertainty with respect to any of its projects and therefore fails the section 174 test. As support for this argument he observes that many of the projects spanned several years. He posits that Siemer could not face the same uncertainty for more than one year. This *27 argument is unpersuasive. Siemer could have faced the same uncertainties for several years in a row; not all uncertainties are neatly resolved within the confines of a single taxable year. There is no requirement under the statute or regulations that the taxpayer face different uncertainty each year, only that the taxpayer face uncertainty concerning "the development or improvement of a product" in the year for which he wishes to claim the credit.^[37]

B. Technological Information Test

The Commissioner argues that because Siemer does not employ anyone with the title of engineer or anyone with an engineering degree, Siemer did not have anyone on staff who could have performed research that relied on principles of engineering. The Commissioner makes the same argument with respect to computer science and the physical and biological sciences.

28 The Commissioner also observes that Siemer called only one witness with direct knowledge of the research activities and did not call any other witness to testify as to the principles of the physical or biological sciences, engineering, or computer science that it relied on. From this observation the Commissioner argues that the Court should draw an adverse inference, finding that testimony of *28 Siemer's other employees would have shown that Siemer did not rely on principles of the physical or biological sciences, engineering, or computer science.

This argument is unpersuasive. Nothing requires a taxpayer to employ or contract with someone with a specialized degree to prove that research relied on the physical or biological sciences, engineering, or computer science. While the degrees held by those conducting the research for which a credit is claimed may be a factor in determining whether the technological information test is satisfied, no specific set of degrees is required.

29 Additionally, we note that the Commissioner could have also called any of Siemer's employees to testify, and we do not apply an adverse inference. It is true that where a party who bears the burden of proof fails to introduce evidence within its control that, if true, would be favorable to it, the failure to introduce that evidence can give rise to a presumption that the evidence would be unfavorable.^[38] But where both parties have equal access to the evidence we do not apply an adverse inference.^[39] The Commissioner could have subpoenaed any of the *29 individuals that he says Siemer should have called to testify; thus both parties had access to the potential witnesses. We decline to apply an adverse inference.

The Commissioner also argues that Siemer has not identified the "principles of the physical or biological sciences, engineering, or computer science" on which it relied.^[40] As a general matter this argument is persuasive. But for the projects where Siemer has demonstrated that it sought to reduce the amount of bacteria in the flour, Siemer relied on principles of biology.

C. Business Component Test

30 The Commissioner argues that all of Siemer's projects for the years in issue fail the business component test. He contends that Siemer has been inconsistent in its description of business components to which each project relates. As evidence the Commissioner notes that, when asked whether the business components related to processes or products, Mr. Tegeler stated that they were all processes. But on brief Siemer describes them as "either process improvements, product improvements, or some combination of both." The Commissioner also argues that *30 because the credit studies for the years in issue claim a greater number of business components than Siemer has claimed at trial, Siemer's current representations are untrustworthy.

This argument is unpersuasive. At trial Mr. Tegeler described the projects as "processes that we worked with * * * to develop products." This description is not at odds with Siemer's representation on brief that each of the projects is "either process improvements, product improvements, or some combination of both." While inconsistency in the record may weigh against a party's credibility, we find that this particular turn of phrase does not bar Siemer from meeting its burden with respect to the business component test on each of the projects presented at trial.

The Commissioner argues that because several of the projects spanned several years, the business components to which they relate were not new during the years in issue. We also find this argument unpersuasive. Like uncertainties under the section 174 test, the development or improvement of a business component can span more than one tax year.

D. Process of Experimentation Test

31 The Commissioner argues that Siemer has not shown that it engaged in a process of experimentation with respect to any of the projects during the years in issue. According to the Commissioner the "record is devoid of evidence that *31 petitioner formulated or tested hypotheses, or engaged in modeling, simulation, or systematic trial and error * * *. Nor is there any evidence that petitioner evaluated alternatives" during the years in issue.

This argument is compelling. While Siemer states that it engaged in a process of experimentation, there is little in the record to support this assertion. Even the credit studies for the years in issue, which were admitted to the record subject to the Commissioner's hearsay objections, included very little evidence of Siemer's asserted process of experimentation. Had Siemer been able to rely on the credit studies for the truth of the matter asserted, that would not have been enough to establish that Siemer had engaged in a process of experimentation.

The Commissioner also argues that Siemer has not proven that substantially all of the activities for which it claimed credits were a part of a process of experimentation. On brief the Commissioner argues that Siemer makes conclusory statements regarding compliance with the "substantially all" requirement of the process of experimentation test.

32 This argument is persuasive. Because Siemer has not shown that it engaged in a process of experimentation, it also cannot show that substantially all of the activities for which it claimed the credits were part of a process of experimentation. Consequently, where Siemer has not shown that it engaged in a *32 process of experimentation to begin with, it has also not met the "substantially all" requirement of this test.

IV. Application of the Section 41 Tests

Siemer failed to establish that any of its projects met all four tests necessary for a project to constitute qualified research. We address each project in turn.

A. Flour Heat-Treatment Project

Siemer did not establish that the flour heat-treatment project met the process of experimentation test. The record does not establish that Siemer had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[41] While the record establishes that Siemer set out to develop three new products with the use of its flour heat-treatment facility, it is not clear

how it set out to do that and whether that process was a true process of experimentation. Siemer did not establish that it satisfied the process of experimentation test with respect to the flour heat-treatment project.

33 *33 B. Pulsewave Project

1. Tax Year Ending May 31, 2011

Siemer did not establish that it satisfied the section 174 test because it failed to prove that it faced uncertainty with respect to the speed at which the Pulsewave machine could run. It argues that it wanted to run the machine at 5,000 RPM but would "lose a coupling on the drive if it ran the machine past 3,600 RPM." Siemer's activities were not research and experimentation, but more akin to mechanical maintenance. The record is clear that, as of 2009, testing on wheat samples had been conducted at up to 4,500 RPM, and testing on nonwheat products had been conducted at speeds of up to 5,000 RPM. Siemer also did not explain how its improvements to the machine would help it develop or improve a product.

Siemer did not establish that its activities with the Pulsewave machine meet the technological information test. Siemer argues that the Pulsewave project meets this test because "the experimentation Siemer conducted to discover information relied on principles of engineering and the physical and biological sciences." But Siemer did not establish the principles on which its research activities relied. Siemer again cites the example of changing the Pulsewave machine so that it could run at faster speeds. But the machine was already *34 designed to run at speeds up to 5,000 RPM, and Siemer's adjustments to the machine, such as replacing the bearings, did not constitute experimentation.

Siemer also did not establish that it met the process of experimentation test with respect to the Pulsewave project. Neither the documents in the record nor the testimony offered at trial proves that Siemer had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[42]

2. Tax Year Ending May 31, 2012

For the tax year ending May 31, 2012, on the basis of the information in the record, Siemer's Pulsewave project fails the technological information test. Siemer's example of its reliance on "principles of the physical or biological sciences, engineering, or computer science" is the "application of resonance disintegration to separate a wheat kernel along its natural growth pattern." On brief Siemer states that this required reliance on principles of physics and biology, but it does not elaborate on this conclusory statement. The record does not establish what principles of engineering, biochemistry, or biology Siemer relied on *35 or how it relied on any particular principle in conducting experimentation. Consequently, Siemer has not met its burden with respect to the Pulsewave project.

As with the tax year ending May 31, 2011, Siemer also did not establish that it met the process of experimentation test with respect to the Pulsewave project for 2012. Neither the documents in the record nor the testimony offered at trial proves that Siemer had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[43]

C. Wheat Hybrids Project

Siemer fails the business component test because it did not establish what business component it sought to develop with its wheat hybrids project. Rather than develop a new product or process or improve an existing product or process, Siemer was simply determining what was available from wheat breeders and growers. Without an identifiable product or process that Siemer was attempting to develop or improve, Siemer fails the business component test with respect to its wheat hybrids project.

*36 Siemer also did not establish that its activities with respect to the wheat hybrids project pass the process of experimentation test. Although Siemer faced uncertainty with respect to whether the wheat hybrids that it tested would be sufficient for current or new products, it did not establish that it engaged in a process of experimentation with respect to the

wheat hybrids. Siemer did not establish that it had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[44]

Siemer tested the products available to it from its producers. Although it provided feedback to breeders, Siemer itself was not a breeder. There is little information in the record of Siemer's involvement with the development of wheat hybrids or the quality or quantity of information collected and provided to breeders. Siemer's testing with respect to the wheat hybrids project is more akin to evaluating available products on the market as described in section 1.41-4(a)(8), Example (5), Income Tax Regs., rather than a true process of experimentation. Siemer's evaluation of which wheat products to select compares to the *37 hypothetical taxpayer's evaluation of software products. Accordingly the wheat hybrids project fails the process of experimentation test.

D. Ozone Project

Siemer did not establish that the ozone project met the process of experimentation test. Siemer argues that it meets this test because it engaged in a process "designed to evaluate alternatives with respect to inserting ozone into the milling process." It explains the steps in its process but does not expand on what theory it may have been testing or how it refined its process based on data collected. Siemer did not establish that it had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[45] Without more in the record to establish that Siemer had a methodical plan that constituted a process of experimentation, the ozone project fails the process of experimentation test.

E. Littleford Day Project

Siemer failed to establish that the Littleford Day project met the technological information test. Siemer again makes a conclusory statement that it *38 meets the technological information test because it "relied on principles of engineering and the physical and biological sciences." It says an example is that it "analyzed the effects of adjustments to heat, blending speed and hold time in the machine on the flavor, moisture and color of the resulting flour products." Siemer alleges it relied on principles of biochemistry, food science, and engineering, but without more in the record to establish how Siemer relied on principles in these fields, the Littleford Day project fails the technological information test.

Likewise, Siemer failed to establish that the Littleford Day project met the process of experimentation test. Siemer put forth as evidence the steps in its process, but narrating the steps of its process does not establish that it engaged in testing of a hypothesis "so that it constitutes experimentation in the scientific sense."^[46] Without more in the record to establish that Siemer had a methodical plan that constituted a process of experimentation, the Littleford Day project fails the process of experimentation test.

Additionally, if the project was undertaken to evaluate a product of a vendor, it fails the process of experimentation test.^[47] Without more information in *39 the record establishing that the research was not incurred simply to evaluate a vendor's product, the Littleford Day project does not meet the process of experimentation test.

F. Whole Wheat Flour Project

Siemer failed to establish that the whole wheat flour project met the technological information test. As an example of activities that might meet this test, Siemer offers that it shaved the bran layer from the wheat kernel and "analyzed the resulting whole wheat flour samples for bacteria content and granulation, relying upon principles of biology and engineering." Siemer does not explain what principles this testing relied on or how they were incorporated into its research. Siemer did not meet its burden to establish its process of experimentation meets the technological information test.

Siemer also did not establish that the whole wheat flour project met the process of experimentation test. There is insufficient evidence in the record to conclude that Siemer had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[48] Siemer states that it *40 "ran tests." It does not explain how those tests were part of a scientific process where a

hypothesis was formed, tested, and retested. Siemer has not met its burden of proof as to the process of experimentation test with respect to the whole wheat flour project.

G. Hydration Project

As with several other projects, Siemer failed to establish that the hydration project met the process of experimentation test because all it did was recite the steps in its process. It does not explain how its process is scientific. We have insufficient evidence in the record to conclude that Siemer had a "methodical plan involving a series of trials to test a hypothesis, analyze the data, refine the hypothesis, and retest the hypothesis so that it constitutes experimentation in the scientific sense."^[49] Siemer did not establish that it met the process of experimentation test with respect to the hydration project.

V. Base Year Calculations

41 The Commissioner argues that Siemer has not substantiated its fixed base percentage. Because Siemer did not establish that any of its projects were *41 qualified research under section 41, we do not need to reach the issue of the fixed base percentage.

VI. The Commissioner's Motion To Reopen the Record

In his motion to reopen the record the Commissioner requests that we reopen the record to allow him to submit evidence of supervisory approval of penalties as required by section 6751(b). As discussed above, the Commissioner bears the burden of proof with respect to the penalties under section 6662 because they are a new matter raised in his first amendment to answer and not determined in the notice of deficiency.^[50] Without the evidence of supervisory approval the Commissioner would not meet his burden with respect to the penalties asserted in this case.^[51]

42 We "will not grant a motion to reopen the record unless, among other requirements, the evidence relied on is not merely cumulative or impeaching, the evidence is material to the issues involved, and the evidence probably would *42 change the outcome of the case."^[52] Siemer has met the requirements of a reasonable cause and good faith defense against penalties. Consequently, reopening the record would not change the outcome regarding the applicability of penalties in this case. As a result we will deny the Commissioner's motion to reopen the record.

VII. Section 6662 Accuracy-Related Penalties

43 Section 6662(a) and (b)(1) and (2) imposes a 20% accuracy-related penalty on any portion of an underpayment of tax that is due to negligence or disregard of rules or regulations or a substantial understatement of income tax. Negligence includes failure to reasonably attempt to comply with the Code, and disregard includes a careless, reckless, or intentional disregard.^[53] A return position that has a reasonable basis is not attributable to negligence.^[54] Disregard of rules or regulations is careless if the taxpayer does not exercise reasonable diligence to determine the correctness of a return position that is contrary to the rule or *43 regulation.^[55] An understatement of income tax is "substantial" when it exceeds the greater of 10% of the tax required to be shown on the return or \$5,000 or, in the case of a corporation other than an S corporation or a personal holding company, if the amount exceeds the lesser of 10% of the tax required to be shown on the return (or, if greater, \$10,000) or \$10 million.^[56]

Section 6664(c) provides that "[n]o penalty shall be imposed under section 6662 * * * if it is shown that there was a reasonable cause * * * and that the taxpayer acted in good faith" with respect to the underpayment. Reasonable reliance on a competent professional may show that a taxpayer acted with reasonable cause and in good faith.^[57] Reliance is reasonable when the taxpayer meets each requirement of a three-prong test: the adviser was "a competent professional who had sufficient expertise to justify reliance", the taxpayer "provided necessary and accurate information to the adviser", and the taxpayer "actually relied in good faith on the adviser's judgement."^[58]

44 *44 Siemer meets all three prongs of the test and reasonably relied in good faith on the advice of CLA and its employees. CLA is a competent adviser. It is an accounting firm that has prepared Siemer's certified financial audits and income tax

returns for more than two decades, and it has prepared credit studies for Siemer for approximately a decade and a half. It employs several accountants and staff that are specialists in preparing credit studies.

Siemer also provided CLA with necessary and accurate information. While preparing Siemer's returns and the studies for the years in issue, Siemer gave CLA "open access" to its records. Siemer also made its staff available for interviews. There is nothing in the record to suggest that Siemer held back any of its records from CLA.

Finally, Mr. Brumleve, Siemer's chief financial officer, testified that he relied on CLA's expertise. There is nothing in the record to suggest that Siemer did not rely in good faith on CLA's expertise. We find that Siemer is not liable for the penalties under section 6662.

VIII. Conclusion

45 Siemer has not shown that expenses for which it claimed research credits for the tax years ending May 31, 2011 and 2012, were qualified research expenses. Consequently, Siemer is not entitled to the credits it claimed under section 41. In ⁴⁵claiming the credits, however, Siemer acted with reasonable cause and in good faith when it relied on CLA in its preparation of Siemer's returns and credit studies for the tax years ending May 31, 2011 and 2012. Siemer is not liable for penalties under section 6662.

An appropriate order will be issued denying respondent's motion, and decision will be entered under Rule 155.

[1] All section references are to the Internal Revenue Code (Code) in effect for the years in issue, and all Rule references are to the Tax Court Rules of Practice and Procedure, unless otherwise indicated.

[2] The fixed-base percentage is part of the formula used by the Code to compare prior and current research expenditures. The credit is allowed only to a company that can show an increase in its research expenditures.

[3] At trial and on brief Siemer did not present evidence or argument regarding any of the other adjustments. The parties stipulated the correctness of the Commissioner's adjustments to Siemer's income. The Commissioner conceded that Siemer was entitled to deductions for bonus depreciation totaling \$8,521 and \$6,770 for the tax years ending May 31, 2011 and 2012, respectively. To the extent that the Commissioner has not conceded any issue and the Commissioner and Siemer did not come to an agreement on these issues before trial, we find that Siemer has waived any argument regarding them and find them to be conceded. See Rules 149(b), 151(e); see also, e.g., Nicklaus v. Commissioner, 117 T.C. 117, 120 n.4 (2001).

[4] Rule 142(a); Welch v. Helvering, 290 U.S. 111, 115 (1933).

[5] Rule 142(a); Shea v. Commissioner, 112 T.C. 183, 190 n.10 (1999).

[6] Sec. 41(b)(1).

[7] Sec. 41(b)(2)(A).

[8] Sec. 41(b)(2)(B).

[9] Sec. 41(d).

[10] Sec. 41(d)(4)(D).

[11] Sec. 41(d)(1)(A).

[12] Union Carbide Corp. & Subs. v. Commissioner, T.C. Memo. 2009-50, 97 T.C.M. (CCH) 1207, 1254 (2009) (quoting sec. 1.174-1, Income Tax Regs.), aff'd, 697 F.3d 104 (2d Cir. 2012).

[13] Sec. 1.174-2(a)(1), Income Tax Regs.

[14] Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1255 (citing Mayrath v. Commissioner, 41 T.C. 582, 590-591 (1964), aff'd, 357 F.2d 209 (5th Cir. 1966)).

[15] Sec. 174(e).

[16] Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1255.

[17] Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1255 (citing Norwest Corp. & Subs. v. Commissioner, 110 T.C. 454, 491 (1998)).

[18] Sec. 1.174-2(a)(1), Income Tax Regs.

[19] Sec. 1.41-4(a)(4), Income Tax Regs.

[20] Sec. 41(d)(1)(B)(ii).

[21] Sec. 41(d)(2)(B).

[22] Sec. 41(d)(1)(C).

[23] Sec. 1.41-4(a)(6), Income Tax Regs.

[24] Sec. 41(d)(2)(A); sec. 1.41-4(a)(6), Income Tax Regs. In some situations sec. 1.41-4(b)(2), Income Tax Regs., allows us to consider the subsets of a business component when the requirements are not met at the business components level. While Siemer recites this rule, it does not attempt to argue the application of it to its own business components. Since we find Siemer would not qualify for the credit regardless of our application of this "shrinking-back rule", we do not attempt to apply it on Siemer's behalf.

[25] Sec. 1.41-4(a)(5)(i), Income Tax Regs.

[26] Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[27] Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[28] Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[29] Sec. 1.41-4(a)(8), Example (5), Income Tax Regs.

[30] Sec. 41(d)(1)(C).

[31] Sec. 41(d)(3)(A).

[32] Sec. 41(d)(3)(B).

[33] Sec. 41(a)(1).

[34] Sec. 41(c)(1).

[35] Sec. 41(c)(3)(A).

[36] Sec. 41(c)(2).

[37] Sec. 1.174-2(a)(1), Income Tax Regs.

[38] Jordan v. Commissioner, 134 T.C. 1, 10 (2010) (citing Wichita Terminal Elevator Co. v. Commissioner, 6 T.C. 1158, 1165 (1946), aff'd, 162 F.2d 513 (10th Cir. 1947)), supplemented by T.C. Memo 2011-243.

[39] Jordan v. Commissioner, 134 T.C. at 10 (citing Kean v. Commissioner, 469 F.2d 1183, 1187 (9th Cir. 1972), aff'd in part on this issue, rev'g in part 51 T.C. 337 (1968)).

[40] See sec. 1.41-4(a)(4), Income Tax Regs.

[41] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[42] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[43] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[44] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[45] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[46] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[47] Sec. 1.41-4(a)(8), Example (5), Income Tax Regs.

[48] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[49] See Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1256.

[50] See Rule 142(a); Dynamo Holdings Ltd. P'ship v. Commissioner, 150 T.C. ___, ___ (slip op. at 22-23) (May 7, 2018); Shea v. Commissioner, 112 T.C. at 190 n.10.

[51] See Graev v. Commissioner, 149 T.C. 485 (2017), supplementing and overruling in part 147 T.C. 460 (2016).

[52] Butler v. Commissioner, 114 T.C. 276, 287 (2000); see also Coleman v. Commissioner, T.C. Memo. 1989-248, 57 T.C.M. (CCH) 493, 495 (1989), aff'd without published opinion sub nom. Meisel v. Commissioner, 991 F.2d 795 (6th Cir. 1993).

[53] Sec. 6662(c); Higbee v. Commissioner, 116 T.C. 438, 448 (2001).

[54] Sec. 1.6662-3(b)(1), Income Tax Regs.

[55] Sec. 1.6662-3(b)(2), Income Tax Regs.

[56] Sec. 6662(d)(1)(A) and (B).

[57] Neonatology Assocs., P.A. v. Commissioner, 115 T.C. 43, 98 (2000), aff'd, 299 F.3d 221 (3d Cir. 2002).

[58] Neonatology Assocs., P.A. v. Commissioner, 115 T.C. at 99.

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