T.C. Memo. 2021-37

UNITED STATES TAX COURT

LEON MAX, Petitioner v.
COMMISSIONER OF INTERNAL REVENUE, Respondent

Docket No. 20237-16. Filed March 29, 2021.

Jeremy M. Fingeret, Matthew S. Reddington, Francesca E. Montenegro, John H. Dies, and Jefferson H. Read, for petitioner.

Lloyd T. Silberzweig, Michael E. Washburn, Davis G. Yee, and Henry C. Bonney, for respondent.

MEMORANDUM FINDINGS OF FACT AND OPINION

BUCH, Judge: Leon Max is a fabulously successful designer and businessman. The company he founded produces and sells millions of garments a year. Under his guidance, his company designs clothing that is both beautiful and

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[*2] functional. Beginning with hand-drawn sketches and using knowledge that is common to people in their field, designers, patternmakers, and sample makers take great care to turn the sketches into garments people will want to purchase. For these activities Mr. Max claimed credits under section 41[1] for increasing research activities for 2011 and 2012. Because the activities in Mr. Max's design process do not constitute qualified research, the expenses do not qualify for the research credit.

FINDINGS OF FACT

I. Introduction

Leon Max is a self-made man. He was born and raised in Leningrad, Soviet Union (now Saint Petersburg, Russia). At the age of 18, he left his home to pursue a career in fashion. A lover of American clothing brands and blue jeans, Mr. Max made his way to New York City in the 1970s, where he briefly attended the Fashion Institute of Technology before dropping out to move to Los Angeles. In Los Angeles, he designed clothes for successful startups. Five years after Mr. Max left the Soviet Union, he started Leon Max, Inc. (LMI).

[1]All section references are to the Internal Revenue Code as in effect at all relevant times, and all Rule references are to the Tax Court Rules of Practice and Procedure, unless otherwise indicated.

[*3] LMI's first clothing line started with typewriter ribbon. Mr. Max and his business partner bought out a warehouse filled with undyed poplin used in the manufacturing of typewriter ribbons. They dyed the fabric in "fashionable colors," and Mr. Max produced a small line of six pieces, one of which was a jumpsuit. The jumpsuit design was particularly creative. Because Mr. Max was limited by the narrow width of the poplin, he produced jumpsuits in only small sizes. Recognizing that a market for jumpsuits did not exist, Mr. Max promoted his new design by driving along the California coast from Los Angeles to San Francisco and "placing that jumpsuit into every specialty store that * * * [he] encountered." The jumpsuits were wildly successful. LMI sold 40,000 units and netted $1 million in its first year of business.

From this auspicious beginning, LMI grew. In the 1980s, the company sold its garments in high-end department stores and boutiques before opening its own retail shops in the mid-1990s. By 2011 and 2012 (the years at issue), LMI was a women's clothing company specializing in apparel sold in department stores throughout the country, LMI's own stores, and online. In 2012, LMI manufactured between 800,000 and 1 million garments each month. Mr. Max was the sole shareholder, chief executive officer, and creative director of LMI, an S corporation.

[*4] II. Clothing Lines

LMI designed, developed, produced, and sold clothing under many different brands or clothing lines. Each of these clothing lines was sold in retail stores that catered to different customer tastes and profiles. These retail stores used customer profiles to identify the tastes, preferences, and price points of their consumers. And LMI designed each clothing line using these metrics. Macy's carried more generalized clothing styles giving LMI more freedom with garment colors and fabric weights for its Macy's lines: Max Studio and Studio M. Dillard's targeted younger customers who preferred trendier, more creative garments. LMI sold its Max Studio and Max Studio Specialty Products to Dillard's. And LMI sold its Sophie Max line to Belk, a department store in the South that opted for vibrantly colored clothes made from lighter fabrics.

LMI also created the Chelsea and Violet brand as a private label for Dillard's. As a private label, LMI did not own Chelsea and Violet; rather, Dillard's owned the trademark and provided LMI with design criteria targeted toward its customers. LMI would then design, develop, and produce the Chelsea and Violet garments as it would for its other lines.

LMI's high-end line was the Leon Max brand, which catered to women with "discerning taste." This profile affected how the company constructed the Leon

[*5] Max brand garments. The clothes were higher quality, allowing the company more flexibility with workmanship, construction, functionality, and creativity.

For each clothing line, LMI produced a new collection every month. Retail stores occasionally dictated garment selections and designs of the monthly lines. Stores would request a length or style of dress that had sold well in a previous year or request a specific design. LMI would then create garments to fit the retailers' criteria.

III. Design Inspiration

Designers made sure to follow and anticipate trends. Kerri Specker, LMI's executive vice president responsible for product development, defined "trends" as the "direction fashion is going." These trends determined the design of the garments. Culture also influenced the designers, who drew inspiration from movies, actors, and museum exhibitions. Seasonal factors, such as weather, temperature, and holidays, also guided LMI's collections.

Overall, Mr. Max strove to create stylish clothes that inspired confidence in the women who wore them. This message trickled into the clothing lines and governed the design and feel of the garments. For example, when designing the Leon Max brand, LMI endeavored to create garments of such high quality that they made women "feel and look more refined." This message was conveyed through

[*6] not only the garment's design but also the quality of its fabric and construction.

IV. Garment Development Process

LMI followed a structured process for conceptualizing, designing, and developing garments. We will refer to this process as the pre-production process or development.

A. Broad Conceptual Planning

The pre-production process began with the design team developing a concept for each collection. In this stage of the process, designers discussed trends and how to translate broad concepts into clothing. This process included choosing the right textiles for the collection and determining what design elements LMI must present to the retail stores (LMI's customers). The team often created "mood boards" to display LMI's vision for each collection. The mood boards included textiles, trims, prints, and color schemes to showcase the overall look and feel of the collection to LMI's customers.

B. Design Concept and Sketch

With a vision of the collection in place, the designers and staff at LMI began designing the garments. The designers sketched each garment, adding detailed descriptions for the patternmakers to follow. Designers chose the textiles they

[*7] wanted, sometimes designing a garment around the properties of the chosen textile. Typically, a designer would already know the qualities of a fabric and choose a fabric that would work for the design.

C. The First Pattern

Once the sketch was completed, designers worked closely with patternmakers to execute their design. Patternmakers used the design sketch "to create a blueprint" of the garment's components (e.g., sleeves, cuffs, waistbands) by creating patterns for each component. During this process, the patternmakers and designers engaged in a "constant back and forth." Patternmakers often specialized in garment categories, such as pants, tops, dresses, plus sizes, and petite sizes. They also specialized in making first patterns or prototype patterns. Michel Bonhomme, LMI's lead patternmaker, oversaw this process, as well as pattern cutting, sample making, and fitting.

D. Pattern Cutting

After patternmakers developed the shapes making up the pattern, pattern cutters laid the pattern pieces on the chosen fabric and cut out the separate pieces.

E. The First Sample

A sample maker would take these pattern pieces and sew the pattern into the first sample garment. The first sample maker worked with the patternmaker on

[*8] how to assemble the component pieces, then sewed the pieces, adding any necessary trim and finishing touches. Like patternmakers, some sample makers specialized in making first samples or prototype samples (the sample that LMI sent to the factory for production).

F. Fitting

A fit model would then try on the completed sample to allow the pre-production team to see how the garment fit on a person. Fit models had the same body measurements and proportions as LMI's clothing sample size. During a fitting, a model wore the sample while the pre-production team assessed the appearance, function, and proportions of the garment. The team observed how the garment looked on the model and what aesthetic changes they needed to make.

The team also assessed how the model felt in the garment and how the garment moved with her. They asked the model to position her arms to mimic driving a car, holding a baby, or reaching for an item on a high shelf. The fit model could be asked to walk on a flat surface, walk up stairs, or sit down to determine her range of motion while wearing the garment. The team may have also asked her to stand in the sunlight to ensure the garment was not too transparent. While performing these tasks, the fit model provided the team

[*9] feedback on issues such as whether a seam or the fabric scratched or if an elastic band felt too tight or too loose.

Patternmakers attended these fittings, taking notes on what changes they must make to the pattern. Some changes required a new pattern and sample to be made, which was then refitted on the model. For example, if the model could not sit in a pair of pants, the patternmakers would change the shape of the crotch and adjust the fit to the extent the fabric allowed. LMI repeated this process until the designer approved the garment. Occasionally, LMI's customers attended fit sessions and provided feedback.

G. Sale Sample

If the LMI team approved the first sample after the fit process, it created a sale sample to be presented to customers, who decided whether to order the garment or collection for resale.

During the sample showing, customers would occasionally provide feedback on colors and seasonality (whether the garments were appropriate for summer, fall, winter, or spring) or whether the garments aligned with the retailers' customer profiles; but customers typically ordered the garments as presented. LMI incorporated some of these customer suggestions and disregarded others. Once a

[*10] customer ordered a garment, it then progressed through LMI's pre-production process.

H. Production Prototype

After a customer chose a garment for production, LMI created a production prototype of the garment. Production patternmakers and designers used notes and customer feedback to create a production prototype pattern. The production sample makers sewed the production sample, which then went through another, more thorough, fit test.

I. Marking and Grading

Employees in the marking and grading department at LMI performed both marking and grading tasks. Markers laid out pattern pieces on fabric to determine the amount of fabric needed to produce each item. While marking occurred early in the process, grading happened only after LMI had orders for a garment. Graders made adjustments to the size small sample pattern to make medium, large, and extra-large size patterns. LMI would send these patterns to the factories so that they could produce garments of all sizes. During this process, graders had to consider how the garments' proportions changed as the size increased or decreased. They accomplished this by using a digitized grading scale.

[*11] J. Production Approval Sample

LMI contracted with third-party manufacturers in China to produce its garments. Once LMI perfected the fit and aesthetics of a prototype, it sent the production prototype and pattern to the manufacturers as a guide. LMI also sent the manufacturers a specification sheet listing the pattern pieces, trim, and fabric information, and sewing instructions.

The factory used the prototype and pattern to create the garment. This garment became the production approval sample, which the factory sent back to LMI for approval. LMI reviewed the production approval sample to ensure the factory met all the criteria for the garment, including the correct lining, buttons, zippers, shoulder pads, thread, and fabric. The production approval sample was also fit tested.

If the production approval sample did not match the production prototype, LMI sent the original prototype back to the factory with instructions on how to make adjustments. If necessary, LMI created a new pattern to send back to the factory. Once LMI accepted the production approval sample, the factory produced the garment.

[*12] V. Typical Considerations During Pre-Production Process

During the pre-production process, employees at LMI encountered problems and had to address a variety of issues with the designs and structures of garments. LMI found solutions to these problems as they arose.

A. Trim, Linings, and Thread

Finished garments included trim, linings, thread, and other components. Taking into account aesthetics, structure, and fabric type, LMI had to determine which of these details were right for each garment.

Certain fabrics required the use of a specific sewing style or thread. When LMI designed garments using lace, the pre-production team had to sew the garment using a French seam to ensure the seam lay flat to reduce scratching. A garment's fabric also dictated the size and style of thread used for stitching. Designers, patternmakers, and sample makers often knew which threads worked with the fabric, but they tested thread thickness, needle size, and sewing machine adjustments through a process of trial and error for garments with visible stitching.

Garments made from sheer fabrics required linings. LMI created patterns for linings and made them like the rest of the garment to ensure proper fit and function. The fabric, design, and drape of the garment influenced the kind of

[*13] lining used. Some designers indicated their lining preference on the design sketch. LMI also had "standard linings" it used for certain fabrics.

Another common issue was the flexibility and treatment of elastics. Some garments required stiff elastics, for example, to hold up a heavy skirt, while others needed an elastic with more release to give the wearer more room. Patternmakers worked with designers to determine the proper elastic for each garment.

B. Plus-Size Garments

Transitioning patterns from standard-size to plus-size garments presented another challenge. Plus-size women have different proportions from women who wear standard sizes; this required LMI to use different ratios when creating these garments. The proportions of trims and structural elements, such as elastic, were also different. A plus-size shirt or dress required stronger elastic at the shoulders to account for the extra fabric used in the lower part of the garment. Therefore, LMI created new patterns for plus-size garments, even if the garments' designs were also used for standard-size garments. LMI employed a plus-size fit model to ensure correct proportions and measurements.

C. Fabric Patterns and Draping

Creating a garment with a patterned fabric (e.g., stripes, polka dots) required more consideration than with a solid fabric. Markers, who laid out pattern pieces

[*14] on the fabric, had to place the pattern pieces on fabric so the design aligned when the pattern pieces were stitched together to make a garment. For example, if a fabric had a flying bird print, the markers ensured the birds would all "fly" in the same direction on the component pattern pieces.

Markers also considered the fabric grain when laying out the pattern. The grain of a woven fabric travels in a particular direction and affects how the garment fits, stretches, and moves on the wearer. If the grain travels in the wrong direction on a garment, it can affect the garment's fit.

D. Design Elements

The development team occasionally did not know how to execute certain design elements at the outset of the pre-production process. To combat this, LMI conducted a process of trial and error. When creating a pleated dress, LMI considered how to add the excess fabric needed for the pleats without making the dress too bulky or uncomfortable. The development team used the dress fabric to create "mockups" of various pleat quantities and widths to determine which variation would work best for the style of dress. Mockups allowed the team to find

[*15] the right pleat variation without making a full sample of the dress. The pleat variation also dictated needle and thread sizes and the heft of elastic used.

A top with twisted shoulder straps required trial and error to find the right technique to get the twist aesthetic while maintaining the functionality of the straps. The weight of the fabric and the position of the twist could make the shoulder straps prone to falling off the wearer's shoulders. LMI addressed this by repeatedly draping the top on a mannequin to test the weight of the straps and then testing the top on a fit model to ensure the straps stayed on her shoulders as she moved. After a few iterations, the development team arrived at a solution, which was to twist the straps at two points and secure them with a stitch.

A pintucked dress similarly required multiple iterations. A pintuck is a tiny pleat 1/16-inch wide. Pintucks are difficult to create. LMI addressed this by creating a template with perforations indicating where pintucks should occur. Fluorescent powder was sprinkled over the perforations to create dots that would serve as a guide. The fabric would then be fed into a "zigzag" machine or a 12-needle sewing machine to create the pintucks that followed the fluorescent powder guide.

[*16] VI. Quality Assurance Tests

LMI implemented quality assurance testing, which was overseen by Wayne Friedman. When Mr. Friedman started this position, he changed the terminology from "quality control" to "quality assurance," which he felt better captured his goal of "building the product right from the beginning and maintain[ing] the process."

Testing fabric and garments to ensure they met quality standards was a key aspect of quality assurance. LMI based these standards on customer requirements and past experience. It followed testing methods and procedures from organizations such as the American Society of Testing & Materials (ASTM) and the American Association of Textile Chemists & Colorists (AATCC), along with Government agencies such as the Federal Trade Commission (FTC) and the Consumer Product Safety Commission.

These quality performance tests for fabrics included care labeling tests, colorfastness tests, strength tests, and safety tests. LMI required every garment to meet these quality standards before shipment.

One test conducted by LMI was the shrink test. The testers drew a 10-inch square on fabric and applied steam from a commercial clothing iron to the square. They then measured the square to determine how much the steam caused the fabric to shrink. The testers drew the same square on another piece of fabric and washed

[*17] and dried the fabric in a commercial washer and dryer. The square on the washed and dried fabric was measured against a grid to determine how much shrinkage occurred, if any. The testers recorded and conveyed the results to the patternmakers, who adjusted the pattern to account for the expected shrinkage. If the shrink test determined an 8% shrink rate, the patternmakers input this information into their patternmaking software, which increased the dimensions of each pattern by 8%.

LMI also conducted crocking, or colorfastness, tests. A crocking test determines whether, and how much, a fabric will bleed onto other materials. During a crocking test, the test fabric is placed into a machine with a piece of white fabric. The tester cranks the machine for 20 seconds to get 10 full rotations. Dye from the test fabric may rub off on the white fabric. The tester then compares the white fabric to swatches issued by the AATCC to see how much dye bled from the test fabric onto the white fabric. LMI performed this test first on dry fabric and again on damp fabric.

Dye testing overlapped with crocking tests. Testers would wash a white fabric with the test fabric in a commercial washer and note how much of the test fabric dye bled into the white fabric.

[*18] LMI also tested the strength of its seams with different fabrics. Sewers would stitch together two pieces of fabric and testers would manually tug at either end to see whether the seams held together. LMI performed a similar test by manually tugging a piece of fabric to see if it would tear. These tests determined whether the fabric and seams could withstand daily garment stresses of sitting and moving without shredding or tearing. While necessary for proper garment construction, these tests required little time or effort; Ms. Specker estimated that each seam test took three seconds to perform.

LMI tested fabric for pilling by washing the fabric in a commercial washer.

Many of these testing procedures, such as the seam test and colorfastness test, must meet industry-wide standards. These standards came from the AATCC, the ASTM, and the Consumer Product Safety Commission. LMI also conducted its own home laundering test to determine the proper care label for the garment by washing and drying each garment three times. The FTC issues guidelines on care labeling, which are strictly enforced.

VII. Procuring Textiles

Acquiring textiles for LMI was an ongoing pursuit. Mr. Max attended six textile fairs a year to look at fabric swatches, assess market trends, and compile a textile library from which to create garments for the following season. If a

[*19] designer needed a fabric with specific qualities, Loan Nguyen, the director of art, would communicate the necessary fabric qualities to a textile mill. The mill would send yards of sample fabrics, and the designers and patternmakers would choose which sample worked best for the design. LMI occasionally designed prints and would commission textile mills to print these designs on raw fabric, such as silk or georgette. During 2011 and 2012, no LMI employee manufactured fabrics in a textile mill.

VIII. LMI's Employees and Hiring Practices

LMI hired and trained experienced employees to create garments. Candidates hired for design and development positions had experience in the field as well as creative and technical skills. Some new employees underwent probationary periods. Production patternmakers had a two-week trial period during which they had to show they could make necessary corrections to patterns. Sample makers received a two- or three-month trial period to prove they could create garment samples and understood fabric qualities.

LMI employees also specialized in certain garments. Mr. Bonhomme assigned production patternmakers projects he knew they could complete. He would assign jacket projects to a patternmaker adept at constructing jackets or pants projects to a patternmaker who excelled at pants.

[*20] IX. LMI's Relationship With Alliantgroup

In 2013, LMI engaged alliantgroup, a tax consulting firm, to conduct a research and development tax credit study spanning 2009 to 2012. As part of this engagement, alliantgroup produced a Federal research and development tax credit study for LMI in 2014. The study randomly sampled 35 garments produced by LMI from 2009 to 2012. As part of its analysis, alliantgroup interviewed LMI employees; reviewed its design sketches, prototype photographs, spec sheets, markers, and email correspondence; and analyzed its financial documents, including its Forms W-2, Wage and Tax Statement, Federal tax returns, and financial statements. The consulting firm found that 32 of the 35 projects included activities that qualified for the research and experimentation tax credit.

X. Procedural History

LMI claimed $426,255 of research credits in a 2011 amended Form 1120S, U.S. Income Tax Return for an S Corporation. Mr. Max filed a 2011 Form 1040, U.S. Individual Income Tax Return, on which he did not claim any research credits. He later amended his return to claim the passthrough of all of LMI's 2011 research credits.

[*21] LMI reported $496,462 of research credits on its 2012 Form 1120S. Mr. Max filed a 2012 Form 1040 and claimed $322,700 of passthrough research credits on Form 3800, General Business Credit.

Mr. Max's claimed research credits for 2011 and 2012 were consistent with the findings of alliantgroup's study.

In June 2016, the Commissioner issued a notice of deficiency to Mr. Max. The notice disallowed all of the claimed research credits, $426,255 for 2011 and $322,700 for 2012. While residing in California, Mr. Max filed a petition with this Court.

Trial was held September 16 to 19, 2019, in Los Angeles, California, and October 24, 2019, in Washington, D.C. At trial, Mr. Max, Ms. Specker, Ms. Nguyen, Mr. Bonhomme, and Mr. Friedman, among others, testified. Both parties also called expert witnesses to testify on their behalf.

Mr. Max argued that LMI's multistep process of designing garments, fit testing, and fabric testing constituted research and experimentation under section 41 and that the wages, supply expenses, and contract expenses were qualified research expenditures.

[*22] The Commissioner argued that LMI's production process does not qualify under section 41 but instead was nontechnical, typical of the industry, and concerned more with style, taste, and seasonality.

XI. Expert Witnesses

Both parties hired and presented expert witnesses. The parties presented experts to testify about science and technology in the fashion design industry and, to a lesser extent, LMI's use of science and technology in its pre-production process. The parties also presented experts on statistical sampling and the merits of the sampling done on behalf of alliantgroup.[2]

A. Petitioner's Expert

Mr. Max hired Sean Cormier as his expert witness. Mr. Cormier is an associate professor of fabric science, quality assurance, and product development at the Fashion Institute of Technology. He specializes in textile product development and textile quality assurance.

In his report, Mr. Cormier stated the "Questions Presented" as: (1) "What principles of physical or biological sciences, engineering, or computer science does Leon Max, Inc. rely in designing and developing new garments?" and (2) "How

[2]Because this evidence does not affect our opinion, we will not discuss these expert witnesses or the statistical sampling method.

[*23] does Leon Max, Inc. rely on principles of physical or biological sciences, engineering, or computer science in designing and developing new garments?" Mr. Cormier concluded that LMI "utilized and relied on principles of material science, textile engineering and chemistry."

In arriving at this conclusion, Mr. Cormier provided little of his own research into LMI. He pulled factual information about LMI's production process verbatim from the alliantgroup report and did not verify that alliantgroup's reported process was actually used by LMI. Instead, he "relied on the information that was given to * * * [him]." And while Mr. Cormier was provided depositions taken of Ms. Specker, Ms. Nguyen, Mr. Max, Mr. Friedman, and Mr. Bonhomme, he did not rely on them in creating his report. He also referenced only one LMI clothing line and did not know whether he was provided information on other lines that he used in his analysis.

Mr. Cormier provided insight into the prevalence of fabric testing in the apparel industry. He explained that garments sold to U.S. customers must contain two labels: the "fiber content label" and the "care label." Fiber content analysis uses test methods and standards set by the AATCC and the ASTM. The care

[*24] labeling follows the FTC's trade regulation rules.[3] Mr. Cormier noted that while a fabric mill provides recommended care labeling instructions for its textiles, garment companies still must ensure that the garment care labeling is correct. The way a textile reacts to the washing process may change once a clothing company adds lining, trim, and seams to the textile.

As part of this analysis, Mr. Cormier provided a series of formulas that can be used for fabric testing. He also provided a "drape coefficient" formula that could be used to express how rigidly or fluidly a fabric drapes around the body of the wearer. However, Mr. Cormier did not know whether LMI knew about the drape coefficient, was familiar with these formulas, or used these formulas.

B. The Commissioner's Expert

The Commissioner hired Frances Harder as his expert witness. Ms. Harder spent 35 years in the fashion industry teaching patternmaking, fashion, and design and working as a freelance designer.

Ms. Harder answered the following questions:

> 1) Whether the information available to * * * [LMI] established its capability, or method for developing, or improving a product (or process), or the appropriate design of a product (or process) * * *

[3]Title 16 C.F.R. sec. 423.3 (2012) requires manufacturers and importers of apparel "to provide regular care instructions" on care labels. The care labels must contain instructions for washing, drying, ironing, bleaching, or dry cleaning the garment. Id. sec. 423.6(b).

[*25] 2) Whether LMI's activities related to: (a) a new or improved function, performance, reliability, or quality; or (b) style, taste, cosmetic, or seasonal design factors. * * *
3) Whether the activities in question * * * were undertaken for the purpose of discovering information that is technological in nature; in other words, whether LMI sought to discover information that fundamentally relied on principles of the physical or biological sciences, engineering, or computer science.

She concluded that (1) LMI had the necessary information and professional team to design and produce garments; (2) LMI used procedures already in wide use in the fashion industry and did not invent any new procedure to improve function; and (3) fashion professionals make decisions based on the design and construction of the garments. She opined that a design team is not trained in science and engineering but in "the art of creating good looking garments that are also functional and meet the required price point for a particular niche market."

In preparing her report, Ms. Harder did not interview any employees at LMI or visit the LMI studio. But she did review the transcripts of depositions taken of Mr. Max, Ms. Specker, Mr. Ngyuen, Mr. Bonhomme, and Mr. Friedman. The report analyzes 5 of the 35 projects found in the alliantgroup study.

Ms. Harder's report emphasized that LMI's processes were "normal" within the industry and that it conducted "normal" testing. Ms. Harder stated that the processes alliantgroup portrayed as "material science and textile engineering" were, in fact, "typical and normal practice in creating any garment." She provided

[*26] an example of complex material science and chemical engineering. In Nepal, producers of Pashmina cashmere were struggling to prove that their textiles consisted of 100% pure Pashmina, rather than an adulterated blend of Pashmina and other fibers. The solution was to develop goat DNA testing that would detect the purity of the Pashmina fabric. Ms. Harder contrasted this material science and textile engineering with fabric shrinking and crocking tests, which consist of washing fabrics to detect shrinkage and rubbing fabrics together to detect whether dyes rub off.

OPINION

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] In limited situations, the burden may shift to the Commissioner under section 7491(a). Mr. Max does not argue that the Commissioner should bear the burden, and we find the facts do not warrant such a shift. Accordingly, Mr. Max bears the burden of proof.

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

[*27] II. Expert Witnesses

Both parties presented expert witness testimony, but neither party relied extensively on these experts to support his position. We may use experts to influence our conclusions, but we are not bound by their opinions.[5]

III. Section 41 Credits for Research and Development Overview

Section 41 allows taxpayers to take a credit for increasing research activities. As is potentially relevant here, the credit is 20% of the excess of a taxpayer's qualified research expenses for the taxable year over the base amount.[6] Qualified research expenses are (i) in-house research expenses, including wages for employees working on qualified research and costs paid or incurred for supplies for qualified research, and (ii) contract research expenses.[7]

To be qualified research, the research must relate to a new or improved function, performance, reliability, or quality of the product or process.[8] Certain activities cannot be qualified research. Qualified research does not include

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[5]Estate of Stevens v. Commissioner, T.C. Memo. 2000-53, 79 T.C.M. (CCH) 1519, 1521 (2000).

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

[7]Sec. 41(b)(1) and (2)(A).

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

[*28] research after commercial production; adaptation or duplication of an existing business component; market research, testing, or development; or routine or ordinary testing or inspection for quality control.[9]

To be qualified research under section 41, activities or projects must satisfy four tests. These four tests are (i) the section 174 test, (ii) the technological information test, (iii) the business component test, and (iv) the process of experimentation test.[10] We take each of these tests in turn.

IV. The Section 174 Test

The section 174 test requires research expenditures to be eligible for treatment as expenses under section 174.[11] Section 174 generally allows taxpayers to deduct research and experimental expenditures during the taxable year in which they are paid or incurred.[12]

The regulations define research and experimental expenditures as "expenditures incurred in connection with the taxpayer's trade or business which

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[9]Sec. 41(d)(4).

[10]Sec. 41(d); Siemer Milling Co. v. Commissioner, T.C. Memo. 2019-37, at *19.

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

[12]Sec. 174(a)(1).

[*29] represent research and development costs in the experimental or laboratory sense."[13] Research and development costs in the experimental or laboratory sense are "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."[14] But resolution of uncertainty does not necessarily require experimentation.[15]

Essentially, for there to be experimental expenditures, the taxpayer must show (1) that it does not already have information that can address a capability or method for improving the product or design of the product (uncertainty exists) and (2) its activities were meant to eliminate those uncertainties.[16]

Mr. Max argues that LMI faced uncertainties throughout the development process. These claimed uncertainties include: how to cut and drape printed

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

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

[15]Little Sandy Coal Co. v. Commissioner, T.C. Memo 2021-15, at *36.

[16]Union Carbide Corp. & Subs. v. Commissioner, T.C. Memo. 2009-50, 97 T.C.M. (CCH) 1207, 1255 (2009), aff'd, 697 F.3d 104 (2d Cir. 2012).

[*30] fabrics; fabric choices; thread sizes; details such as twists, pintucks, and pleating in the fabric; modifying patterns for plus-size garments; fabric shrinkage; and the final fit of the garment.

But these issues are not uncertainties as contemplated by section 174. The proper thread size to use with a particular fabric and the proportions of a garment are well known and understood by the designers and patternmakers. How to drape a particular fabric to achieve the desired aesthetic may be unknown, but the LMI garment makers already have the information necessary to address that unknown.

Moreover, expenditures must be used for an investigative purpose. Section 174 is intended to "limit deductions to those expenditures of an investigative nature" used to "develop[] the concept of a model or product."[17] Expenses for the "actual construction" of the product are not of an investigative nature.[18]

According to Merriam-Webster's Collegiate Dictionary, to "investigate" is "to observe or study by close examination and systematic inquiry."[19] For its

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[17]Mayrath v. Commissioner, 41 T.C. 582, 590 (1964), aff'd, 357 F.2d 209 (5th Cir. 1966).

[18]Mayrath v. Commissioner, 41 T.C. at 590.

[19]Merriam-Webster's Collegiate Dictionary 616 (10th ed. 1996).

[*31] activities to be "investigative in nature," LMI must closely examine the uncertainty at issue and systematically inquire after potential solutions to resolve it.

LMI's activities were not investigative in nature. LMI's solution to the problem of properly cutting and draping fabric to make a blouse was to cut and drape the fabric a certain way to see how it worked. If LMI did not have a fabric with the qualities necessary for a garment, it asked a textile mill to send over fabric samples. The "uncertainty" of not initially knowing how to align printed fabric was addressed by simply marking and aligning the fabric so the print matched throughout the garment. Finding the proper thread size required LMI employees to apply their knowledge of thread and fabric to choose a thread size they believed would work. If it did not work, they would try another size. Testing fabric shrinkage involved applying steam to the fabric or washing the fabric in a commercial washing machine. Testing a fabric's durability involved tugging at it. Arriving at these solutions did not involve systematic inquiry or careful study. And these activities are not "investigative in nature." Instead, they are common solutions to common problems.

We also struggle to grasp how fit testing garments on a model is investigative in nature. During fit testing, the production team--among other things--asked the model to: stand in direct light to see whether the garment needed

[*32] a lining; walk up stairs to determine whether the garment was too short or restricted movement; sit down to determine whether the garment was too tight; and raise her arms to determine whether the garment moved well with her body. While this process is necessary to develop clothing that women want to buy and wear, it does not require systematic inquiry or close examination. It simply requires observing the model and listening to her feedback.

A taxpayer may also show that uncertainty exists "if the taxpayer knows that it is technically possible to achieve a goal but is uncertain of the method or appropriate design to use to reach that goal."[20] But the taxpayer still must "discover information" to eliminate this uncertainty.[21]

LMI had the requisite information to solve problems as they arose. For an uncertainty to exist under section 174, a taxpayer must be uncertain about whether it can achieve its objective through research. In Siemer Milling, we found the taxpayer did not have section 174 uncertainty when it ran its pulsewave machine at 5,000 RPMs, because it had previously conducted tests on the machine at that

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

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

[*33] speed.[22] When the taxpayer repeated its run of the machine at 5,000 RPMs, it already knew the consequences of doing so.

LMI faces a similar situation here; Mr. Max did not show that LMI faced the uncertainty required by section 174. It had previously encountered many of the "uncertainties" it faced in 2011 and 2012. Employees at LMI knew how to align prints, alter standard patterns for the plus-size line, fit garments, and cut fabrics along the proper grain. These were standard activities that LMI's employees performed daily. LMI faced these issues so regularly that it required new employees to prove they could accomplish these tasks before being permanently hired.

Certain activities cannot qualify as research or experimental expenditures at all. Section 1.174-2(a)(3), Income Tax Regs., states, in part, that "[t]he term research or experimental expenditures does not include expenditures for * * * [t]he ordinary testing or inspection of materials or products for quality control (quality control testing)." The regulations define "quality control testing" as "testing or inspection to determine whether particular units of materials or products conform

[22]Siemer Milling Co. v. Commissioner, at *33.

[*34] to specified parameters."[23] But quality control is not "testing to determine if the design of the product is appropriate."[24]

The in-house testing LMI conducted on textiles was quality control. LMI followed crocking and shrinkage guidelines from the ASTM, the AATCC, the FTC, and the Consumer Product Safety Commission. It followed its own guidelines on pilling, shrinkage, seam strength, and fabric strength. If fabrics did not pass these tests, LMI would not use them in its garments.

Mr. Max argues that this testing falls into the category of "testing to determine if the design of the product is appropriate" and is thus not quality control. To support this argument, Mr. Max cites a Field Service Advice (FSA) memorandum regarding quality control expenses for a medical device manufacturer.[25] The FSA states that expenses related to "design and assembly verification, shelf life, and quality of build" are not quality control because these

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[23]Sec. 1.174-2(a)(4), Income Tax Regs.

[24]Sec. 1.174-2(a)(4), Income Tax Regs.

[25]FSA 200013013 (Mar. 31, 2000). Field Service Advice is case-specific advice issued by the Associate Chief Counsel of the Internal Revenue Service (IRS). An FSA is not a final determination of the IRS' position on an issue, even in the case for which the FSA was issued. Internal Revenue Manual pt. 4.8.8.12.1.3(1) (Dec. 6, 2013). FSAs are not precedent.

[*35] expenditures eliminate uncertainty regarding the development and improvement of medical devices.[26] Mr. Max argues that LMI faced similar uncertainty regarding the quality of his textiles and performed testing to eliminate this uncertainty.

However, it is clear that the goal of this testing was quality control. LMI had established parameters that textiles must meet to be used in garments. It developed these standards to meet its own needs but also followed prescribed standards from recognized industry organizations. The tests were standardized, regular, and conducted to ensure the textile conformed to specific metrics. They were not undertaken to combat uncertainty but to ensure a high-quality product.

V. The Technological Information Test

To be "qualified research" an activity must be undertaken for the purpose of discovering information that is "technological in nature."[27] Information is technological in nature if "the process of experimentation used to discover such information fundamentally relies on principles of the physical or biological

[26]FSA 200013013, at 8.

[27]Sec. 41(d)(1)(B)(i).

[*36] sciences, engineering, or computer science."[28] A taxpayer may rely on existing principles of science and engineering to satisfy this requirement.[29]

In 1985, when evaluating whether to extend the research and experimentation credit in section 41, Congress addressed concerns with how businesses had claimed the credit. One such concern was that "some taxpayers have claimed the credit for virtually any expenses relating to product development" without engaging in "high technology activities."[30]

Mr. Max argues that LMI fundamentally relied on science and engineering in its production process. He claims that fit testing relies on engineering, fabric draping and fabric print alignment relies on material sciences, and fabric shrinkage and colorfastness tests rely on chemistry. We disagree.

Mr. Max's arguments defy a common understanding of words and terms. Therefore, we turn to the dictionary to aid in our analysis. Merriam-Webster defines "engineering" as "the application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to

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

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

[30]S. Rept. No. 99-313, at 694-695 (1986), 1986-3 C.B. (Vol. 3) 1, 694-695.

[*37] people" or "the design and manufacture of complex products."[31] Fit testing is not engineering. Receiving feedback from the fit model and then enlarging too-tight armholes or creating more room in a pant leg is not applying "the properties of matter and the sources of energy in nature." Nor is fit testing the design and manufacture of complex products, such as bridges, satellites, computers, or other products that require the expertise of an engineer to construct. LMI did not use principles of engineering.

"Materials science" is "the scientific study of the properties and applications of materials of construction or manufacture (as ceramics, metals, polymers, and composites)."[32] We struggle to see how draping fabric and ensuring fabric patterns align on a garment employ material science. While draping certainly requires knowledge of fabric properties to determine how it will lie across various surfaces and move along the body, this knowledge is neither the study nor the use of material sciences. And while draping coefficients exist, LMI did not use them in practice or indicate knowledge of their existence. Further, aligning fabric patterns does not require the use of science at all but practice and eyesight.

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[31]Merriam-Webster's Collegiate Dictionary 383 (10th ed. 1996).

[32]Merriam-Webster's Collegiate Dictionary 717 (10th ed. 1996).

[*38] Finally, "chemistry" is defined as "a science that deals with the composition, structure, and properties of substances and with the transformations that they undergo."[33] The shrinkage tests required LMI employees to apply steam from a commercial clothes iron to fabric or wash and dry the fabric in commercial washers and dryers. Observing whether fabric shrinks after using home appliances is necessary in the clothing business, but it is not chemistry. Using chemistry implies fundamentally changing the structure or composition of materials; washing fabric to determine whether it is prone to shrinkage is not that.

Mr. Max argues that LMI relied on scientific principles and engineering because these principles occurred in the background of LMI's operations. He insists that the existence of a coefficient to express how a fabric drapes is sufficient to show a fundamental reliance on scientific principles, even if LMI never used a coefficient.

We will reiterate an analogy the Court used during closing argument. "I am confident that there is a formula out there that can be used to calculate the place point of impact, if you launch a spherical projectile at a particular rate and speed and angle, and where it will land. I'm sure there are devices that our military uses

[33]Merriam-Webster's Collegiate Dictionary 196 (10th ed. 1996).

[*39] to figure out exactly where such a thing would land. * * * I don't think that makes a centerfielder a mathematician."[34] Mr. Max uses this analogy to distinguish LMI's use of science and engineering. He claims that the centerfielder uses "scientific principles in a reactionary manner to confirm what is in front of him," while LMI uses these principles "to actively overcome an uncertainty relating to the development of a new product."

This distinction has no bearing on whether LMI used principles of hard sciences. While LMI's employees have a working understanding of how different fabrics drape or how dyes affect materials, they do not rely on "high technology activities" when draping or assessing dyed materials. As with the centerfielder, science operates in the background of the action, without LMI's employees' actually implementing and relying on that science. This is not to say that hard science is necessarily absent from the apparel and garment industries; developing a process to test for the proper goat DNA in Pashmina cashmere, as described by Ms. Harder, may well be an example. But LMI did not engage in hard sciences

[34]It appears that the Court's supposition of the existence of such a formula was correct. See Alan M. Nathan, Trajectory Calculator, The Physics of Baseball, http://baseball.physics.illinois.edu/trajectory-calculator-new.html (last visited Mar. 10, 2021).

[*40] during the years at issue. Mr. Max, therefore, does not pass the technological information test.

VI. Process of Experimentation Test

The process of experimentation test requires that substantially all of the research activities constitute elements of a process of experimentation for a qualified purpose.[35] We have previously described this test as consisting of three elements: (1) the "substantially all" element, (2) the "process of experimentation" element, and (3) the "qualified purpose" element.[36] These elements are applied to each of the taxpayer's business components.[37] We will take them in inverse order.

[35]Sec. 41(d)(1)(C); Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1255.

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

[37]Sec. 41(d)(2)(A); sec. 1.41-4(a)(6), Income Tax Regs. In some situations, section 1.41-4(b)(2), Income Tax Regs., allows us to apply the "shrinking-back rule." The "shrinking-back rule" states that the requirements of section 41(d) must first be applied to the discrete business component. If the requirements are not met there, they are applied to the most significant subset of the business component, "shrinking-back" until the requirements are either met or subsets no longer exist. Sec. 1.41-4(b)(2), Income Tax Regs. Mr. Max has not argued that the "shrinking-back rule" applies to his case, so we will not attempt to apply it on his behalf.

[*41] To potentially qualify for the research credit, research must be for a qualified purpose. A purpose is not qualified if it relates to style, taste, cosmetic, or seasonal design factors.[38]

LMI's purpose was to create beautiful clothing that women would want to buy. Mr. Max testified that as a clothing designer he strove to create stylish clothes that looked good on the women who wore them. This goal drove the design process and was LMI's primary consideration when creating garments.

LMI made significant efforts to cater to customers' tastes and create seasonal garments. It designed clothing lines to appeal to the fashion sensibilities of its targeted customers. Clothing lines were marketed toward different demographics, and LMI designed clothes to cater to those demographics. For the Chelsea and Violet line, which targeted younger buyers, LMI designed clothes with shorter hemlines, in bolder colors, and in more adventurous styles. The geographical regions where the brands were marketed also dictated how LMI envisioned and designed clothing lines. Designs sold to Belk, a southern department store, were made with brighter colors and lighter fabrics to appeal to the tastes and needs of women in that region. LMI also created clothing lines for

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

[*42] each season and some holidays. Certain fabrics, lengths, cuts, and colors of the garments were determined by the specific season or holiday.

These cosmetic, style, taste, and seasonal guidelines dictated the pre-production process of the garments. How LMI designed and constructed garments changed depending on the style and taste preferences of the women and retail stores that bought these clothes. These preferences directed the fit, trims, length, and fabric of the garments for various clothing lines. Thus, the style and tastes of LMI's customers largely propelled what it designed and produced.

By their very nature, LMI's design and creation activities were largely for these cosmetic purposes. How a garment looked and fit propelled the pre-production process. For example, at trial Mr. Max and his witnesses delved into the patternmakers' and cutters' processes to ensure fabric prints aligned on a garment. A consistent fabric print has a cosmetic, not a functional purpose. Thread choice, stitching, and seams have functional purposes, but as described at trial, LMI's efforts were spent perfecting the aesthetics of these details. Activities undertaken to align pintucks or to determine the proper number of pleats to keep a garment from appearing bulky serve completely cosmetic purposes.

Mr. Max argues that many of LMI's activities relate to the function of garments. Patternmaking certainly contributes to the function of the garment. But

[*43] creating a pattern is also crucial to the aesthetics of the garment. Fit testing allowed LMI to create comfortable garments that were less prone to wardrobe malfunctions. However, fit testing served an aesthetic purpose as well. At fit tests, designers ensured the prototype looked good on the model and adhered to the design and the clothing line's concept. The fit test thus served a dual purpose of ensuring proper function and maintaining the designer's aesthetic vision. And Mr. Max provided no evidence to differentiate the costs associated with the aesthetic versus the functional aspects of patternmaking or fit testing.

Most clothing design is inherently style driven. The function of all pants is essentially the same: to stay up and cover the wearer from the waist to somewhere below the knee. Every other consideration when buying pants is one of cosmetics. Material, length, and fit are all personal style and taste preferences. Whether a woman wants a skinny or wide leg is dictated by how she wants to look, the image she wants to convey, and how much comfort she is willing to part with for the first two considerations. If the function of the pants was the predominant concern, there would be very little need to design them.

It is clear, then, that many of LMI's activities were not for a qualified purpose, and Mr. Max does not clear the hurdle of element three of the process of experimentation test.

[*44] LMI also did not establish that it followed a process of experimentation. A process of experimentation is "a process designed to evaluate one or more alternatives to achieve a result" when the taxpayer is uncertain at the beginning of its research activities of the capability or method of achieving the result or its appropriate design.[39] Uncertainty in the process of experimentation "is essentially the same uncertainty as is required by the section 174 test."[40] We previously concluded that LMI did not face uncertainty under the section 174 test. LMI, thus, did not face uncertainty for the purpose of the process of experimentation test.

To conduct a process of experimentation, a taxpayer must also use hard sciences to achieve a business' goal. The regulations state that the "process of experimentation must fundamentally rely on the principles of the physical or biological sciences, engineering, or computer science."[41] As discussed in the previous section, LMI did not fundamentally rely on science or engineering in its pre-production process.

The process of experimentation additionally requires taxpayers to use a formalized scientific method to address uncertainties. When Congress added the

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

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

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

[*45] process of experimentation test to section 41, it did so to emphasize the technological framework of research and development. Before the process of experimentation requirement, Congress believed the section 41 credit had "been applied too broadly in practice."[42]

> [C]osts of developing a new or improved business component are not eligible for the credit if the method of reaching the desired objective (the new or improved product characteristics) is readily discernible and applicable as of the beginning of the research activities, so that true experimentation in the scientific or laboratory sense would not have to be undertaken to develop, test, and choose among viable alternatives. * * * [43]

Taking steps to improve a business component does not necessarily constitute a process of experimentation. To be a true process of experimentation, the project must use the scientific method.[44] This means "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."[45] Therefore, a taxpayer may use a

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[42]S. Rept. No. 99-313, supra at 694, 1986-3 C.B. (Vol. 3) at 694.

[43]S. Rept. No. 99-313, supra at 696, 1986-3 C.B. (Vol. 3) at 696.

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

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

[*46] "systematic trial and error methodology" during experimentation.[46] But, "[i]t is not sufficient that the taxpayer use a method of simple trial and error to validate that a process or product change meets the taxpayer's needs."[47]

LMI did not employ a process akin to the scientific method to address issues. We acknowledge that LMI's pre-production process required care and diligence to create garments. But regardless of how thorough LMI's process was, it was not "true experimentation in the scientific or laboratory sense." This process must be rooted in the hard sciences. And LMI did not employ "high technology activities" or hard sciences.

While LMI implemented a nine-step process to create garments, each garment that passed through these steps was not an experiment. Rather, the steps were a thorough integration of a creative development process. If a designer sketched a dress, the team understood that they could create the dress, even if they did not initially know the final measurements, elastic heft, or trims of the dress. Discerning the proper number and size of pleats for a dress takes time and skill, but it is not a high technology activity and not part of a process of experimentation. Therefore, LMI did not use a process of experimentation when creating garments.

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

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

[*47] Finally, LMI did not satisfy the first element of the process of experimentation test because it did not prove that substantially all the garments underwent a process of experimentation. To meet the "substantially all" requirement, at least 80% of the taxpayer's research activities for each business component, measured on a cost or other reasonable basis, must constitute a process of experimentation for a qualified purpose.[48] Many of LMI's activities were not for a qualified purpose because they related to style, taste, and seasonal design factors. Even nondisqualified activities did not undergo a process of experimentation. Therefore, we cannot find that 80% of LMI's activities were part of a process of experimentation.

VII. The Business Component Test

The business component test requires that research undertaken to discover information must be intended to be used to develop "a new or improved business component of the taxpayer."[49] A business component is "any product, process, computer software, technique, formula, or invention which is * * * held for sale,

[48]Union Carbide Corp. & Subs. v. Commissioner, 97 T.C.M. (CCH) at 1255; Sec. 1.41-4(a)(6), Income Tax Regs.

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

[*48] lease, or license, or * * * used by the taxpayer in * * * [its] trade or business."[50] Because Mr. Max did not satisfy any of the previous tests, we need not address this final test.

Because LMI's design efforts did not constitute qualified research, expenses incurred in the design of the clothing it sold are not eligible for a credit for increasing research activities. Accordingly,

Decision will be entered for respondent.

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