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The Research Tax Credit and the Substantially-All Test

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A recent United States Tax Court decision raises a high bar for taxpayers claiming federal income tax credits for research expenses. The case turned on whether the taxpayer proved that "substantially all" of its research activities constituted elements of a process of experimentation that it conducted for technological purposes. The court decided that the taxpayer failed the substantially-all test. The burden of proof placed on the taxpayer in this and other recent research credit cases is arguably inconsistent with the statute and Congress's intent to incentivize research activities in the United States. At a minimum, it requires diligent documentation of the facts and careful presentation of arguments to the Tax Court. The case is not yet appealable, although an eventual appeal is possible.

The taxpayer in *Little Sandy Coal Co. v. Commissioner*, T.C. Memo. 2021-15 (February 11, 2021) was a shipbuilder. It contracted with customers to design, fabricate, and deliver a tanker barge and a floating dry dock. The tanker barge required redesign of an existing product design, and the floating dry dock required development of an entirely new product design.

To claim federal income credits for research activities, a taxpayer must prove that it conducted "qualified research." Research is qualified if it satisfies a four-part test. Part one requires proof that, at the outset of the research project, the proposed product design is technologically uncertain. Part two requires a showing that the taxpayer undertook its research activities for the purpose of discovering technological information to eliminate the technological uncertainties. Part three asks the taxpayer to prove that it intends to use any technological information that it discovers to develop or improve the product design.

Part four of the test requires that "substantially all" of the research activities constitute elements of a process of experimentation related to the function, performance, reliability, or quality of its product. In *Little Sandy Coal,* the taxpayer and the Commissioner disagreed on the nature of research activities that constituted elements of a process of experimentation. A taxpayer may perform research activities, and the research activities may, in fact, develop or improve the function, performance, reliability, or quality of a product, but the research activities do not count toward the substantially-all test unless the research activities constitute elements of a process of experimentation.

The "elements" of the experimental process generally are (i) identification of the technological uncertainty encountered to develop or improve the product, (ii) identification of one or more design alternatives intended to eliminate the technological uncertainty, (iii) identification of a process, for example, modeling, to evaluate design alternatives, and (iv) conduct of the evaluative process. The research activities to perform these experimental elements must be quantified and measured to determine if "substantially all" the research activities were conducted to develop or improve the function, performance, reliability, or quality of the product. Treas. Reg. §1.41-4(a)(5). A taxpayer may use cost or other reasonable basis to measure its research activities. If 80% or more of the cost, for example, of a project's research activities constitute elements of a process of experimentation conducted to develop or improve a product's function, performance, reliability, or quality, then the taxpayer passes the substantially-all test. Treas. Reg. §1.41-4(a)(6). The proof issue that the *Little Sandy Coal* taxpayer confronted was not that its research activities were for other than developing or improving function, performance, reliability, or quality of its product. Instead, the taxpayer's proof failed because the taxpayer did not prove that its research activities constituted elements of a process of experimentation even though the taxpayer's research activities achieved their design objectives.

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Tanker Barge: The tanker barge contract required the taxpayer to design a stern notch used for pushing the barge and a towing bridle for pulling the barge. The taxpayer performed the design activities, fabricated the vessel, tested it, and delivered it to its customers. To prove that substantially all its research activities constituted elements of an experimental process, the taxpayer argued that all its research activities related to "novel" design features, which necessarily exceeded 80%. The court said that the reference to novelty had no probative value because novel design did not necessarily require performance of an experimental process. The taxpayer cannot be faulted for using the term "novel," because the federal district court in *Trinity Industries, Inc. v. Commissioner*, 691 F. Supp. 2d 688 (N. D. Tex. 2010), another research credit case involving design of vessels, used the term approvingly. Nonetheless, a taxpayer disputing denial of research credits is well advised to argue, especially in Tax Court, not novelty of design, but rather uncertainty of design, and support the argument with documentation clearly focused on the existence of the uncertainty.

The taxpayer's alternative argument to prove its satisfaction of the substantially-all test was that more than 80% of the time spent on the research activities for the tanker barge constituted elements of a process of experimentation. The taxpayer included the time of employees who fabricated the tanker barge on the theory that following fabrication, the taxpayer tested the newly designed components to evaluate their design. The court rejected inclusion of the activities of these employees in the numerator of a fraction determining whether 80% or more of the research activities constituted elements of an experimental process. The court arguably based its decision on the wrong regulatory provision. The court relied not on the definition of the elements of a process of experimentation in Treas. Reg. §1.41-4(a)(5), which was the regulatory provision in issue, but instead on Treas. Reg. §1.41-2(c)(2), -(c)(3), which defined expenses that a taxpayer takes into account when the taxpayer is found to have performed qualified research.

The same criticism applies to the court's refusal to treat the work of draftsmen and supervisors as research activities constituting elements of a process of experimentation. The court found that draftsmen who recorded specifications of design alternatives from which fabrication of components were modeled did not perform research activities because their work was not "technological." Similarly, the court found that employees who supervised other employees who directly performed research activities did not themselves "directly" perform research activities. The draftsmen and supervisors arguably performed activities related to the set-up and performance of the experiment, which constituted elements of an experimental process. The court again relied on the wrong regulatory provision, Treas. Reg. §1.41-2(c)(2), -(c)(3), and not on the relevant provision, Treas. Reg. §1.41-4(a)(5).

The court also rejected the taxpayer's argument that testing of the tanker barge in its fully fabricated form should be treated as experimental research activity. The taxpayer reasoned that the tanker was an integrated product, so that the entire product, in its fabricated form, had to be evaluated. Unconvinced, the court replied that the taxpayer neither proved that the entire design of the tanker barge, including all its components, had to be evaluated using a process of experimentation, nor did the taxpayer prove that design of the novel elements required testing of the entire vessel.

The court's analysis rejecting evaluation of the design of the entire tanker barge as an element of a process of experimentation is surprising. A product may have thousands of components. The court is requiring a taxpayer to identify specific components, the final design of which is still uncertain at the time of testing the entire product, and to identify specific components, the final design of which is already certain at the time of testing the entire product. The court would treat as research activities constituting elements of an experimental process only the testing of the components having uncertain design. Where the court then takes this rule to allocate the measure of research activities between the two categories of components is unclear and perhaps not thought through. Moreover, the court's

requirement may be profoundly unrealistic and not administrable.

The court also rejected the material cost incurred to fabricate the tanker barge as a cost of performing an element of the experimental process. Because, in the court's view, only human beings perform activities, only amounts paid to researchers are considered. The regulatory language calls for a determination of the "taxpayer's research activities, measured by cost or other consistently applied reasonable basis." If the researcher needs materials to fabricate an experimental model so that the researcher can test it, the material cost would seem to be part of the "taxpayer's research activities, measured by cost."

Floating Dry Dock: The taxpayer's claim for research credits for its design of the floating dry dock met the same fate as for the tanker barge. The taxpayer believed that its design of an entirely new vessel conclusively proved that substantially all its research activities constituted an experimental process, but the court refused to equate novelty of the vessel with necessity of an experimental process. The court based its decision on the same analysis that it performed for the tanker barge: The taxpayer simply did not prove, using cost or any other measure, that at least 80% of the cost of its research activities constituted elements of a process of experimentation.

A troubling feature of *Little Sandy Coal* is the court's acknowledgment that some of the taxpayer's research activities constituted elements of a process of experimentation to develop or improve its products. Yet, because the court found that the taxpayer did not carry its burden of proof, all the tax credits were disallowed.

We will continue to monitor and report on these developments. Please contact the authors or your Miller Canfield attorney to discuss this matter further.