Docket: 2019-1422(IT)I

BETWEEN:

JEC DISTRIBUTORS INC.,

Appellant,

and

HIS MAJESTY THE KING,

Respondent.

Appeal heard on November 24 and December 7, 2022,
at Toronto, Ontario

Before: The Honourable Justice David E. Graham

Appearances:

Agent for the Appellant:	Garry Siskos
Counsel for the Respondent:	Chen Yu Zhang Iris Kingston

JUDGMENT

The appeal of the reassessment of the Appellant's taxation year ending September 30, 2016 is dismissed.

Signed at Ottawa, Canada, this 28th day of December 2022.

"David E. Graham"

Graham J.

Citation: 2022 TCC 170
Date: 20221228
Docket: 2019-1422(IT)I

BETWEEN:

JEC DISTRIBUTORS INC.,

Appellant,

and

HIS MAJESTY THE KING,

Respondent.

REASONS FOR JUDGMENT

Graham J.

[1] The Appellant is a manufacturer and distributor of products for the auto industry. It primarily focuses on welding products and technology. The Appellant is what is known as a Tier 2 manufacturer.

[2] When the Appellant filed its tax return for its taxation year ending September 30, 2016, it claimed scientific research and experimental development expenditures of $91,537 in respect of three different projects. The Minister of National Revenue denied that claim and the Appellant has appealed.

A. Testimony

[3] Three of the Appellant's employees testified: Joe Ruggiero, Paul Lichaa, and Bill Dodge. I found each of them to be credible witnesses. They provided very helpful descriptions of the Appellant's work and the work involved in the projects in question.

[4] I also heard the testimony and cross-examination of Jason Sousa from the Canada Revenue Agency. I found him to be a credible witness but his evidence was of little assistance to me.

B. **The Test**

[5] The test for determining whether an expenditure qualifies as scientific research and experimental development was set out by Justice Bowman (as he then was) in the case of *Northwest Hydraulic Consultants Ltd. v. The Queen*.[1] Justice Bowman set out five tests all of which must be met.

[6] The first test is whether there was technological risk or uncertainty which could not be removed by routine engineering or standard procedures. As the parties have agreed that this is the only test in issue in the appeal, I will not review the other tests.

[7] The Appellant relies on the decision of this Court in *Les Abeillies Service de Conditionnement Inc. v. The Queen*.[2] It argues that that decision suggested that the first test from *Northwest Hydraulic* was simply one way of determining whether there was technological advancement. In *R&D Pro-Innovation Inc. v. The Queen*,[3] the Federal Court of Appeal essentially confined *Abeillies* to its facts and confirmed that the test is the test set out in *Northwest Hydraulic*. Accordingly, I will apply the test from *Northwest Hydraulic*.

[8] There are three projects in issue. Each of them relates to the Appellant's resistance welding products. I will apply the test to each of the three projects individually.

C. **Project 1**

[9] The first project was called the "Data Link Flow Monitor". The Appellant's witnesses explained that the Appellant's welding guns have two welding tips that close over the metal to be welded like a jaw.

[10] During the welding process, the tips become very hot. Water is run through the guns to help cool the tips. It is important that the water is the appropriate temperature and that it flows at an appropriate rate. If the water becomes too warm or stops flowing properly, the welds will not work properly or the tips will fuse to the metal they are welding and be pulled off the guns. In either case, the Appellant's

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1 98 DTC 1839 (TCC).
2 2014 TCC 313.
3 2016 FCA 152.

customers will have to shut down their manufacturing lines which will cost the customers time and money.

[11] The purpose of Project 1 was to develop a system of sensors that could be applied to each welding gun to monitor the flow and temperature of the water to that gun.

[12] A welding cell is an area on a manufacturing line containing one or more welding guns. Existing temperature and flow systems measured the water flowing to the entire welding cell. The Appellant believed that a system that monitored each gun individually would allow its customers to pinpoint which gun in the welding cell was causing a problem and thus reduce the amount of shut down time.

[13] To gather data from each gun, the Appellant also needed to find a way to connect each welding gun's temperature and flow monitors to the customers' manufacturing computer systems, preferably using Ethernet connections. This presented challenges because different customers operated different systems.

[14] Finally, the Appellant believed that, if it could gather enough data from the welding guns, it could develop algorithms that would help to predict when a problem was going to arise. This would allow the Appellant's customers to anticipate problems and possibly fix them before they happened.

[15] The witnesses explained that the Appellant tested a number of different sensors to monitor flow and temperature. It kept changing the technologies until it found something that it thought would work not only in the lab but also on the manufacturing line.

[16] After encountering problems with standard flow monitoring technology, the Appellant asked a company with expertise in flow monitoring to develop a custom solution for them. However, it had problems connecting those monitors to the customer's systems because it could not get access to the relevant proprietary software.

[17] Ultimately, the biggest problem for the Appellant was that there was a lot of electrical noise on the manufacturing line and it interfered with the sensors. This electrical noise is well known to be an issue with resistance welding.

[18] The Appellant also found that the sensors could not withstand the dirt and contamination present in a welding cell. Finally, there were challenges with

communication protocols. The Appellant had problems finding a way of sending so many different signals to and from the welding cell at the same time without slowing down the other communications that need to happen on the line.

[19] To date the Appellant has been unable to overcome any of the above problems.

[20] As set out above, I must consider whether Project 1 had technological risk or uncertainty which could not be removed by routine engineering or standard procedures. I am not satisfied that it did.

[21] I am satisfied that the Appellant itself could not remove the technological risks and uncertainties of the project through routine engineering or standard procedures. It applied existing temperature and flow sensors made by others. When those did not work, it hired others to try to develop new products. It attempted to connect the guns using existing local area network technology. Those solutions did not work.

[22] However, it is not enough for the Appellant to prove that it could not remove the risks and uncertainties through routine engineering or standard procedures. The test is an objective test, not a subjective test. The Appellant must show that the risks could not be overcome by routine engineering or standard procedures generally accessible to competent professionals in the field. The Appellant did not do so.

[23] The Appellant's expertise is in welding technology. I have no way of knowing, for example, whether an electrical engineer or even a skilled electrician could have proposed a routine solution to prevent the electric noise from reaching the sensors. Similarly, I have no way of knowing whether a computer engineer or a technician with networking expertise could have employed standard networking procedures to connect the sensors to the Appellant's customers' networks.

[24] Based on all of the foregoing, I find that Project 1 does not meet the first test.

[25] I note that, as the Appellant never proceeded to the stage of attempting to develop algorithms, I have not considered whether that part of Project 1 would have met the first test.

D. **Project 2**

[26] The second project was called the "Anti-Fouling Chip Collector Improvement". The Appellant's welding tips are made of copper. The tips

experience wear and tear in the welding process and, after a period of time, they become deformed and need to be resurfaced.

[27] The resurfacing occurs in a machine called a dressing system. The dressing system operates like a double-bladed pencil sharpener. It resurfaces a tip and brings it back to its original geometry. As this happens, small sharp shavings of copper fall off the tip. These shavings are called chips. The chips land on the welding cell floor or end up on the welding gun or in other machinery. Not surprisingly, this contamination has the potential to cause problems on the manufacturing line.

[28] The Appellant wanted to develop a way of reliably collecting chips. Some types of existing technology used an air nozzle to blow the chips off the dresser into some type of funnel that directed them into a pan or tray. This technology was not reliable. Many chips escaped. Another existing technology involved a moulded plastic unit that could be applied over the dresser to collect the chips. These units tended to clog and had been largely rejected by the industry.

[29] The Appellant wanted to improve on the blowing technology. It developed a system that blew air across the dresser from one side while also creating a vacuum on the other side. This system sucked the blown chips towards the vacuum and into a collection bin. The system was very successful in gathering the chips.

[30] The Appellant also designed a collection bin with rounded corners that it thought would be less likely to clog. To keep costs low, the Appellant originally tried bins made using 3D printers. While the rounded corners worked, the 3D printing itself created ridges in the bins. Those ridges clogged with chips. The Appellant also found that the 3D printed bins shattered if subjected to any impact. This made them impractical in a manufacturing environment.

[31] The Appellant next tried bins made with machined aluminum parts. These bins worked well for collecting the chips but were too big and heavy and thus interfered with the robots.

[32] Again, I am not satisfied that Project 2 had technological risk or uncertainty which could not be removed by routine engineering or standard procedures.

[33] The Appellant solved the problem of moving the chips into a bin using existing airflow and vacuum technology. I find that the Appellant applied routine engineering or standard procedures to solve this challenge. It applied existing

vacuum technology and knowledge to solve the problem of reliably moving the chips. It was a new use for the technology, but it was still existing technology.

[34] The Appellant improved on existing bins by making rounded corners. This too appears to be routine engineering.

[35] The roadblock that the Appellant faced came from the size and weight of the bin that it developed. Again, it is not enough for the Appellant to prove that it could not remove the risks and uncertainties through routine engineering or standard procedures. I have no evidence to indicate that routine engineering or standard procedures could not have solved the problem. I do not know whether a person knowledgeable about materials would not have suggested a routine material that would make strong, light bins.

[36] Based on all of the foregoing, I find that Project 2 does not meet the first test.

E. **Project 4**

[37] The third project (referred to as Project 4 by the parties) was called the "Method to Prevent Sealer Buildup on Dressing Blades".

[38] There are some very sticky adhesives and sealants that different robots in the welding cells apply. During the welding process, some of those adhesives and sealants may get on the welding tips. If that happens, when the tips are reformed in the dressing system, the adhesives and sealants get stuck to the chip dressing blades. This causes the chip dresser to become clogged which means it cannot properly dress the tips. That, in turn, means that tips cannot make good welds.

[39] The Appellant hoped to solve this problem by applying an anti-adhesive to the blades. The Appellant needed an anti-adhesive that would not cause problems on other parts of the manufacturing line if it got on the product being manufactured. For example, it could not use a product that would later prevent paint from properly bonding to the part that was being welded.

[40] The Appellant tried to solve this problem using an existing anti-adhesive product that was already used in another type of welding. The Appellant first applied the anti-adhesive directly onto dressing system blades. However, the Appellant found that the product wore off after only a few uses.

[41] The Appellant then purchased an atomizer that would turn the anti-adhesive into a fine mist that the Appellant could spray near the blades. At first, the Appellant had difficulty controlling the flow of the mist. Too much was coming out of the atomizer and it was contaminating other surfaces.

[42] The Appellant found a meter that allowed it to adjust the atomizer's flow rate. The meter made the flow so low that the spray was almost invisible. The Appellant found that this system was entirely successful in solving the adhesive problem.

[43] However, the Appellant ran into a health and safety problem. Customers who liked the product were unwilling to purchase it because of the costs of ensuring that there would be no potentially adverse health effects on employees from the airborne spray.

[44] Again, I am not satisfied that Project 4 had technological risk or uncertainty which could not be removed by routine engineering or standard procedures.

[45] The Appellant applied what appears to be routine engineering or standard procedures. It used an existing anti-adhesive applied through an existing atomizer with an existing meter. It was a new use for the technology, but it was still existing technology. This project does not qualify.

F. **Conclusion**

[46] Based on all the foregoing, the appeal is dismissed.

Signed at Ottawa, Canada, this 28th day of December 2022.

"David E. Graham"

Graham J.

CITATION:	2022 TCC 170
COURT FILE NO.:	2019-1422(IT)I
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PLACE OF HEARING:	Toronto, Ontario
DATE OF HEARING:	November 24 and December 7, 2022
REASONS FOR JUDGMENT BY:	The Honourable Justice David E. Graham
DATE OF JUDGMENT:	December 28, 2022

APPEARANCES:

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